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Full particulars on application.

THE VINEYARD AND NURSERIES,

GARSTON, LIVERPOOL.

IRELAND AND THOMSON'S CATALOGUE of Select VEGETABLE and FLOWER SEEDS has now been Posted to all their Customers, and if not duly received, please inform them, and another Copy will be sent post-free.—81, Princes Street, Edinburgh.

LILIUMS.—WILLIAM DENMAN offers fine Consignments of auratums, lancifolium, album, and rubrum, Kraetzeri, Harrisi, &c. Also many thousands Spiræa japonica, Hydrangea paniculata grandiflora. Price per 100 or 1000 on application.—7, Catherine Street, Covent Garden, W.C.

FOR DISPOSAL, a good SEED, FLOWER, and FRUIT BUSINESS. Satisfactory reasons. Books shown

SEEDSMAN, 41, Wellington Street, Strand, W.C.

ONION SEED.—In answer to many inquiries respecting Onion Seed, the crop this year was a failure, but we have in stock several sacks of White Globe, grown from large selected bulbs, crop 1887, grows 89 per cent. First-class samples. Also small quantity of Brown Globe. There are no truer or better stocks in England. For price apply MALDEN AND SON, The Square, Biggleswade.

Fruit Trees.

50,000 PLUMS and DAMSONS, all fine-grown trees. For price apply to

FLETCHER BROS., Ottershaw Nurseries, Chertsey, Surrey.

CHOICE GERMAN FLOWER and VEGETABLE SEEDS.

CATALNGUES free on application.

FRED. ROEMER, Seed Grower, Quedlinburg, Germany.

The Best Winter and Spring

CABBAGE is "CHOU DE BURGHLEY;" the best SAVOY is "UNIVERSAL SAVOY;" the best BROCCOLI is "LATE WHITE VICTORIA." All honoured with First-class Royal Certificates from the Royal Horticultural Society of London. Prices and Particulars

R. GILBERT, High Park, Stamford.

Lilium auratum.

HURST AND SON have received direct from Japan, a large consignment of the above in excellent condition, and will quote low prices on application.

Seed Warehouse, 152, Houndsditch, London, E.

EUONYMUS (Green).—50,000, all nice bushy well-grown Specimens, 9 to 36 inches, £1 to £10 per 100.

J. J. CLARK,

Goldstone Farm, Brighton.

ROBERT NEAL, The Nurseries, Trinity Road, Wandsworth, begs to offer, in extra quality, the following:—

SEAKALE, for Forcing, 8s. per 100, 75s. per 1000.
" for Planting, 5s. per 100, 40s. per 1000.
RHUBARB, for Forcing, 50s. per 100.
RASPBERRIES (Fastolf), 6s. per 100, 50s. per 1000.
VICTORIA PLUMS, Standards, 75s. per 100.
DAMSON (Farleigh), Standards, 75s. per 100.
PEACHES, Dwarf-trained, 18s. to 24s. per dozen.
ELDERS, Golden, 2 to 4 feet, extra fine, 20s. to 30s. per 100.
WILLOWS, Weeping, 8 to 11 feet, 6s. to 12s. per dozen.

PRIMULA OBCONICA (crop 1888) for Present Sowing, per packet, 6d. and 1s. Large Trade packets, 2s. 6d., 5s., 10s. 6d., and 21s. each. Primrose, Old Double Crimson Pompadour: see coloured plate in the *Garden*, Oct., 1888, and also Hartland's "Year Book" of Seeds for 1889. Magnificent plants, 15s. per dozen, 1s. 6d. each. Helianthus plenus, new double quilled or Hartland's "Soleil d'Or," a new plant to English gardens, the flowers very double, more orange in tone than yellow, and quilled after the manner of a Cactus-Dahlia. As a hardy, herbacious, perpetual blooming plant has few equals. Strong plants for March delivery, 2s. 6d. each, post-free. See Hartland's "Year Book" of Rare Seeds for 1889. Post-free, 7½d; gratis to intending customers.

W. BAYLOR HARTLAND, Seedsman, F.R.H.S., Cork.

CARNATION "GLOIRE DE NANCY."—We are sending out for the fourth season our true strain of this the grandest White Carnation in cultivation, quite hardy, and for pot culture for cut bloom it has no equal. Robust and free bloomer. £1 per 100, 11s. for 50, 6s. for 25, good rooted layers. We have a fine stock of GARDENIAS, the best sorts in cultivation, from 1s. to 40s. each, Cash with Order.

E COLLINS AND SONS, Cumberland Park Nursery, Willesden Junction.

FOREST TREES.—Alder, 2 to 2½ feet, 16s. per 1000; Ash, 1½ to 2 feet, 12s. per 1000; 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 20s. per 1000; Beech, 1½ to 2 feet, 15s. per 1000; 2 to 2½ feet, 18s. per 1000; 2½ to 3½ feet, 22s. per 1000. Spanish Chestnut, 1½ to 2½ feet, 20s. per 1000; Bourtree, 2 feet, 25s. per 1000; Elm, 3 to 4 feet, 18s. per 1000; 4 to 5 feet, 25s. per 1000. English Elm, 4 to 5 feet, 40s. per 1000. Larch, 1½ to 2 feet, 16s. per 1000; 4 to 5 feet, 28s. per 1000. Scotch Fir, 1½ to 2 feet, 12s. per 1000; 2 to 2½ feet, 16s. per 1000; 3 feet, 20s. per 1000. Spruce Fir, 1 to 1½ feet, 10s. per 1000; 1½ to 2 feet, 12s. per 1000; 2 to 2½ feet, 16s. per 1000. Silver Fir, 10 to 15 inches, 18s. per 1000; 1 to 1½ foot, 20s. per 1000. Pinus austriaca, 1 to 1½ foot, 15s. per 1000; 1½ to 2 feet, 18s. per 1000. Sloe or Blackthorn, 2 to 3 feet, 20s. per 1000; Sycamore, 1 to 1½ foot, 12s. per 1000; 2 to 2½ feet, 16s. per 1000; 6 to 7 feet, 6s. per 100.

GARLIES MITCHELL, Nurseryman, Stranraer.

STRAWBERRY PLANTS, in small pots. Splendid stuff of all best kinds, and true to name. Price List on application.

FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey.

Palms, Healthy, in Quantity.

WICETON, Putney, S.W., has a very fine Stock of the above to offer in all sizes; also a few fine extra large fruiting PEACH TREES, &c.

129 and 130, Flower Market Covent Garden, W.C.

100 Herbaceous and Alpine Plants for 25s.

RICHARD SMITH AND CO.'S Selection as above contains a most interesting and valuable assortment of beautiful and Hardy Plants for the Border or Rockwork, which produce flowers and render the garden attractive all through the year. Descriptive CATALOGUE post-free for 6 stamps.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.

VEGETABLE and AGRICULTURAL SEEDS.

H. AND F. SHARPE are now prepared to give SPECIAL QUOTATIONS for all the best kinds of VEGETABLE and FIELD SEEDS grown this season from carefully selected stocks. The quality is very good, and the prices will be found advantageous to purchaser.

Seed Growing Establishment, Wisbech.

CHRYSANTHEMUMS to and from all parts of the Globe. By far the best collection of new and old varieties in commerce. Descriptive Catalogue with Cultural Directions by E. Molyneux and C. Orchard. Acknowledged in Europe and America as the best Descriptive Catalogue. Price 6d.; free to customers. Awarded 3 Medals and 20 First-class Certificates. I never exhibit for prizes in competition with Gardeners or Amateurs. Open to purchase new varieties of merit.—R. OWEN, F.N.C.S., Floral Nursery, Maidenhead.

WHOLESALE SEED CATALOGUE for 1889.—We have now published our Catalogue of Vegetable and Flower Seeds, containing also all the best Novelties of the season. May be had on application. Any of our customers not having received one by post will oblige by letting us know, when another shall at once be posted.

WATKINS AND SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, London, W.C.; Seed and Trial Grounds, Feltham and Twickenham, Middlesex.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE'S Special Priced LIST of SEED POTATOS has been sent out. It comprises all the finest varieties in cultivation, including several novelties. The quality is very fine, and the prices will be found extremely low.

Seed Growing Establishment Wisbech.

TREES and SHRUBS suitable for Towns and Smoky Districts. CATALOGUE free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.

NUTTING AND SONS' Wholesale CATALOGUE of Garden and Flower Seeds for 1889 has been posted to all their Customers. If not duly received please inform them, and another shall be sent.

Seed Warehouses, 106, Southwark Street, London, E.C.

CHRYSANTHEMUMS.—600 best sorts, true to name, strong Cuttings now ready, 1s. 6d. per doz., 10s. per 100. Many of the best Prizes and Silver Cups are taken by my customers. For price of new sorts, see Catalogue (2 stamps), of WM. ETHERINGTON, Chrysanthemum Grower, Swanscombe, Kent.

To those about to Plant.

A DESCRIPTIVE CATALOGUE, comprising fine Transplanted Fruit Trees, Roses, Hardy Climbers, Rhododendrons, Conifers, Ornamental and Flowering Trees and Shrubs, Forest Trees, &c., in large varieties and quantities, adapted to all soils and climates. Sent free on application to

GEO. JACKMAN AND SON, Woking Nursery, Surrey.

ROBERT NEAL, The Nurseries, Trinity Road, Wandsworth, S.W., begs to call the attention of Gentlemen and others Planting, to his large and varied stock of FOREST and ORNAMENTAL TREES, also FRUIT TREES, SHRUBS, ROSES, and CLIMBING PLANTS, &c., which are in fine condition for transplanting, and being grown near London, are especially adapted for Town and Suburban Planting. Also extra-fine SEAKALE, and RHUBARB for Forcing. All goods delivered free by own vans within a radius of 6 miles. CATALOGUES free on application, and a personal inspection of the stock solicited.

To the Trade.

H. AND F. SHARPE'S Wholesale CATALOGUE of VEGETABLE SEEDS for 1889 has been forwarded to their customers. If those who have not received it will kindly inform them another one shall be sent.

Seed Growing Establishment, Wisbech.

TO BE SOLD CHEAP, about 8000 nice stools of RHUBARB, fit for Forcing, the remaining Stock of the late Mr. Martin. For particulars, &c., apply to

T. YOUNG,
New Villas, Flodden Rord, Camberwell, S.E.

Palms, Foliage Plants, Heaths, &c.

FRANCIS R. KINGHORN will be pleased to forward LIST of above with low prices. Leading decorative PALMS in all sizes, great quantities, and in finest health.

Richmond, Surrey; and 191 and 192, Flower Market, Covent Garden, W.C.

LARGE SHRUBS and CONIFERÆ.—Aucuba japonica, 1½ to 2 feet, 30s. per 100; do., 2 to 2½ feet, 40s. per 100. Berberis aquifolia, 1½ to 2 feet, 12s. per 100; Box tree, 1½ to 2 feet, 12s. per 100; 2 to 3 feet, 20s. per 100. Cotoneaster Simonsii, 3 to 3½ feet, 10s. per 100; Deutzia crenata, flore-pleno, strong, 4s. per dozen; Escallonia macrantha (pots), strong, 24s. per 100; Grislinia littoralis, 1½ to 2 feet, 35s. per 100; Honeysuckle (strong), 8s. per 100; Irish Ivy, 4 feet, 6s. per 100; Laurel, common, 1½ foot, 6s. per 100; 2 feet, 10s. per 100; 3 to 4 feet, 16s. per 100. Colchic Laurel, 1 to 1½ foot, 12s. per 100; 2 to 2½ feet, 16s. per 100; 3 to 3½ feet, bushy, 20s. per 100. Portugal Laurel, 1 to 1½ foot, 16s. per 100; 1½ to 2 feet, 20s. per 100. Rhododendron ponticum, 1 to 1½ foot, 22s. per 100; 1½ to 2 feet, 30s. per 100; 2 to 2½ feet, 35s. per 100; 3 feet, 50s. per 100; 4 to 4½ feet, bushy, 80s. per 100. Abies Douglasii, 3 to 4 feet, 35s. per 100; 4 to 5 feet, 50s. per 100; do., 6 feet, 70s. per 100. Araucaria imbricata, 2 to 2½ feet, 30s. per dozen; 3 to 3½ feet, 48s. per dozen; 3 to 4 feet, 60s. per dozen. Cupressus Lawsoniana, 2½ feet, 20s. per 100; 3 to 4 feet, 40s. per 100. C. stricta, 2 to 2½ feet, 40s. per 100; 5 to 6 feet, extra fine, 18s. per dozen. C. erecta viridis, 1½ to 2 feet, 25s. per 100; do., 2 to 2½ feet, 35s. per 100. Picea Nordmanniana, 1½ to 2 feet, 30s. per 100; do., 2 to 2½ feet, extra, 40s. per 100. Retinospora plumosa, 18 inches, 25s. per 100; 1½ to 2 feet, 30s. per 100; 2½ feet, extra, 40s. per 100. R. squarrosa, 1½ foot, bushy, 30s. per 100; Thuia Lobbii, 1½ to 2 feet, 12s. per 100; 2 to 3 feet, 24s. per 100; 4 feet, 50s. per 100; 6 feet, 18s. per dozen. Thuiopsis borealis, 2½ to 3 feet, 8s. per dozen; T. dolobrata, 1 foot, 30s. per 100; 1½ to 2 feet, 12s. per dozen; 2½ to 3 feet (fine), 30s. per dozen.

GARLIES MITCHELL, Nurseryman, Stranraer.

TREES and SHRUBS for Game-covers and Underwood. Intending planters should send for CATALOGUE, free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ANDRE LEROY'S Nurseries at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition at Paris, 1878.

Orders must be addressed to Messrs. WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

ROSES! ROSES!! ROSES!!!—The best and cheapest in the World. 40 choice Perpetuals for 21s. Purchaser's selection from 400 best varieties. CATALOGUES free on application. Ten acres of Roses, 100,000 grand plants to select from. Plant now.

JAMES WALTERS, Rose Grower, Exeter.

THE EARLIEST POTATO.

SHARPE'S VICTOR.

6d. per Pound.

Ready for lifting in eight or ten weeks after planting.

4 lbs. delivered free.

CHARLES SHARPE & CO.,
SLEAFORD.

CATALOGUES POST-FREE.

Beautiful Spring Flowers obtained by planting

BARR'S BEAUTIFUL DAFFODILS

in Shrubbery Borders, Woods, Meadows, &c.

BEAUTIFUL MIXTURE, 21s. per 1000, 5000 for 84s.

For massing in Borders, Naturalising in Woods, &c.

BARR'S Beautiful Blue CHIONODOXA LUCILIÆ, C. SARDENSIS, SCILLA BIFOLIA, and ELWES' GIANT SNOWDROP, in mixture, 25s. per 1000; or 5000 for £5 5s.

BARR & SON, 12 and 13, King Street,
COVENT GARDEN, W.C.

CANNELL & SONS



Mrs. O'REILLY, *Colamber, Rathowen, October* 16, 1888:—"I wish to say that having tested most of the seeds supplied in England and Ireland for years, I found your supply more generous, the yield better and more certain than the others, and have this year decided on getting all the garden seeds from you."

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2s. 6d. each; Beauty of Worcester, a magnificent purple, excellent for bedding, recently sent out by us, reduced price 2s. 6d. each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PLANTING SEASON.

HARDILY-GROWN
FOREST, FRUIT,
& ALL OTHER
TREES & PLANTS,
Evergreens, Roses, &c.

NURSERIES 400 ACRES.

Largest & Finest Stocks in Europe.

INSPECTION EARNESTLY INVITED.

PRICED CATALOGUES GRATIS & POST FREE.
ESTIMATES & ALL PARTICULARS ON APPLICATION.

DICKSONS
(LIMITED),
The Nurseries,
CHESTER.

Address for Letters & Telegrams— Dicksons Chester.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE IS HEREBY GIVEN that the ANNUAL GENERAL MEETING of the Members of this Institution will be held at "Simpson's," 101, Strand, W.C., on WEDNESDAY, 16th inst., for the purpose of receiving the Report of the Committee and the Accounts of the Institution for the present year, and Electing Officers for the ensuing year, and also for the Election of Nine Pensioners.

The Chair will be taken at 3 o'Clock precisely, and the Ballot for Nine Pensioners will Close at 5 o'Clock precisely.

By order, EDWD. ROGER CUTLER, Sec.

50, Parliament Street, London.—Jan. 1, 1889.

P.S.—The Voting Papers have all been delivered, any Subscriber not having received one, is requested to communicate with the Secretary.

THE GARDENERS' ORPHAN FUND.

DONATIONS and SUBSCRIPTIONS

WILL BE THANKFULLY RECEIVED BY

A. F. BARRON, Hon. Sec.,

Royal Horticultural Society's Gardens,
Chiswick, London, W.

DICKSON'S IMPROVED MUSHROOM SPAWN, most superior, now reduced to 5s. per bushel of 14 cakes. Circular with Cultural Notes and List of Testimonials post-free on application.

DICKSONS (*Limited*), The Royal Seed Warehouse, CHESTER.

BEGONIA SEED and TUBERS.—BOX'S varieties are the best, as testified by all purchasers. Both quality and quantity. SEED from latest novelties of Singles, mixed colours, small packets, 6d.; larger packets, 1s. and 2s. 6d. Collections, 4 separate colours, 1s. 6d.; 8 ditto, 2s. 6d. Of Doubles, small packets, 10d.; larger packets, 1s. 6d., 2s. 6d., and 5s. Collections, 4 separate colours, 1s. 6d.; 8 ditto, including white and yellow, 2s. 6d.; double orange, very extra, 2s. 6d. and 5s. per packet. TUBERS, unnamed Singles, to colour superior to named sorts, 12 or more distinct colours, for pots, per dozen, 9s., 12s., 18s., and 24s. per dozen; for bedding, 40s. and 50s. per 100; mixed colours, 28s. per 100. Unnamed Doubles, very superior, 6 or more colours, per dozen, 24s., 36s., 48s.; mixed colours, 15s.; choice, to name, from 24s. All post-free. Full LIST on application.

JOHN R. BOX (for 10 years J. Laing's sole Partner), Seedsman and Begonia Grower, Croydon.

IF YOU CANNOT GET FRUIT TREES TRUE TO NAME,
Write to GEORGE BUNYARD AND CO.

IF YOU WANT ANY CHOICE SORTS that your Local Firms cannot Supply,
Write to GEORGE BUNYARD AND CO.

FOR FRUIT TREES by the Dozen, Hundred, or Thousand,
Write to GEORGE BUNYARD AND CO.

SEND INTO KENT, and get the FINEST TREES—No Starvelings, No Blight—at
GEORGE BUNYARD AND CO'S.

ILLUSTRATED CATALOGUE OF FRUIT TREES, 800 Kinds, Six Stamps.
SKELETON LIST—Names and Prices—also all Outdoor Stock, Gratis.
ROSE LIST, CONIFER and SHRUB LISTS, Free.
One Hundred Acres Nursery. Liberal terms.

GEORGE BUNYARD AND CO.,
POMOLOGISTS and GENERAL NURSERYMEN,

MAIDSTONE, KENT.

SMALL SHRUBS and CONIFERÆ.—Araucaria imbricata, 10 to 12 inches, 50s. per 100; Abies Douglasii, 1-yr., 4s. per 100; A. orientalis, 1-yr., 30s. per 1000; American Arbor-vitæ, 1½ foot, 60s. per 1000; Sweet Bay, 1-yr., 30s. per 1000; Scarlet Chestnut, 1-yr., 6s. per 100; Cupressus macrocarpa, 1-yr., 30s. per 1000; Lawsoni, 18 inches, 60s. per 1000; erecta viridis, 4 inches, 30s. per 1000; do., 1 foot, 12s. per 100; stricta, 1 to 1½ foot, 12s. per 100; Allumii, 1 foot, 14s. per 100; Cedrus atlantica, 1-yr., 1-yr. transplanted, 10s. per 100; C. Deodara, 1-yr., 7s. per 100; Escallonia macrantha, pots, 14s. per 100; Laurel (common), 2-yr., 20s. per 1000; Portugal Laurel, 1-yr. transplanted, 20s. per 1000; Colchic Laurel, 1-yr., 25s. per 1000; Laurel rotundifolia, 1-yr., 25s. per 1000; Limes, 1-yr. transplanted, 16s. per 1000; Pinus Cembra, 3-yr., extra, 16s. per 100; P. insignis, 1-yr., 3s. 6d. per 100; P. excelsa, 1-yr., 4s. per 100; P. Nordmanniana, 1-yr., 30s. per 1000; P. Jeffreyii, 1-yr., 8s. per 100; P. Mastersiana, 1-yr., 10s. per 100; P. Strobus, 2-yr., 2s. per 100; Oak, Evergreen, 1-yr., 30s. per 1000; Scarlet Oak, 1-yr., 3s. per 100; Privet ovalifolium, 8 to 9 inches, 10s. per 1000; Retinospora plumosa, 10 to 12 inches, 10s. per 100; R. squarrosa, 8 to 9 inches, 8s. per 100; do., 1 foot, 12s. per 100. Thuia Lobbii, 8 to 10 inches, 30s. per 1000; do., 15 inches, 45s. per 1000; T. dolobrata, 8 to 9 inches, 80s. per 1000; do., 10 inches, fine, 12s. per 100. T. Ellwangeriana, 6 to 8 inches, 6s. per 100; Veronica Traversii, 6 to 8 inches, fine, 6s. per 100; English Yew, 1-yr., 1-yr. transplanted, 20s. per 1000; do., 8 to 10 inches, 7s. per 100. Irish Yew, 6 to 9 inches, 10s. per 100.

GARLIES MITCHELL, Nurseryman, Stranraer.

Trade Price Current 1889.
PETER LAWSON AND SON (Limited), WHOLESALE SEED GROWERS and MERCHANTS, Edinburgh, have posted their ANNUAL CATALOGUE to their Customers; if not delivered, another copy will be posted upon application.

SEAKALE for Forcing.—Superior, selected, large Crowns, 80s. per 1000; under 500, 9s. per 100. A remittance with all orders.—ALFRED ATWOOD, Grower, 14, Lavender Terrace, Battersea, S.W.

A LARGE LIST of CYPRIPEDIUM disposable for the Trade, is sent free on demand by ED. PYNAERT, Nurseryman, Ghent, Belgium.

ASPARAGUS and SEAKALE. Extra strong roots for immediate forcing. DICKSONS Nurseries, CHESTER. (*Limited.*)



THE

"LORILLARD" TOMATO

Is by far the earliest, most prolific, finest flavoured, and handsomest variety ever seen. Without a rival for forcing.

For Sale by the leading London Seedsmen.

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FRUITING VINES & FIGS.

Thoroughly ripened Canes and Trees, to fruit this year.
PARTICULARS ON APPLICATION.
DICKSONS Royal Nurseries, CHESTER. (*Limited*).

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CHARLES SHARPE & CO. STANDARD SEEDS SLEAFORD

CHARLES SHARPE AND CO.,

Seed Growers and Merchants, SLEAFORD,

Will have much pleasure in sending on application, special quotations for their home-saved stocks of Farm and Garden Seeds.

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Sharpe's Seeds

December, 1888.

NOW READY,
CARTERS'
REGISTERED TRADE MARK
TESTED

SEEDS

Send One Shilling for a Catalogue, and deduct this sum when ordering,

ROYAL SEEDSMEN BY SEALED WARRANTS.
237 238 **HIGH HOLBORN, LONDON.**

THE
DANIELS
IS
THE COMING POTATO.

A cross between the White Elephant and the Magnum Bonum, having the unexcelled qualities of both. Ready to lift same time as the White Elephant. An immense Cropper and of splendid Table Quality.
Price, per Peck, 3s. 6d., per Bush., 12s. 6d.

THE DANIELS WON THE SILVER CUP.

From Mr. W. BROCKWELL, *Chatham, February 13th.*

"I forward you my list with cheque which I had the honour of winning with your Seed Potatos, also winning the **SILVER CUP** with your **DANIELS POTATO**, and I don't know, in all my experience, that I ever grew a better kind. They are an excellent cropper and a good keeper, and I can't put them out of their place for cooking purposes."

From the "GARDENERS' CHRONICLE," *September 1st.*

"**THE DANIELS POTATO.**—A few weeks ago you kindly made mention of a Potato called **DANIELS**, and how well the variety looked when growing, giving great promise. We had a small local exhibition here the other week, and I was tempted to dig up my **DANIELS.** They exceeded my expectations. I staged two dishes, and was awarded two Prizes, in a strong competition with different varieties in both classes. A friend of mine was present when I took up two roots to be weighed, on one of which we found twenty-one Potatos, and twenty on the other. On weighing the best root it was found to turn the scale at 6 lb., all good, sound tubers, clean and free from scab. After exhibiting at Keighley they were put to the test of being cooked for the table, and were found to be all that could be desired. F. G. EPWORTH."

A CHANCE OF SEED ALWAYS PAYS.

Before ordering your supply send for
DANIELS' ILLUSTRATED POTATO CATALOGUE
Containing valuable hints on Potato Culture.
Nearly 200 Sorts in stock, including Latest Novelties,
Gratis and Post-free to all Applicants.

DANIELS BROS.
SEED GROWERS, NORWICH.

LIME and OTHER TREES.
The following Trees must be sold, to clear the ground:—
330 LIMES, 10 to 13 feet.
625 HORSE CHESTNUTS, 12 to 14 feet.
380 WALNUTS, 6 to 12, to 18 feet.
110 SYCAMORES, 6 to 10 feet.
Offers for a part or the whole to be sent to the MANAGER, Calcot Gardens, Reading, Berks.

ROSES—20 ACRES,

Well-rooted, many-shooted, truly named, of matured vigorous growth, and of the best kinds. Bushes, R. S. & Co.'s selection, 8s. per dozen; 60s. per 100. Packing and carriage free for cash with order.

These World-famed ROSES cannot fail to give the greatest satisfaction.

ROSES IN POTS;

all the best New and Old English and Foreign sorts, from 18s. to 36s. per dozen.

Descriptive List free on application.

RICHARD SMITH & CO.,

Nurserymen and Seed Merchants,
WORCESTER.

REG? TRADE MARK
Sharpe's Seeds

BEFORE ORDERING SEEDS
WRITE FOR
CHARLES SHARPE & CO.'S
DESCRIPTIVE CATALOGUE
For 1889,
Post-free on application.

CHARLES SHARPE & CO.,

Seed Growers and Merchants, SLEAFORD.

SPECIAL CULTURE OF
FRUIT TREES AND ROSES.

A Large and Select Stock is now offered for Sale.
The Illustrated and Descriptive Catalogue of Fruits post-free.
The Descriptive Catalogue of Roses post-free.

THOMAS RIVERS & SON,
THE NURSERIES, SAWBRIDGEWORTH, HERTS.


FRUIT TREES

For Market and Private Growers.
ORNAMENTAL TREES, SHRUBS, ETC.
Descriptive CATALOGUES Post-free.
J. C. HEAL & SONS
Crawley, Sussex.



CUTBUSH'S MILL-TRACK MUSHROOM SPAWN.—Too well known to require description. Price, 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by parcel post, 1s.

None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.

WM. CUTBUSH AND SON (Limited), Nurserymen and Seed Merchants, Highgate Nurseries, N.

GARDEN AND FLOWER SEEDS.

THOMAS METHVEN & SONS

(By Royal Warrant Nurserymen and Seedsmen to the Queen)

BEG TO INTIMATE THAT THEIR DESCRIPTIVE PRICED

CATALOGUE OF GARDEN AND FLOWER SEEDS,

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THE

Gardeners' Chronicle.

SATURDAY, JANUARY 5, 1889.

NOVELTIES OF 1888.

THE past season has been more than usually prolific in new acquisitions for our gardens; but we must remember that many of what are termed novelties by the grower are old friends to the botanist, and that the term new for brevity's sake is often used when speaking of plants which have been extremely rare in gardens, but which now appear sufficiently within the range of the pocket of the ordinary purchaser. It is often justly applied to a plant which has been introduced some time, but which from want of proper knowledge of its culture did not appear of sufficient merit to warrant general recognition, although when properly grown it proves of excellent merit. During the past year the products of the importer have been plentiful and good, and the hybridist has been not a whit behind in bringing forth good things. In both branches the Orchids decidedly have the advantage, and with them we will begin a hurried review of the past year's acquisitions and reintroductions.

ORCHIDS.

Probably the one which has made the best mark is the noble and distinct Cypripedium bellatulum of Messrs. Hugh Low & Co., which gives us a good example of a grand novelty well imported, for it came over in such good condition that the plants immediately produced their flowers, and it was in consequence one of the most certificated plants of the season, Messrs. Low, Cypher, Laing, and Williams receiving certificates for it, either at the Royal Horticultural Society or the Royal Botanic Society or both; Messrs. Low also received the same honours for C. b. roseum, and produced another beauty, C. b. egregium.

Messrs. Hugh Low & Co. among their new Orchids number other good introductions, foremost of which is Vanda Amesiana, a most

distinct and floriferous species, with rose and crimson flowers, equal in beauty to and something like Phalænopsis Lowii. Their Phalænopsis gloriosa, too, is distinct, and one of the purest of white Phalænopsis. Their Cattleya Mossiæ claptoniensis and C. M. Frithii, are the two best Mossiæs. Cynosorchis Lowii and C. elegans are two pretty warm-house terrestrials, and their novelties in Angræcums, among which may be noted Aëranthus Curnowianus and A. ophioplectron are worthy introductions.

The great firm of James Veitch & Sons, from their rich store of hybrids under Mr. John Seden's care, have during the past year exhibited some splendid novelties, which those who know the collection only take as a sample of the rich and lovely plants with which our gardens are to be embellished by this indefatigable firm. Among other fine hybrids which have appeared at Chelsea, and some of which have been certificated to other exhibitors, may be mentioned that interesting hybrid Angnloa, A. intermedia, and the first hybrid Epidendrum, E. O'Brienianum, a cross between E. radicans and E. evectum, which obtained a First-class Certificate at the Royal Horticultural Society, and a Floral Certificate at the Royal Botanic Society. Its flowers are decidedly novel and of a pleasing shade of reddish-cerise. Messrs. Veitch also flowered from their seedlings last year two very lovely hybrid Phalænopsis, P. John Seden× (Luddemanniana and amabilis), and P. F. L. Ames×, both superb garden plants; and Messrs. Veitch also with Mr. Crook, gardener to Mr. Baxter, received a First-class Certificate for Oncidium Mantinii, a presumed natural hybrid from O. Forbesii.

Baron H. Schroder, in consequence of his tact in always selecting the best plants of the best things, generally supplies the Floral Committees with things of special merit, and the list of First-class Certificates awarded to plants brought by Mr. Ballantine, the Baron's gardener tells of many of the best merited awards of the season; among them appear Lælia Amesiana ×, L. porphyrites, L. Victoriæ ×, L. anceps Schroderæ, Aërides Fieldingii alba, Cattleya Wagneri superba, the finest white Cattleya; C. Harrisii ×, and C. Lamberhurst hybrid ×, the last-named a most extraordinary cross between C. citrina and C. intermedia, raised by the late Dr. Harris, whose seedlings have now passed into the hands of Messrs. J. Veitch & Sons.

Sir Trevor Lawrence, the President of the Royal Horticultural Society, has, as usual, brought into notice some of the best plants of the season, perhaps the most extraordinary of which is the Lissochilus gigantea of the Linden firm; Odontoglossum pardalinum, a beautiful spotted Odontoglot, and O. excellens chrysomelanum; the two hybrid Dendrobium Findlayanum, of which D. chrysodiscus × is the best known; and some superb hybrid Calanthes are among the novelties of the Burford collection, while Spathoglottis aurea (Kimballiana) has been exceptionally well flowered there.

In the Woodlands collection of R. H. Measures, Esq., two magnificent white Orchids were recorded during 1888, both Sanderian productions, viz., L. Perrinii alba, the first really pure white Perrinii, and Cattleya Gaskelliana alba; the splendid collection of Lælia elegans, too, of the Turnerii type, have produced several grand novelties.

Among other things in Orchids of extra merit must be mentioned the superb Lælia purpurata Whitei (White, Ardarroch), L. p. Lowii, the darkest purpurata; L. p. Archduchess, and L. p. nobilior (both from Mr. Cypher); Saccolabium cœleste and Oncidium undulatum, both before exhibited, but last year certificated to Mr. B. S. Williams, the former at the Royal Horticultural Society, and the latter at the Royal Botanic Society; as also were the pretty white Oncidium ornithorhynchum album, the novel Odontoglossum Rossii "F. L. Ames;" and Botanical Certificate for the neat scarlet Lælia monophylla; Lælia Tresederiana ×, a grand cross between Lælia crispa and Cattleya Loddigesii, flowered by Heath of Cheltenham; and Cypripedium insigne Tresederianum, which blossomed so well with M. Aug. Van Geert. at Ghent last year. Nor must we forget that real acquisition, Lælia Gouldiana, which flowered so finely with Messrs. Siebrecht & Wadley in New York, the land of our American cousins, who have taken up Orchid culture with that intelligent zest with which they enter on most things when once they start. The plant, which is now in flower in many collections here, has flowers equal to those of L. furpuracea, habit of L. autumnalis, and proves both good and distinct.

Mr. William Bull has to be credited with the introduction of five really good novelties in Orchids, viz., Esmeralda bella, Lælia anceps radians, Cattleya Percivaliana bella, Cypripedium chelseiense ×, and C Tautzianum lepidum, all of which are described in the columns of the *Gardeners' Chronicle*; and on May 8, 1888, at the Royal Horticultural Society, J. T. Poë, of Riverston, Nenagh, by unanimous vote, was accorded a First-class Certificate for Odontoglossum Pescatorei, Poë's variety, a most lovely purple-spotted flower of great size and beauty.

And now we come to the productions of that energetic firm, F. Sander & Co., who draw their stock from the uttermost parts of the earth, and again spread it to all quarters where civilisation and gardening run concurrent. The two last productions of this firm, both dedicated to American growers, must be considered their best of the year, viz,, Lælia anceps Amesiana (*Gardeners' Chronicle*, p. 660, Dec. 8, 1888), a charming plant, with white flowers, exquisitely marked with rose on the petals, rich orange-purple, and an indescribably rich violet-crimson or maroon on the lip; and Cypripedium Elliottianum, a wonderful species in the way of the new C. Rothschildianum of the same firm. Their Lælia Eyermaniana also is a neat novelty, of which more will be known next season; and for chaste beauty Cypripedium insigne Sanderæ, with its clear yellow flowers, will never be crowded out of a class which has already become very numerous. Messrs. Sander during the past year have also received certificates for Angræcum Sanderianum, Odontoglossum Coradinei hemileucum, O. cordatum splendens, Phalænopsis sumatrana Kimballiana, Lycaste Skinneri Imperator, and the fine white Cœlogyne Sanderiana received the same recognition when exhibited by Baron Ferdinand de Rothschild at the Royal Horticultural Society on July 10. Cypripedium Godseffianum ×, between C. Boxalli and C. hirsutissimum, is a fine variety, as its parentage indicates, and many other hybrid Cypripediums have been recorded last year, all of which would be better noticed after their value as florists' flowers has been determined, for the indiscriminate crossing of this genus in all directions will soon render weeding out desirable.

During 1888 it is pleasant to record that that curious, neat, and pretty plant, Schomburgkia Thomsoniana, which caused so much attention at the great Liverpool Show, has been received in fair quantity by the Liverpool Horticultural Company, and that the importation of Cattleya aurea of Shuttleworth, Carder & Co., yielded a fine new form, C. a. marmorata, which flowered in Lord Rothschild's gardens.

The subject of acquisitions in Orchids in 1888 must not be dismissed without noting the revival of the Cape terrestrials induced by the flowering of the fine Disa racemosa, and some of the blue-flowered species, D. lacera—a taste which the new work on *The Orchids of the Cape Peninsula*, by Mr. Harry Bolus, and recently alluded to in our columns, will much assist in developing.

For the best of the other plant novelties of 1888 a note will appear in the next issue, but it will doubtless be of assistance to give here references to some of the new Orchids above alluded to, which have been illustrated in the *Gardeners' Chronicle*.:—

Cypripedium bellatulum, June 16, p. 747.
„ Elliottianum, Nov. 10, p. 556.
Disa lacera var. multifida, December 8, p. 664.
„ racemosa, May 12. p. 593.
Epidendrum O'Brienianum, with parents, June 23, p. 771.
Lælia Eyermaniana, July 28, p. 109.
„ elegans Nyleptha, (Supplement), Feb. 11.
Lissochilus giganteus, May 19, p. 617.
Phalænopsis ×, F. L. Ames, Feb. 18, p. 201.
„ ×, John Seden, March 17, p. 332.
Spathoglottis aurea, July 28, p. 93.

(To be continued.)

SOBRALIA XANTHOLEUCA.

THIS is one of the most beautiful of a genus rendered familiar to us by the fine old Sobralia macrantha, which is the only species well known in gardens generally, and whose fine rosy-crimson Cattleya-like flowers, borne on tall, reed-like stems, have made such a fine feature in so many Orchid groups at flower shows.

The rare species which we here illustrate (fig. 1), from a photograph kindly sent by T. Harcourt Powell, Esq., Drinkstone Park, Bury St. Edmunds—the possessor of the plant, has clear yellow flowers, but the growth of the plant is so much like that of the old Sobralia macrantha, above alluded to, that more than one of the few plants of it in cultivation were purchased unflowered as belonging to that species. A fine specimen flowered some years ago in the collection of the late Robert Hanbury, Esq., Poles, Ware, and also with Messrs. Jas. Veitch & Son, and a grand plant of it some 3 feet through, annually produces its wealth of golden bloom in Baron Schroder's famed collection at The Dell, Egham.

In the matter of culture all the Sobralias require potting in rough fibrous peat, turfy loam, and sphagnum moss, and keeping in a well-ventilated intermediate-house with plenty of water, while their reed-like stems and until the buds are well formed When the buds begin to expand the flowers are fonnd to last much longer if the plants are removed to a drier and more airy house—a conservatory, greenhouse, or cool fruit-house—and at the same time they are benefited by the change, and need not be returned to the Orchid-house until the growing time comes round again. During flowering, and for some time after, a smaller supply of water should be given, but the plants should not be absolutely dried off. Sobralia rosea, S. Cattleyæ, S. leucoxantha, S. liliastium, and others, are very beautiful plants, but as they are difficult to import they are not common.

NEW OR NOTEWORTHY PLANTS.

PERISTERIA ROSSIANA, *Rchb. f., n. sp.**

THIS is a very distinct Peristeria, a neighbour of Peristeria pendula, that well-known plant that seldom flowers, and which I only saw once in my life in its full development, Baron von Schroder having kindly sent me an inflorescence with more than twenty large flowers. This specimen is kept in the very best state without an atom of moisture. I feel proud to show this ornament of my herbarium to my visitors.

The new Peristeria was received by me on November 17, 1888, from Commandatore H. J, Ross, Castagnolo a Lastra a Signa, between Firenze and

* *Peristeria Rossiana*, n. sp.—Aff. Peristeriæ pendulæ, Hook. trabecula inter lamellais juxta lacinias labelli posticas tenu, humili, medio unidentate, epichilio pandurato carinis geminis extrorsum arcuatis; columna utrinque apice minute apiculata nec processubus triangulo-ligulatis ornatis. Imp exc. H. J. Ross, cui gratissime et obedientissime dicata. *H. G. Rchb. f.*

Pisa, and was most kindly supplemented by a very healthy living plant. The bulb is as long as, and shaped like, a good hen's egg, most obscurely two-edged, shining, green, reminding one of Schweinfurth green. The leaves, which are still young, appear not to be distinct from those of Peristeria pendula. The raceme had five flowers, equal to those of the just-named species. They have the same sepals and petals, only the reddish spots on light ochre ground are confined to their anterior great triangular processes which are so peculiar to Sir William Hooker's Peristeria pendula. I have had great pleasure in dedicating this plant to my indefatigable correspondent, who is decidedly the most gallant pioneer for Orchids in *bella Italia*.

I have no satisfaction at all in adding that there is a fabulous undescribed Peristeria in my herbarium. I received two flowers (no inflorescence) of a totally distinct and most curious Peristeria from an unknown correspondent, who was in such a hurry to despatch his treasure to me that his box contained neither the name nor the address of the sender. Perhaps he thinks me very uncivil for not having answered him. *H. G. Rchb. f.*



Fig. 1.—Sobralia xantholeuca: flowers pale yellow. (see p. 8.)

parts. The lip and the column are the differential parts. The lateral wings of the lip have callous nearly adnate blades inside; these are connected by a very thick strong transverse bar in Peristeria pendula, while the corresponding bar in Peristeria Rossiana is quite thin, much lower, and with a median apiculus. The movable mid-blade of the lip is pandurate, curved at the blunt apex, and it has two strong keels, crescent shaped, each having the concave edge looking outside (one as the crescent, the other as the decrescent moon). The trigonous column has a very obscure apiculus on each side near the fovea, but no indication of those

Cypripedium Crossianum × psittacinum, *n. hyb. Angl.*

This was raised at Messrs. F. Sander & Co.'s from Cypripedium insigne Maulei and C. venustum spectabile. It is very pretty. The flower is like that of the fine Crossii amandum (Amandum), but the leaf is peculiar, and the staminode most distinct.

The large upper sepal is cuneate, elliptical acute, with a broad white border, very broad at the top; and the remaining portions of the inner disc and base are green. The darker nerves have numerous brown blotches on their back, some very distant, others separated by the shortest intervals. Connate sepals oblong triangular, acute, light green, shorter than the lip. Petals greenish-yellow at the very base, light copper-brown elsewhere, covered with numerous fine dark spots on the inferior 2-5ths; the free edge of the lip on each side of the mouth ends in very projecting, acute, recurved horns (on the angles of the pouch), ochre-coloured, light brown around and under the mouth. Staminode fine yellow, with two large angular introse shanks in front, and an evanescent small tooth on the retuse middle. Leaf strong, very glossy, darkest green, without the least trace of those hieroglyphical signs which are so conspicuous in the type and in the fine variety raised by Mr. Bowring and sent by Mr. W. Bull. Cypripedium Crossianum amandum, published under the name amandum. The leaves at hand are very short, 6 inches long, scarcely more than 1 inch broad. *H. G. Rchb. f.*

*

CULTURE OF SOUTH AFRICAN ORCHIDS.

LISSOCHILUS.—These, which in point of beauty have not inaptly been described as the Cattleyas of South Africa, are among the worst cultivated of any plants in our gardens at present—mainly, I think, from a misunderstanding as to their management in times of growth and rest. I refer especially to the chain-tubered underground species, the few with Phaius-like growth like L. Krebsii, being much easier to manage when simply grown in a shady cold house or frame. The turning-point of success with the whole of these South African Orchids, and indeed with all others, consists in so managing them that they accomplish their year's growth in twelve months—no more and no less—and that the temperature, watering, and other matters, should be so arranged that the work of growth or rest of each season should be accomplished without the one encroaching on the other.

The handsomest of the Lissochili come from low levels, where they grow on the banks of rivers or near by, and in some cases down to, the sea-shore, in pure sand. I note that the greater part of the Lissochili imported show among their roots evidence of their having grown among very sandy soil, sometimes resembling sandy vegetable deposit and sometimes very much like road grit, and that there is rarely any trace of fibre about the soil around them. Following up this clue I potted them in fibreless material—sandy peat, sandy decayed leaves, &c.—lightly covering the roots over, and keeping them dry until they showed evidence of growing. I found them succeed far better than they did when I potted them like Disas, and in the same manner as people generally pot them and as often fail. The end of the summer and winter is the growing time, and there is some difference in the time at which the different species start growth, but in all cases it is safe to wait for indication of growth before giving water. When growing the Lissochili do not require watering heavily, and after the growths are finished and approaching rest, exhibited by the turning yellow of the leaves, but very little water, or none at all, should be given, the plants being treated in much the same manner as the scarlet Nerine Fothergilli, before cited as an example for deciduous Cape Orchid culture. From the time the growth commences, and throughout the winter, the Lissochili will thrive well in a temperature of 60° or so, if placed in a good light situation in a house where the air is not heavily charged with moisture, and during the season of rest a shelf in the New Holland house or an airy cold frame suits them admirably.

Examples of the species above alluded to are Lissochilus speciosus, L. arenarius, L. Sandersonii, and with them may be associated Eulophia enseta, E. Dregeana, and others of like growth having underground tubers. Eulophia with some botanists is joined to and placed in precedence to Lissochilus. Above all things it should be considered that a rather dry pure air is necessary to Cape terrestrial Orchids, and in such they keep healthy under many reverses, but in a close moist house their run is short; indeed, they would thrive better with Cacti and other succulents than in the ordinary Orchid-house, but as there is now a decided revival in favour of these beautiful Cape Orchids and bulbs there is no reason why quarters should not be arranged for them by those who take them up.

Disperis, Holothrix, Huttonæa, Bartholina and other of the small growing Cape terrestrials, generally speaking, fare even worse than their grosser brethren in gardens, where so great a hold has fibry peat and sphagnum for Orchids got on the grower's mind, that most things have to take it in some form. These frail and beautiful species prefer rather fibreless material, something like a fine vegetable mould with a good proportion of sand added, just of that quality one would expect to find in the crevices of rocks, or at the base of trees where these things grow, is best for them; and in potting, which should be done carefully just after flowering, the tubers should be placed their own thickness below the surface and the soil but lightly placed on them and allowed to settle as they grow. During the growing time water should be given, as to a Heath or other shrubby plant, and when they die down but little is required. So managed outdoors in summer, and on a shelf in a cold house in winter, I have well flowered some of each of these genera except Huttonæa, which is now in bud (if it prove true) for the first time.

For Habenarias and the stouter rooted species with clustered tubers, loam-fibre, with sand and fine peat added, is the best material for potting; and in the future, when we have gone more thoroughly into the culture of Cape Orchids, I believe that fibry yellow loam and thoroughly decayed leaves and sand will play an important part. *James O'Brien.* [For Satyrium and Disa culture see *Gardeners' Chronicle* for December 15 last, pp. 693, 696. ED.]

FIGS IN THE OPEN AIR IN THE EAST OF ENGLAND.

SOME of the finest flavoured Figs and the most fruitful Fig trees that I have ever met with in the open air have been in East Anglia. The dry and frequently semi-arid climate, and probably also the saline constituents of the atmosphere, seem to suit the Fig. In regard to the latter, it does not seem to be generally known that the Fig is one of the limited number of trees that thrive well by the sea. Only last summer, cool a summer as it was, very good Figs were ripened within touch of the sea-spray on the east coast, alike on standards, walls, and fences.

The chief conditions of success in Fig culture in the open are a dry base, firm soil, and natural treatment. Without a dry bottom success in the open air is almost impossible; and this is the rock upon which not a few of those only or chiefly conversant with the culture of the Fig under glass, split. With abundance of heat at command, the Fig during its growing and fruiting stages may almost be treated as a semi-aquatic. Its rapid growth, and its spreading and copiously perspiring or elaborating leaves, enable it to utilise or dissipate enormous quantities of water; but in the open air there is little or no fire—that is, heat or motive, or water-using power in the grate, so that as the atmosphere is full of moisture, the plant and its workshop or food warehouse gets water-logged. Nor is this all. Any excess of water still further lowers the temperature, chills the activity, and paralyses the functions of life and growth. A dry base means a warm one, and for such a gross-growing plant as the Fig drought and heat are the two essential conditions of healthy growth and full fertility. The next essential is poor calcareous soil. Poverty is the first point, though chalk seems also important. But better, poor sand, hungry gravel, mere brickbats, mortar rubbish, or hard roadway, than root-runs of fat black vegetable mould or brown loam, enriched with further additions of stable-yard or other stimulating manure. These may force Fig shoots like walking-sticks or fishing-rods, but not those firm short branches from 3 to 9 inches long, studded with from three to seven embryo figlets apiece. No; such fruitful form can only be forced home on our Figs in the open air in England under the constant threat of starvation. Like many another amongst us, the Fig in the open air has to lose to win; it loses full meals of food, to be clothed with fertility; and the latter, under this starving *regimen*, may be trusted to reproduce itself. That is, however, if the Fig has its own way, or, in other words, is subjected to natural treatment. The genius has not arisen who could do justice in thrilling poetry or telling prose to the miseries of the Fig tree in the open air in our climate, and the tortures it has been subjected to in our frantic efforts to cram, cut, and coddle it into health and fertility. The first two are correlative, if not absolutely cause and effect. The more freely they were crammed, the more savagely they were cut—and so on, and on for ever. And the coddling also became the more inoperative, as the product of cramming and cutting was tenderness, such as could by no possibility face our cold without covering. And so these threefold processes repeated themselves with cast-iron regularity, the only thing always lacking being edible or luscious Figs. At last aridity of base and sterility of root-run were called in to arrest grossness of growth, and the pruning-knives were left to sleep in their cases. There was so little wood made that it seemed a folly to prune off any. Still the coddling and covering went on, with the result of so weakening the embryo fruit and the wood that the fruit too often dropped, and the wood got hardly hit by the late spring frost, when the covering was at last removed. Finally the coddling system was abandoned, and now that the natural system of producing only sufficient wood for fruit-growing purposes, and seeing to it that such wood is sufficiently matured to bear our ordinary winters with impunity, have been adopted, luscious Figs in the open air in East Anglia, and in other favourable localities in the open air, are almost as common or—as our climate has run of late years—are even more constant than Peaches. *D. T. Fish.*

CULTURAL MEMORANDA.

THE GLOXINIA.

OF this a stock is easily raised from seed, taking the precaution to get a good strain. Sow it in well-crocked shallow pans filled with light sandy mould, made moderately firm before sowing the seed. The latter should be lightly covered with fine mould, watered through a fine rose, covered with a square of glass and a little moss, and then placed in heat. As soon as the seedlings appear the covering must be removed, and the pan, if not already in such a position, should be placed near to the roof-glass, so as to insure sturdy growth. When large enough, prick out into a shallow box or pan filled with a mixture of three parts light sandy loam and one of leaf-mould, at 2 inches apart, water, and return to heat, afterwards potting off singly into 3-inch pots before the plants touch each other, making the soil pretty firm in potting; return once more to a moist warm stove or pit, giving a little water to settle the soil. The plant may also be propagated in summer by inserting the leaves in cutting-pots, watered, and placed in heat.

DOUBLE PETUNIAS.

Cuttings put in now in the usual way, placed in heat and watered, will soon become rooted; they should then be potted off singly into 3-inch pots using the same description of mould as recommended for Gloxinias; afterwards attending to the giving of water at the roots, pinching and tying out the shoots in due time; they will make nice useful flowering plants by next summer. *H. W. Ward.*

BOUGAINVILLEA GLABRA.

When in perfect health, trained to the roof, and densely covered with its rosy or pale mauve bracts o flowers, few plants have a more striking effect than this Brazilian climber. Unlike many other things, its season is not of short duration, but it keeps up a beautiful appearance for several weeks during the summer, if not subjected to too high and moist a temperature; a warm greenhouse is probably most suitable to its culture, although I have often met with specimen plants growing in the stove, and also fairly satisfactorily in a much cooler structure. In pots, too, for exhibition purposes, when trained over a balloon trellis and well flowered, it is always admired. The Bougainvillea thrives admirably in a compost of light fibrous loam, old lime rubble, with a good sprinkling of coarse gritty sand and a few half-inch bones; and it succeeds equally well for a time in a mixture of loam, peat (rough), sand and charcoal; but for borders, on account of its lasting power, I prefer the first mixture. When grown either for covering a back wall or training to the roof it should be planted out in a border about

3 feet wide and 2 feet deep, well made, and thoroughly drained. Previous to filling the border it is desirable that the drainage should be covered over with turves grassy sides downwards, as a safeguard against the drainage becoming choked up with the loose soil. When filling up the border with the compost it should be made firm, which to a considerable extent prevents the plant from making too gross a growth at first, and for a time after putting out the plant careful attention is needful with regard to watering. But as soon as the border has got well filled with roots an abundance of water is requisite, with liquid manure or other stimulants, every third time throughout the growing and flowering season. I incline to think in some cases where this plant fails to produce an abundant crop of flowers it is partly owing to the want of close pruning. We have here an old plant growing on the north side of a house, trained to the roof in an intermediate temperature, and it yearly produces masses of bloom. We always prune very close to the old wood, in a great many instances leaving only one eye, and in the early part of the growing season I make it a rule to rub off many of the young growths. The drying-off system we do not practise to the extreme, keeping the roots in a moderately moist condition throughout the winter about the same as is the case with vines. Young plants are quickly reared from cuttings if taken off when a couple of inches long, and with a small portion of the old wood attached to them. The cuttings should be inserted by the sides of the pot in a light sandy compost, surface-dressed with sand alone, and placed in a striking frame, or in the stove with a bell-glass over them. When rooted they should be at once potted off, and subsequently repotted, whenever necessary, using a lighter soil to that previously recommended for making up of the border—in fact, till the plants have grown to a good size, and in a fit state to be transferred to their permanent position. *H. Markham, Mercworth Castle Gardens, Maidstone.*

IVY FLOWERS.

SOME time since Mr. Archer Briggs obligingly sent us some specimens of Ivy flowers which he had collected near Plymouth, and which presented some curious malformations. These were quite unlike anything we had seen before in the Ivy. Under ordinary circumstances an Ivy flower is made up of five minute sepals, which soon fall off or wither, then comes a corolla of five greenish petals, greatly resembling those of the Vine, followed by an equal number of stamens springing from the base of a thick disc, which overlies the ovary, which latter has a single style, but five compartments, each with a single ovule. The seed consists of an albumen, which has the character known as ruminate—that is to say, folds of the investing membrane are thrust inwards, dividing the albumen into irregular lobes. On the whole, the structure of the Ivy flower is very similar to that of the Vine—a resemblance strengthened by the circumstance that the Ivy, like the Vine, has often unisexual flowers, or if both stamens and pistils be present, they have comparatively little reciprocal action, but the pollen of one flower has to be transferred to the stigma of another, and *vice versâ*, in order that the most complete degree of fertilisation may be effected.

In Mr. Briggs' specimen the disc—that is to say, the upper part of the ovary—formed, not a closed cavity, but a thick fleshy cup, on the margin of which were the anthers recurved over the free edge, the ovules being absent. Through the centre of the cup passed in some cases a short stalk-like process, while in others that stalk or prolongation of the axis bore a ring of five stamens around the base of an imperfect ovary (median prolification). Mr. Henslow, from an examination of the course of the vascular bundles, considers the cup bearing the adventitious stamens to be ovarian in its character. It is indeed very probable that the disc is really a part of the ovary—a point which may be decided by an investigation of the mode of development of the flowers. In any case the occurrence is very singular. The illustration (fig. 2) shows in the upper right hand corner a flower seen from the top, beneath it is a view of a flower from the side. A vertical section of the bud is shown in the upper left-hand corner with the small triangular sepals, the valvate petals, and the stamen-bearing disc, parts which are also shown in the section at the lower part of the cut, as seen in the expanded flower. The adventitious stalk with stamens and imperfect ovary detached from the centre of one of the flowers is also shown to the left in the centre of the cut. *M. T. M.*

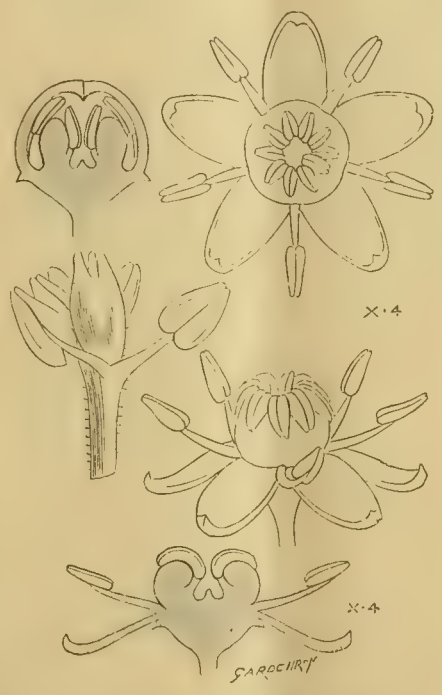


FIG. 2.—MONSTROUS IVY FLOWERS: STAMINODY OF THE PISTIL, PROLIFICATION, ETC. (SEE TEXT.)

ORCHID NOTES AND GLEANINGS.

LYCASTES.

THESE Orchids are amongst the easiest of all to grow, and as none give a better return for the care bestowed on them they are very suitable for beginners in Orchid culture. The conditions under which they thrive may be given in any greenhouse where the temperature does not fall below 48° in winter, and where a moist atmosphere can be maintained in summer. The most recent classification has considerably extended the limits of the genus, so as to include Paphinia and Colax, which, do not prove so amenable to cultivation as Lycastes proper, and which for garden purposes are quite distinct. If the flowers be kept dry they are remarkably lasting, even for Orchids, and this, together with their hardy nature, makes them very valuable for room decoration.

The plants should be grown in pots and a position at the cooler part of an intermediate-house is the best suited for them; they may, however, be also grown in a cool house. Imported pieces do best when potted in fibrous peat and sphagnum alone, but at the second potting, when they are well established, a small proportion of loam fibre may be added. The pots must be drained to at least one-third of their depth, for when the plants are growing they need copious supplies of water. Occasional applications of weak manure-water add vigour and colour to the growths. In winter, of course, the soil should be kept much drier, but it is not well at any time to allow the roots to become quite dry.

Of about a dozen species which I have grown the following are the best:—L. aromatica, a free-flowering kind, well worth growing because of the aromatic fragrance of its flowers, which are produced in June and July. They are of a pretty golden-yellow, the 3-lobed lip being hairy, and marked on the inner side with orange-coloured spots. L. Deppei is an old, although neglected species, which blooms in July and August; its handsome, if rather peculiarly-coloured flowers are 4 inches across. The sepals are green, dotted in transverse lines with brownish purple; the petals are pure white, and the lip is yellow, dotted with crimson. L. Skinneri is too well known to need describing. Its flowers are somewhat stiff in appearance, but for general good qualities few Orchids take a higher place. A single pseudobulb will develop as many as sixteen flowers at once, these averaging 5 inches in diameter. The species is very variable in colour; while in the typical form, the sepals and petals are white tinted with rose, there is a variety (alba) in which they are pure white, and another (nigro-rubra) where they are respectively deep mauve and purple. L. plana is a strong-growing kind, with flowers nearly 4 inches across. The sepals and petals are madder-red, and the petals and lip are white, the latter being dotted with crimson. L. tricolor is a rare species, but it is one of the prettiest. It is not mentioned either in the *Dictionary of Gardening* or in Williams' *Orchid Manual*. It has pseudobulbs about 2 inches high and deep green, lanceolate leaves. As in the other species, the flowers are freely produced from the base of the pseudobulbs. They are 3 inches across, with the sepals of a pale brown, and the smaller petals rose-coloured. The lip is 3-lobed, toothed at the edges, and of a deep rose. The species is a native of Guatemala, and flowers from June to August. *W. B.*

CYPRIPEDIUM MARGARITACEUM.

Under this name M. Franchet describes, in the last number of the *Orchidophile*, a new species from Western China, province of Yun-nan, where it was found by the Abbé Delavay. It is very curious, and we doubt not that if we could get it into cultivation we should have the making of a very fine species. It is reported to grow on trees, and is figured with two spreading, broad, spotted leaves, and a moderate-sized flower of a reddish-violet colour, marked with purple spots. The lip is so singular as to have led M. Franchet to constitute for the plant a new section—§ Trigonopedia. In general shape it is like a boat or canoe, such as the Greenlanders use, convex, and keeled on the lower surface, flat on the upper surface, with a circular mouth, surrounded by a number of folds arranged in a ring; the whole surface of the lip is dotted with little blackish warts. The staminode is described as golden-yellow, cordiform. So remarkable a species will, we trust, not long remain unknown to our Orchid-houses.

CYPRIPEDIUM LEEANUM ×, MASSEREEL'S VARIETY.

This name is given by Messrs. Vervaet & Co. of Ghent to a very fine hybrid raised by them between C. insigne var. Chantini and C. Spicerianum. The flower-stalk is erect, robust, dark black; the bract, almost equalling the ovary in length, is broad, of a fine green colour, spotted with brown spots. The upper sepal is very broad, rounded, snow-white at the upper part, white, striped with reddish-carmine in the middle, olive-green (spotted with sepia-coloured spots) at the base. The lower sepal is straw-yellow [or pale olive], marked with sepia-coloured spots at the base. The petals are slightly bent downwards, very wavy at the upper edge, less so on the lower, margined with olive-green, the disc striped and marked with numerous sepia-brown spots on an olive-green ground. Lip very large like that of Spicerianum, brownish olive, shining, margins fawn-yellow round the mouth. Staminode wax-yellow, wavy, with a projecting green point in the centre. The descrip-

tion above cited is translated from one made by M. Desbois, and the substantial accuracy of which is guaranteed by Messrs. Backhouse. The plant is of robust habit, with deep blackish-green glossy leaves, marked with sepia-brown spots at the base. The plant is a very handsome one, differing from Leeanum superbum in the larger number of spots on the petals, and in the finer lip. The botanical distinctions between this and C. Leeanum×, hort., a hybrid owning the same specific parentage as Massereel's form, seem comparatively trifling, however superior the latter may be as a garden form. M. Desbois proposes to call the plant C. Massereelianum×, but in view of the circumstances just alluded to we trust that M. Desbois will modify the appellation he proposes to give, so as to make it clear that we have do with a form of Leeanum (itself, as we have said, a hybrid), and not with a distinct species. The value of the plant for horticultural purposes would not be one whit lessened by such a course being followed, while much confusion and loss of time would eventually be spared.

THE BULB GARDEN.

LILIUMS.

WHERE these are cultivated in pots it is important that any repotting required be done soon after the flower-stems of last year have completely ripened off, growth being then the least active. If the operation is delayed fresh roots soon begin to be emitted, when it becomes difficult to repot bulbs without injury to the roots. If Liliums in pots are to be well done for several successive years, a rich, fairly heavy, holding soil should be employed, which should be chopped moderately fine, and this should form about three parts of the whole, making up the remaining fourth with sharp sand and peat or thoroughly decayed leaf-mould or manure, if the last-named can be passed through a half-inch sieve; these latter ingredients may be varied in quantity according to the texture of the loam. Avoid poor sandy composts, and the use of strong or green manures, which are best applied afterwards as a top-dressing. In potting place the bulbs about halfway down the pots, but if the pots used are very large—if the crown of the bulb is 6 inches below the surface, it will be sufficient. Although large potsful of bulbs make imposing subjects for the conservatory, yet pots from 6—8 inches are generally of the most use. At the time of planting 2 inches of soil placed over the bulbs will be enough until the new stem has made some little progress, when the soil should be top-dressed with some rich compost, into which a large proportion of mild manure enters. After potting stand the pots on a moist surface, and where frost does not penetrate—an excellent place for them is a bed of dry leaves in a cold frame, or even a place behind a north wall if the pots can be covered with boards or an old light. Newly imported bulbs are best put at first into shallow boxes on a layer of sand, filling in between the bulbs with the same substance, and, if needs be, covering slightly with any material at hand. Stand them in a cool pit safe from frost, look to them frequently, and when it is found that a fair proportion of them has started, pot them off, and rearrange those that are left. When thus treated they are not so liable to rot as if potted at once. Amongst the most useful Lilies for conservatories and for cut blooms are auratum and its varieties macranthum, platyphyllum, virginale, and rubro-vittatum. Then comes the speciosum section, the so-called lancifoliums. There are album, rubrum, roseum, punctatum, a white and a red corymbiflorum, besides several other varieties, and one especially fine is a pure white form called L. Krætzeri. Then there are the longiflorums, including Harrisianum—a group of beautiful white-flowered Lilies. There are also a few others whose cultivation is nearly always carried on indoors, such as the lovely L. neilgherrense, which is only just now flowering; L. nepalense and Wallichianum. These may be treated like the others, only taking care to let them have their proper seasons of growth. *F. Rose.*

PLANTS AND THEIR CULTURE.

TEMPERATURE AND MOISTURE IN STOVES. — IN commencing the Calendar for the New Year, much of the work in this department will at this date be of a routine character. Many plants will now necessarily be at rest, and should be excited as little as possible. The weather being unusually mild for this period of the year, great care should be taken that the temperature in the stove should be kept as low as possible. With the thermometer often registering 50° outside during the past week, it will have been impossible to keep the houses at the minimum point; much less firing will be required. An excessive amount of moisture should be avoided. A high night temperature should be especially guarded against: 60°—65° will be sufficient, allowing 5° more during the day if cloudy and sunless, with an additional rise of a few more degrees during sunshine with a moderate amount of air during the day if the weather permit. Much less water will be required than if the fires were kept going during frosty weather. Watering should be done as early in the day as possible. Syringing and damping down should be done with great care. Many of the large growing Palms will require more water than the smaller and less robust varieties.

Climbing Plants.—No time should be lost this month, before the busy season commences, in cleaning and regulating stove climbers; all insect pests, especially bug and brown and white scale, should be thoroughly eradicated. In small houses dipping is by far the best practice, and a great saving of time is effected where it can be followed out; but in many places it is impossible to do so. Sponging must then be resorted to, with the free use of a good insecticide. Allamandas and Stephanotis having been kept dry for a time, can be cut back, so that the cleaning operation may be much more easily performed. Allamandas planted out should have their borders examined, and, if required to bloom early, these should receive a good watering previous to the plants being started into growth, care being taken to see that they are thoroughly saturated, all loose soil being taken away and a top-dressing of good loam and decayed cow manure—omitting the manure if the plants have not flowered satisfactorily during the past season—being given.

Bulbs and Tubers.—Gloxinias and bulbous-rooted plants at rest should receive attention, and if too dry they should be watered freely; the bulbs should not be allowed to shrivel. A few of the earliest may be started in a mild bottom-heat if early blooms are required; the others placed in their winter quarters till wanted.

The Greenhouse.—In this department damp should be specially guarded against. The collection should, if possible, be separated, Cape Heaths and other hard-wooded plants being placed where they would have a free circulation of air, a sharp watch being kept for mildew, and sulphur applied as soon as it is detected. Very little water will be required during damp, cloudy weather. The temperature at night should not exceed 45°, allowing 10° higher by day; admit air freely during mild weather, but sparingly during frosty weather or during easterly winds.

Calceolarias and Cinerarias need close watching to prevent the spread of mildew and greenfly, which soon disfigure the plants if not arrested. Bouvardias and other like subjects should have a house or pit to themselves and be allowed a temperature of 55° by night, with an extra 7°—10° by day to induce them to open their flowers freely. Any large plants of Camellias that are naked or which are overgrown should now be cut back, and much time will be gained by doing so now, as it will allow the plants to make a strong growth and ripen their wood for another season. Water should be sparingly supplied after the operation, and the plants allowed a little higher temperature to encourage fresh growth.

The Conservatory.—This structure should receive every attention. Primulas, Cinerarias, and Cyclamens, with other plants, should now be furnished in quantity to take the places the Chrysanthemum occupied. A good supply of bulbs should for some time to come be always available with other plants from the forcing-pit, and no difficulty should be experienced from this date in keeping the house well furnished with bloom. It should be rearranged weekly to prevent sameness, and fresh subjects introduced. *G. Wythes, Syon House.*

THE FLOWER GARDEN.

IT is now some years since, that by the request of Editor, I first furnished notes for this department of the *Gardeners' Chronicle*, so that readers of the notes of the former dates need not be surprised—considering the length of time that has elapsed—if the notes now to be made do not coincide with those of that period. Indeed, I may as well say at once that they will not, simply because my ideas have changed—are changing—and that it would be dishonest to write of other than my own practice, and therefore on this alone my notes will be founded. Flower garden is a wide term, and having the Editor's permit for full range, every department of it, with which I may be conversant, shall have attention in its proper season.

Winter Garden.—I do not mean what is mostly known as a winter garden, *i.e.*, a cool house furnished with the same plants all the year round, but a veritable open-air garden, the beds of which are planted with a view to winter effect. It is pleasing to know that many gardens are now so furnished, either wholly or in part, which previously were left quite bare after the removal of the summer bedders. Of course it is too late to think of planting vacant beds after this manner now, and I only call attention to the matter, because of the indications there are that severe frosts are imminent, and plants not quite hardy should have some slight protection. These, in our case, consist of Echeverias, which are protected by placing cocoa fibre over and about the roots of the plants, the light blue colour of the plants and the brown of the fibre really look very well in contrast with each other and, the safety of the plants is assured. New Zealand Flax and Aralia Sieboldii have a thick turf covering of Heather, which does duty in the double form of protection, and is a groundwork for these and other plants; spring flowering plants, such as Wallflowers and Silenes, that in some instances are mixed with the small shrubs, are all mulched with either fine coal-ashes or cocoa-fibre, as much for neatness of effect as for protection.

Small Hardy Shrubs.—There is now such a wealth of variety of small hardy shrubs suitable for replacing tender summer bedders that it is as unnecessary as it is undesirable to risk the destruction of tender plants; and our rule is to leave only such as we can afford to lose. As a matter of course, all hardy plants used in the summer garden are left for the winter, the dwarf Sedums, Cerastiums, Antennaria, and Herniaria, do good service as ground-work plants for the shrubs. By keeping the surrounding walks and turf in trim condition, the appearance of such a garden at this season will bear favourable comparison with that of the summer.

Pruning Shrubs.—Lack of the necessary amount of labour and time are often legitimate reasons for the neglect of this work. But when it is remembered that the work can often be done when, through stress of weather — sharp frosts—other work cannot, the will at such times ought not to hinder. I am aware that there is a notion abroad that it is injurious to prune trees of any kind in frosty weather, and once I was under the influence of such a notion, but practice has killed it; for, having pruned all kinds of trees in the severest weather, the first ill-effects I have yet to behold. I am, therefore, prepared to advise this kind of work to be done at any time. Thousands of Laurels, Hollies, and other evergreen shrubs are ruined through neglect of judicious curtailment of growth from their youth upwards; and coniferous trees, by the taking off or cutting back a lopsided branch that might possibly occupy five minutes of time, would, by its removal, be rendered more beautiful for months, perhaps for years. Apply the same rule to ornamental trees and shrubs generally, and I venture to express the opinion that such reflection will end in the devising of ways and means to, at any rate, prune those trees that are most highly prized. Hedges of all kinds may also be trimmed up at this time, and lately planted hedges that are desired to make speedy progress towards effectiveness should be kept free of weeds by lightly forking over the ground and picking out the weeds, and if a dressing of fine soil can afterwards be afforded the plants will fully appreciate the attention.

General Work.—To look over the general stock of bedding plants for the removal of all decaying matter to prevent damping off of plants, also to take stock of plants, noting such as are scarce for earliest propagation, is necessary at this season. Propagate summer-flowering Chrysanthemums. These were amongst the best of our autumn

flowers last year, and are noted to be used in quantity this year. Violas, Calceolarias, Leucophytons, and Rose cuttings in frames must be well protected from frost, and on mild drying days full exposure to the air should take place. Sow in strong heat seeds of slow growing subtropical plants, such as Wigandias, Solanums, pyracanthus, robustum, and argentum, also Aralia Sieboldi, Arundo conspicua, Melianthus major, and Ferula communis, this last one of the most graceful as it is one of the hardiest and most effective of plants for planting on turf. *W. Wildsmith, Heckfield.*

The Orchid Houses.

Preparatory and Seasonable Work.—With the new year the active work of the grower commences, and it will be a relief to be able to commence the potting of such as may require it, commencing with the Masdevallias in the cold house, but there is no hurry to begin for a week or so, and the earlier part of the month should be devoted to getting ready a good stock of living sphagnum moss, which should be roughly picked over, and stored somewhere outdoors or in a shed where it will not decay, but keep fresh and sweet. A good supply of dry fibry Orchid peat should also be got ready and broken up into large rough lumps, which may again be broken smaller when being used in potting; the peat and sphagnum being kept separate and only mixed together when being used, so that the different proportions of each can be given to each plant as it requires it, and the size of the lumps of peat varied according to the size of the plants under treatment. Sand for epiphytal Orchids was formerly used for mixing with sphagnum and peat, but it soon dropped out of practice, and sphagnum moss, peat, clean crocks and where procurable good charcoal, is all that is necessary. A good stock of clean pots of various sizes should also be got ready. The weather now is variable and the temperatures, especially at night, require carefully regulating. Some days are quite warm, and on such it is a very good plan to place open all the doors of all the Orchid-houses, even if only for five minutes, in the warmest part of the day, as it ensures a much needed thorough change and renewal of the air in the houses. An even temperature and pure air are of the highest importance in Orchid culture and some of our most successful amateurs can trace their success to their liberal admission of air and careful ventilation. The temperatures in the houses during January should be:—Warmest house, 65° to 70° by day, 60° at night; Intermediate-house, 60° to 65° by day, 55° at night; cool-house, 50° to 55° by day, 45½ at night. *James O'Brien.*

Fruits Under Glass.

Peaches.—The trees in the early house will now be swelling their bloom-buds, and it will be advisable not to force too fast at this stage. Maintain a genial moist atmosphere of 50° to 55°, according to the day temperature, higher when it is sunny. I always like to feel a little warmth in the hot-water pipes, but at no time should these be roasting hot. Take care that the border is in the right condition as regards moisture, and if there is the least sign of aphis being present, the house should be fumigated at this stage, so that no more may be needed until the blooming time is over. Give air on all favourable opportunities. Syringe twice daily—morning and afternoon—with tepid water, in dull foggy weather damping the paths instead. Use a large camel-hair pencil to distribute the pollen, taking advantage of sunny days to go over the blooms twice, morning and evening. If this operation be of no service it certainly does no harm. To have a good succession of fruit from the early house I find Waterloo, Alexander, Hale's Early, Royal George, and Violette Hâtive Peaches, Lord Napier and Violette Hâtive Nectarines to be good varieties to plant. These were in bloom with me last season in January, and came into use in the following order:—Waterloo, April 15; Alexander, April 25; Hale's Early, May 1; and Royal George, May 20; Violette Hâtive, the first week in June.

Succession-house.—This may be started now, and all trees late in houses pruned and dressed with Gishurst's Compound. The strong shoots should not be too tightly tied in straining them to get them laid out straight—a small piece of cloth put under the tie will prevent the string cutting into the bark, and canker and other attendant evils being thus avoided. All planting of young trees should be done. In making new borders choose a light rather than a heavy loam; the finest trees and heaviest crops of fruit I ever saw grew in such a border on the bed of a river which had found a new course a hundred yards away. The soil was sandy loam, resting on a bed of gravel not 5 feet above water level; here the trees made beautifully short-jointed wood, the blooms clustering like Holly berries, and the fruit swelling to fine proportions. As a stimulus to root-growth, use crushed bone and lime rubble. Any lifting or root-pruning should be finished at this period, if not already carried out.

See that all the borders of late houses are sufficiently moist, watering them when necessary with chilled water, giving enough to thoroughly moisten the whole, but not enough to wash the goodness out of the soil. A dry border is a fruitful source of bud-dropping, red-spider, and mildew. Do not push the trees too much in hard weather, but keep the temperature at from 40° to 45°, or the wood-buds will start in advance of the flower-buds, with the consequence of deformed buds and prematurely dropping flowers, causing partial set only. Syringe as before advised for the early-house, shutting up with sun-heat to save fuel.

Begin to disbud as soon as the shoots are an inch long, removing a few buds at a time, and going over them once a week in preference to denuding the trees at one operation, thus causing an unwholesome check to growth. Thin all blooms from the underside of the branches. Examine outside borders of Peach-houses, and if any should appear to require water, let it be afforded them, covering up directly afterwards with litter as a protection against frost. I may say in passing, that I can highly recommend the Raymacker Peach for a place in a late house. It is fairly large in size, good in flavour and appearance. *W. Bennett, Rangemore.*

Useful Memoranda.

BOTANIC GARDENS, Etc.,

In the United Kingdom.

Birmingham—Curator, W. B. Latham.
Cambridge—Curator, R. I. Lynch.
Chelsea (London)—Curator, vacant.
Dublin (Glasnevin)—Curator, F. Moore.
,, (Trinity College) — Prof. E. P. Wright; Curator, F. W. Burbidge.
Edinburgh—Director, Prof. J. B. Balfour; Curator, R. Lindsay.
Glasgow—Curator, R. Bullen.
Hull—Curator, (vacant).
Indian Engineering College, Cooper's Hill, Staines.—Professor of Forestry, Dr. Schlich; Professor of Botany, H. Marshall Ward.
Kew—Director, W. T. Thiselton Dyer, C.M.G.; Assistant Director, D. Morris; Curator, G. Nicholson; Keeper of Herbarium, Prof. Oliver; First Assistant, J. G. Baker; Assistants, N. E. Brown, R. A. Rolfe, Dr. Cooke, W. B. Hemsley; *Museums*, J. R. Jackson.
Liverpool—Curator, J. Richardson.
Manchester—Curator, Bruce Findlay.
Natural History Museum, London—Keeper of Botany, W. Carruthers; Assistants, J. Britten, G. Murray, E. Baker, A. Gepp, W. B. Rendle.
Normal School of Science, London—Professor of Botany, Dr. Scott; Agriculture, J. Wrightson.
Oxford—Prof. Dr. Vines; Curator, W. Baker.
Royal Botanic Society, Regent's Park, London.—Superintendent, W. Coomber; Secretary, W. Sowerby.
Royal Horticultural Society, Chiswick—Superintendent, A. F. Barron.
Sheffield—Curator, J. Ewing.

In the Colonies.

BRITISH GUIANA.
Georgetown—Superintendent, G. S. Jenman.

CANADA.
Montreal—Director, Prof. Penhallow.
Nova Scotia—Colonial Botanist, Dr. Lawson.
Ottawa—Dominion Botanist, Prof. MacCoun.

CAPE OF GOOD HOPE.
Cape Town.—Director, Prof. McOwan.
Graham's Town—Curator, E. Tidmarsh.

CEYLON.
Peradeniya—Director, H. Trimen,

HONG-KONG.
Superintendent, C. Ford.

INDIA.
Calcutta—Superintendent, Dr. G. King.
Agri-Horticultural Society of India—Secretary, J. Blechynden.
Bangalore—Superintendent, J. Cameron.
Bombay—Superintendent, G. Sarstenson.
Ganesh Kind—Superintendent, G. W. Woodrow.
Madras Agri-Horticultural Society — Secretary.—J. Steavenson.

NORTH-WEST INDIA.
Director, J. F. Duthie.
Oodeypore—Superintendent, T. Storey.
Ootacamund—Director, M. A. Lawson.
Saharunpore—Superintendent, J. Golam.

MAURITIUS.
Pampelmousses—Director, J. Horne.

NATAL.
Durban—Curator, J. Medley Wood.
Pietermaritzburg—Curator, H. Brice.

NEW SOUTH WALES.
Sydney—Director, Charles Moore.

NEW ZEALAND.
Christchurch—Director, J. B. Armstrong.

QUEENSLAND.
Brisbane Acclimatisation Society — Manager, Wm. Soutter.
Botanic Garden—Curator, A. M. Cowan.

SOUTH AUSTRALIA.
Adelaide—Director, Dr. R. Schomburgk.

STRAITS SETTLEMENTS.
Malacca—Assistant Superintendent, R. Derry.
Penang—Assistant Superintendent, C. Curtis.
Singapore—Director, H. N. Ridley.

TASMANIA.
Hobart Town—Superintendent, C. Abbot.

VICTORIA.
Melbourne—Government Botanist, Baron F. von Mueller; Botanic Garden Director, W. R. Guilfoyle.

WEST AFRICA.
Lagos—Superintendent, J. McNairn.

WEST INDIES.
Dominica—Botanist, Dr. Nicholls.
Jamaica—Director, W. Fawcett.
St. Lucia—Curator, J. Gray.
Trinidad—Superintendent, J. Hart.

BOOKS.

A List of Elementary and Reference Books suitable for Garden Libraries, and useful for Young Gardeners and Amateurs to select from:—

General Subjects.

Beekeeping. By A. Rushbridge. (E. W. Allen.)
,, By W. B. Webster. (Upcott Gill, 170, Strand.)
Cultivated Plants, their Propagation and Improvement. By F. W. Burbidge. (W. Blackwood & Sons.)
Floriculture, Domestic, Window Gardening and Floral Decorations. By F. W. Burbidge. (W. Blackwood & Sons.)
Gardeners' Assistant. By R. Thompson. (Blackie & Son.)
Gardening, Epitome of. Moore and Masters. (Adam Black & Co.)
Theory of Horticulture. See Cassell's Popular Gardening, articles on "Life-History of Plants."

Botanical.

Botany for Beginners. By M. T. Masters, F.R.S. (Bradbury, Agnew & Co.)
British Flora, Handbook of. By G. Bentham, F.R.S. (L. Reeve & Co.)
Elementary Course of Botany, Henfrey. Edited by M. T. Masters, F.R.S., and A. W. Bennett. 4th ed. (Van Voorst).
Lessons in Elementary Botany. By Oliver. (Macmillan.)
Plant-Life. By M. T. Masters, F.R.S. (Bradbury, Agnew, & Co.)
Students' Flora of the British Isles. By Sir J. D. Hooker. (Macmillan.)

COTTAGE-AND AMATEUR-GARDENING.

Amateur Gardeners' Calendar, Loudon. (F. Warne & Co.)
Cottage Gardening. By E. Hobday. (Macmillan.)
Garden Calendar. By T. W. Saunders. (Adams & Co.)
Paxton's Calendar. (41, Wellington Street, Strand.)

DICTIONARIES, &c.

Alpine Flowers. By W. Robinson. (Murray.)
Cassell's Popular Gardening. 4 vols. (Cassell & Co.)
Chrysanthemums. National Society's Catalogue. (E. W. Allen, Ave Maria Lane.)
Cottage Gardener's Dictionary. (Bell & Sons.)
Dictionary of English Plant Names. By J. Britten and R. Holland. (Trübner & Co.)
Dictionary of Gardening. Edited by G. Nicholson. (Upcot Gill, 170, Strand.) 4 vols.
Encyclopædia of Plants. By Loudon. (Longmans.)
English Flower Garden. By W. Robinson. (Murray.)
Treasury of Botany. Edited by J. Lindley and T. Moore. 2 vols. (Longmans.)

DISEASES.

Diseases of Field and Garden Crops. By W. G Smith. (London: Macmillan & Co.)

FORESTRY, TREES, &c.

Arboriculture. By J. Grigor. (Edinburgh: Edmonston & Douglas.)
Conifers, Manual of. (J. Veitch & Sons, Chelsea.)
Grafting and Budding. By C. Baltet. (London: *Garden* Office, 37, Southampton Street.)
Forestry, Practice of. By C. Y. Michie. (Blackwood & Sons.)
Hardy Trees, Shrubs, and Herbaceous Plants, Handbook of. By Decaisne, Naudin, and Hemsley. (Longman, Green & Co.)
Larch, The. By C. Y. Michie. (Blackwood & Sons.)
The Forester. By J. Brown. (Edinburgh and London: W. Blackwood & Sons.)
Tree Pruning. Des Cars. (Rider & Sons.)
Willow, Cultivation of. By Scaling. (Kent & Co.)

FRUIT.

British Apples, Apple Congress Report. (Macmillan.)
Fruit Book, the Hardy. 2 vols. By D. T. Fish. (London: *Bazaar* Office, 170, Strand.)
Fruit Culture under Glass, Handybook of. By D. Thompson. (Edinburgh and London: W. Black wood & Sons.)
Fruit Farming for Profit. (G. Bunyard, Maidstone.)
Fruit Garden, the Miniature. By T. Rivers. (Longmans.)
Fruit Manual. By Dr. R. Hogg. (171, Fleet Street.)
Fruit Trees, Culture of. By M. De Breuil. Lockwood & Co.)
Orchard House. By T. Rivers. (Longmans.)
Pear Congress Report. (Royal Horticultural Society.) (Macmillan.)
Pine-apple, Culture of the. By D. Thomson. (W. Blackwood & Sons.)
Strawberries. By W. Hinds. (*Gardening World* Office, 17, Catherine Street.)
Vines and Vine Culture. A. F. Barron, Sutton Court Road, Chiswick, W.

INSECTS.

Manual of Injurious Insects. By Miss E. A. Ormerod. (Swann, Sonnenschein & Co.)

LANDSCAPE GARDENING.

How to Lay out a Garden. By E. Kemp. (Bradbury, Agnew, & Co.)
Carpet-Bedding at Hampton Court. By A. Graham. (Hampton Court.)

MANURES.

Artificial Manures. By M. G. Ville. Translated by W. Crookes. (Longmans, Green & Co.)
See articles on "Manures," in Cassell's Popular Gardening. By J. J. Willis.

PLANTS, FLOWERS, &c.

Begonia, The Tuberous. Edited by B. Wynne. (*Gardening World* Office, 17, Catherine Street, W.C.
Bulbs and Bulb Culture. 2 vols. By D. T. Fish. (London: *Bazaar* Office, 170, Strand.)
Cactaceous Plants. By L. Castle. (171, Fleet Street.)
Carnations and Picotees, By E. S. Dodwell. (Groombridge.)
Chrysanthemum, The. By F. W. Burbidge. (*Garden* Office, 37, Southampton Street, Strand.)
Chrysanthemum, The. By E. Molyneux. (171, Fleet Street.)
The Clematis as a Garden Flower. By Moore and Jackman. (Woking Nursery, Surrey: Jackman & Son.) [cott Gill.
Ferns, Choice British, &c. By C. T. Druery, Up-Ferns, Select, (B. S. Williams, Holloway.)
Florists' Flowers, Hardy, their Cultivation and Management. J. Douglas.
Flower Garden, The Handybook of. By D. Thomson. (W. Blackwood & Sons.)
Gladiolus Cultivation. By Rev. H. H. D'Ombrain. (Reeve & Co.) [(J. Murray.)
Greenhouse and Stove Plants. By T. Baines.
Greenhouse Management for Amateurs. By W. J. May. (*Bazaar* Office, 170, Strand, W.C.)
Hardy Herbaceous and Alpine Flowers, Handbook of. By W. Sutherland. (W. Blackwood & Sons.)
Ivy. By Shirley Hibberd. (E. W. Allen, Ave Maria Lane.)]Lynn.
Lily of the Valley Culture. By T. Jannock, King's
Lilies and their Culture. By Dr. Wallace. (New Plant and Bulb Co., Lion Walk, Colchester.)
Narcissus, the, its History and Culture. By Burbidge and Baker. (Reeve & Co.)
Orchid Conference Reports. (Royal Horticultural Society.) [way.)
Orchid Growers' Manual. (B. S. Williams, Hollo-
Orchidaceous Plants, Manual of. (J. Veitch & Sons, Chelsea.) [Windus.)
Orchids, Cool. By F. W. Burbidge. (Chatto &
Orchids, their Structure, History, and Culture. By L. Castle. (171, Fleet Street.)
Primula Conference Report. (Royal Horticultural Society.)
Rose Garden, The. By W. Paul, Waltham Cross.
Roses, List of National Society's Catalogue. By Rev. H. H. D'Ombrain, Westwell Vicarage, Ashford, Kent. (Gill, 170, Strand.)
Roses for Amateurs. By Rev. H. H. D'Ombrain.
Tobacco Culture. By E. J. Beale. (Carter & Co., Holborn.)

PASTURE LAND.

Permanent and Temporary Pastures. By M. H. Sutton. (Hamilton, Adams & Co.)

VEGETABLES, &c.

Asparagus, Culture of. By W. Earley. (Bradbury, Agnew, & Co.)
Cucumbers and Melons. By W. J. May. (170, Strand, W.C.)
Kitchen and Market Garden. (Macmillan.)
Market Gardening. C. W. Shaw. (37, Southampton Street, W.C.)
Market-gardening Farm. By C. Whitehead. (Effingham Wilson.)
Mushrooms for the Million, By J. Wright. (*Journal of Horticulture* Office, 171, Fleet Street, E.C.)
Potatos, How to Grow. By J. Pink. (Lockwood & Co.) [Adams, & Co.
Vegetable Culture. By Sutton & Sons. (Hamilton.
Vegetable and Fruit-farming. By C. Whitehead. (12, Hanover Square, London.)
Vegetable Garden. By Vilmorin. (Murray.)
Watercress, Culture of. By Shirley Hibberd. (4 and 5, Ave Maria Lane, E.C.)

MISCELLANEOUS.

Buildings, Horticultural. By F. A. Fawkes. (Swann, Sonnenschein & Co.)
Church Decoration. *Bazaar* Office, 170, Strand.
Garden Receipts. By Quin. (Macmillan.)
Parks and Gardens of London. By N. Cole. (*Journal of Horticulture* Office, 171, Fleet Street.)
Planting and Agricultural Review, Tropical. By J. Ferguson. (J. Haddon & Co. Bouverie Street, E.C.)
Select Extra-Tropical Plants. By Baron von Mueller, Melbourne.
Sub-Tropical Cultivation. By R. C. Haldane. (Blackwood & Sons.)
Tropical Agriculture. By P. L. Simmonds. (Spon.)

GARDENING PERIODICALS.

1787—Botanical Magazine. Monthly. Editor, Sir J. D. Hooker. (L. Reeve & Co.)
1841—Gardeners' Chronicle. Friday. Editor, Dr. Masters, F.R.S. Publisher, W. Richards, 41, Wellington Street, Covent Garden London, W.C.
1842—Gardeners' Magazine, Friday. Editor, Shirley Hibberd, Esq. Publisher, W. H. L. Collingridge, 148, 149, Aldersgate Street, E.C.
1848.—Journal of Horticulture. Thursday. Editor, Dr. Hogg, F.L.S. Publisher, E. H. May, 171, Fleet Street, London, E.C.
1871—The Garden. Friday. Editor, W. Robinson, F.L.S. Publisher, W. Robinson, 37, Southampton Street, W.C.
1886—Horticultural Times, 127, Strand, W.C.
1879—Gardening Illustrated. Editor and Publisher, W. Robinson, 37, Southampton Street, W.C.
1884—Amateur Gardening. Editor, T. W. Sanders. Publishers, W. H. & C. Collingridge, 148 and 149, Aldersgate Street, E.C.
Garden Work. Editor, J. Wright. Publisher, E. H. May, 171, Fleet Street, E.C.
1884—Gardening World. Editor and Publisher, B. Wynne, 17, Catherine Street, Covent Garden, W.C.
1887—Royal Gardens, Kew, Bulletin of Miscellaneous Information. Monthly. Eyre & Spottiswoode, East Harding Street, Fleet Street, E.C.
Reichenbachia, devoted to the Illustration of Orchids. Monthly. F. Sander, St. Albans.
Orchid Album. Monthly. B. S. Williams, Upper Holloway, London, N.
Rosarians' Year Book. Annually. Bemrose & Sons.
Garden Annual. *Garden* Office, 37, Southampton Street, Strand, W.C.
Garden Oracle. By Shirley Hibberd. London: *Gardeners' Magazine* Office, 4 and 5, Ave Maria Lane, E.C.
Horticultural Directory. *Journal of Horticulture* Office, 171, Fleet Street, E.C.
Horticultural Advertiser. Weekly. Pearson, Chilwell, Notts.
Tropical Agriculturist. Ceylon. Colombo, Ferguson.

PRINCIPAL FOREIGN HORTICULTURAL PUBLICATIONS.

AMERICA.

The American Garden. Editor, E. H. Libby. New York.
American Florist. New York and Chicago.
Orchard and Garden. Published by J. T. Lovett, Little Silver, New Jersey.
Vick's Monthly. Publisher and Editor, J. Vick, Rochester, New York.
American Pomological Society's Reports.
American Agriculturist, Broadway, New York.
Massachusetts Horticultural Society's Reports. Boston, Mass.
Garden and Forest. Editor, Professor Sargent, Tribune Buildings, New York.

AUSTRIA.

Wiener Illustrierte Garten Zeitung. (Journal of the Imperial Horticultural Society, Vienna.)

BAVARIA.

Illustrierte Monatshefte für des Gesammt-Interessen des Gartenbaues. Editor, Max. Kolb, Munich.

BELGIUM.

Lindenia. MM. Linden and Rodigas, Brussels.
L'Illustration Horticole. MM. Linden and Rodigas, Brussels.
Revue de l'Horticulture Belge. M. Pynaert, Ghent.
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HOLLAND.

Sempervirens, Gronewegen. Amsterdam.
Het Neederlandsche Tuinboublad. Editor, Dr. Cattie. Arnhem.

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PORTUGAL.

Jornal de Horticultura Practica. Oporto.

THERMOMETER, &c.

COMPARISON BETWEEN THE SCALES OF FAHRENHEIT, REAUMUR, AND CENTIGRADE.

Cnt.	Fahr.	Rr.	Cnt.	Fahr.	Rr.	Cnt.	Fahr.	Rr.
°	°	°	°	°	°	°	°	°
100	212	80	50	122	40	Zero	32	Zero
99	210·2	79·2	49	120·2	39·2	1	30·2	0·8
98	208·4	78·4	48	118·4	38·4	2	28·4	1·6
97	206·6	77·6	47	116·6	37·6	3	26·6	2·4
96	204·8	76·8	46	114·8	36·8	4	24·8	3·2
95	203	76	45	113	36	5	23	4
94	201·2	75·2	44	111·2	35·2	6	21·2	4·8
93	199·4	74·4	43	109·4	34·4	7	19·4	5.6
92	197·6	73·6	42	107·6	33·6	8	17·6	6·4
91	195·8	72·8	41	105·8	32·8	9	15·8	7.2
90	194	72	40	104	32	10	14	8
89	192·2	71·2	39	102·2	31·2	11	12·2	8·8
88	190·4	70·4	38	100·4	30·4	12	10·4	9·6
87	188·6	69·6	37	98·6	29·6	13	8·6	10·4
86	186·8	68·8	36	96·8	28·8	14	6·8	11·2
85	185	68	35	95	28	15	5	12
84	183·2	67·2	34	93·2	27·2	16	3·2	12·8
83	181·4	66·4	33	91·4	26·4	17	1·4	13·6
82	179·6	65·6	32	89·6	25·6	18	0	14·4
81	177·8	64·8	31	87·8	24·8	19	2·2	15·2
80	176	64	30	86	24	20	4	16
79	174·2	63·2	29	84·2	23·2	21	5·8	16·8
78	172·4	62·4	28	82·4	22·4	22	7·6	17.6
77	170·6	61·6	27	80·6	21·6	23	9·4	18·4
76	168·8	60·8	26	78.8	20·8	24	11.2	19.2
75	167	60	25	77	20	25	13	20
74	165·2	59·2	24	75·2	19·2	26	14·8	20·8
73	163·4	58·4	23	73·4	18·4	27	16·6	21·6
72	161·6	57·6	22	71·6	17·6	28	18·4	22·4
71	159·8	56·8	21	69·8	16·8	29	20·2	23·2
70	158	56	20	68	16	30	22	24
69	156·2	55·2	19	66·2	15·2	31	23·8	24·8
68	154·4	54·4	18	64·4	14·4	32	25·6	25·6
67	152·6	53·6	17	62·6	13·6	33	27·4	26·4
66	150·8	52·8	16	60·8	12·8	34	29·2	27·2
65	149	52	15	59	12	35	31	28
64	147·2	51·2	14	57·2	11·2	36	32·8	28·8
63	145·4	50·4	13	55·4	10·4	37	34·6	29·6
62	143·6	49·6	12	53·6	9·6	38	36·4	30·4
61	141·8	48·8	11	51·8	8·8	39	38·2	31·2
60	140	48	10	50	8	40	40	32
59	138·2	47·2	9	48·2	7·2	41	41·8	32·8
58	136·4	46·4	8	46·4	6·4	42	43·6	33·6
57	134·6	45·6	7	44·6	5·6	43	45·4	34·4
56	132·8	44·8	6	42·8	4·8	44	47·2	35·2
55	131	44	5	41	4	45	49	36
54	129·2	43·2	4	39·2	3·2	46	50.8	36·8
53	127·4	42·4	3	37·4	2·4	47	52.6	37·6
52	125·6	41·6	2	35·6	1·6	48	54·4	38·4
51	123·8	40·8	1	33·8	0·8	49	56·2	39·2

Zero Fahrenheit corresponds to *minus* 17·78 Centigrade, and *minus* 14·22 Reaumur.

COMPARISON OF THE CENTIGRADE, FAHRENHEIT, AND REAMUR SCALES.

To reduce degrees C. above zero to degrees F., double the number, deduct one-tenth and add thirty-two.

To reduce degrees C. below zero to degrees F., double the number, deduct one-tenth and subtract thirty-two.

To reduce degrees R. above zero to degrees F., multiply by two and a quarter and add thirty-two.

To reduce degrees R. below zero to degrees F., multiply by two and a quarter and deduct thirty-two.

To reduce degrees F. to degrees C., halve the number of degrees above or below thirty-two and to that add one-ninth of the same.

To reduce degrees F. to degrees R, proceed as above, but deduct one-ninth instead of adding.

TABLE SHOWING EQUIVALENT OF INCHES OF RAIN IN GALLONS AND WEIGHT PER ACRE.

Inches of rain.	Tons per acre.	Gallons per acre.
0.1	10	2262
0.2	20	4525
0.3	30	6787
0.4	40	9049
0.5	50	11,312
0.6	61	13,574
0.7	71	15,836
0.8	81	18,098
0.9	91	20,361
1	101	22,623

COVENT GARDEN MEASURES.

MANY of these are purely local, and used only by those who frequent Covent Garden Market. They vary also in size, some according to the kind of fruit or vegetable they contain, and some according to the time of year and size of the articles they contain. It is, therefore, almost impossible to convey an accurate impression of these measures; but the following will be useful to those who are interested in Covent Garden quotations:—

A sieve is understood to be about 15 inches in diameter and 8 inches deep, and to contain 7 imperial gallons; half-sieve, 3½ gallons; quarter-sieve, 1¾ gallon. A bushel basket is 17½ inches in diameter at top, 10 inches deep, and 10 inches in diameter at bottom. When heaped, it is supposed to contain an imperial bushel. Punnet: for Seakale, 8 inches in diameter at top, 7½ at bottom, and 2 inches deep; for Mushrooms, 7 inches in diameter and 1 inch deep; for salads, 5 inches in diameter and 1 inch deep.

A bunch of Radishes varies from one dozen to two dozen roots, according to the season.

A bundle of Asparagus contains from 100 to 150 heads.

A bundle of Rhubarb from 20 to 30 stems.

A bunch of Carrots, 12 and upwards.

A bunch of Turnips, 12 and upwards.

A bunch of Leeks, 6 and upwards.

Bunches of Greens and of herbs vary much, according to kind, size, and season.

Roll of Celery=6, 8, to 12 heads.

A tally=five dozen.

A score of Lettuce or Endive=22.

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TIMBER MEASURE.

TO FIND THE AREA OF A BOARD OR PLANK.—*Rule.*—Multiply the length by the mean breadth of the area. *Note.*—When the board tapers add the breadth at the two ends together, and take half the sum for the mean breadth.

TO FIND THE SOLID CONTENTS OF SQUARED TIMBER.—*Rule.*—Multiply the mean breadth by the mean thickness, and the product by the length, for the contents.

TO FIND THE SOLIDITY OF ROUND OR UNSQUARED TIMBER.—*Rule I.*—Multiply the square of one-fourth of the mean circumference, or of the mean quarter girth, by the length, for the contents. *Rule II.*—Find the area corresponding to the quarter girth in inches, and multiply it by the length of the tree or piece of timber in feet, then will the product be the solidity in feet, and decimal parts of a foot, according to Rule I.

Note.—When a tree tapers regularly the girth may be taken at the middle for the mean girth, or it may be taken at both ends, when half the sum will be the mean girth. When a tree tapers irregularly, being thick in some places and small in others, the girth may be taken at the ends, and at equal intervals, then the sum of the girths, divided by their number, will be the mean girth; or the tree may be divided into several lengths, and the contents of each part computed separately, then their sum will be the contents of the whole tree.—*Purdon's Almanac.*

SIZES OF FLOWER-POTS—CHISWICK

STANDARD. (INSIDE MEASURE.)

	Ins. diam. at top.	Ins. deep		Ins. diam. at top.	Ins. deep
Thimbles ...	2	2	Twenty-fours		
Thumbs ...	2½	2½	(24's) ...	8½	8
Sixties			Sixteens		
(60's) ...	3	3½	(16's) ...	9½	9
Fifty-fours			Twelves		
(54's) ...	4	4	(12's) ...	11½	10
Forty-eights			Eights (8's) .	12	11
(48's) ...	4½	5	Sixes (6's) ...	13	12
Thirty-two's			Fours (4's)...	15	13
(32's) ...	6	6	Twos (2's) ...	18	14

CUBIC, OR SOLID MEASURE.

1728 cubic inches	...	make 1 cubic foot.
27 cubic feet	... ...	„ 1 cubic yard.
40 cubic feet of rough, or 50 cubic feet of hewn timber		„ 1 load.
12 cubic feet	... ...	„ 1 ton of shipping.
5 cubic feet	... ...	„ barrel bulk.

CONVERSION TABLES.

LENGTH.

French.	Inches.	Feet.	Yards.
Millimètre = $\frac{1}{1000}$ mètre...	0·039	.....	.....
Centimètre = $\frac{1}{100}$ mètre...	0 39	.....	.....
Decimètre = $\frac{1}{10}$ mètre ...	3·93	0·32	.....
Mètre	39·37	3·28	1 09
Decimètre = 10 mètres...	393·70	32 80	10·93
Hectomètre = 100 mètres	3937·07	328·08	109·36
Kilomètre = 1000 mètres	39370·7	3280·8	1093·6
Myriamètre=10,000 mètr.	393707·	32808·	10936·3

WEIGHT.

	Grains.	Ounces.	Pounds.
Milligramme = $\frac{1}{1000}$ gram.	0 015	.....	.....
Centigramme = $\frac{1}{100}$ „	0 15	.....	.....
Decigramme = $\frac{1}{10}$ „	1·54	.....	.....
Gramme	15·43	.....	.....
Decagramme = 10 grms.	154·32	0·35	.....
Hectogramme = 100 „	1543·25	3·352	0 22
Kilogramme = 1000 „	15432 5	35·27	2·20
	Lbs.	Cwt.	Tons.
Quintal=100 kilogrammes	220.4	1·96	.....
Millier = 1000 „ ...	2204·	19·68	0 98

FRENCH LAND MEASURE.

Mètre sq. = (centiare) ...	10·7 square feet.
Are = 100 sq. mètres ...	119·6 square yards.
„ „ ...	3·9 perches.
Hectare = 10,000 sq. mètres	2a. 1r. 30$\frac{1}{10}$ perches.
Arpent (of Paris)	3r. 15 perch. 43 yd.
„ (of water and forests)	1a. 1r. 1 perch 28 yd.
Perch of Paris	49·8 square yards.
„ of water and forests...	61·08 „ „

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THE GARDENERS' CHRONICLE,
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W. RICHARDS, 41, Wellington Street, Strand, W.C.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

SATURDAY, JAN. 12 { Royal Botanic Society: General Meeting.

SHOW.

WEDNESDAY, JAN. 9 { National Chrysanthemum Society at Westminster (two days).

SALES.

WEDNESDAY, JAN. 9 { Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms. Lilies, and other Bulbs, at Protheroe & Morris' Rooms.

THURSDAY, JAN. 10 { 10,000 Lilium auratum from Japan, and other Roots, at Stevens' Rooms.

FRIDAY, JAN. 11 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

SATURDAY, JAN. 12 { Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms. Lilies, Roses, &c., at Protheroe & Morris, Rooms.

Market Gardening.

WHILST agriculturists seem to be congratulating themselves upon the hoped-for fact, that agriculture has touched "its lowest stage of financial difficulty," market gardeners and growers of vegetable produce can hardly lay any such flattering unction to their souls. Certainly, if market prices for all kinds of winter garden crops fall lower than they are just now, or have been during the winter, they can but be reaching that vanishing point which consists of nothing at all. Ordinary returns of market prices afford only a very imperfect idea as to the actual prices obtained by the growers, especially on those occasions where the markets become glutted; indeed it is often then difficult to give away, let the sample be ever so good, that of which everybody has in plenty, and which dealers or consumers may obtain at their own figure. We have passed through a season of remarkable abundance, one in which all kinds of greenstuffs have been and still are plentiful, almost beyond all precedent. The market fields are rich in greenery—breadths of all the Brassica genus, so luxuriant in growth, so rich in colour, and so abundant, have rarely been seen at midwinter; and there seems to be little present prospect that this luxuriance will receive special check. Only severe weather, especially in the form of heavy snowfalls, can send up prices; but that advance is obtained only at the cost of great mischief done to the tenderer breadths, and with labour less advantageously applied. We had during the summer-time exceptional encouragement given to the planting out of all kinds of greenstuff. Brussels Sprouts have yielded an enormous and wonderfully good crop. Despite that we hear of half bushels of an excellent sample, selling for 3*d.* each after they have been carted 10 miles to the market. Even if that be an exceptionally low figure it only indicates how poor have been the returns for all sorts of winter produce during the week or two preceding Christmas, when, as is customary, special efforts are put forth to make a market, as trade does not fairly recover for fully a week after Christmas. The huge loads of produce, consisting of Brussels Sprouts, Savoy and white Cabbages, Coleworts, Scotch Kale, Spinach, Turnips, Parsley, Wallflowers, &c., have been almost countless. These vanloads all converge upon the Covent Garden centre, from 20 miles round London—many leaving for market at mid-day the preceding day, and reaching home again, perhaps, late in the evening of the market day, heavily laden with manure, having been on the move for nearly thirty hours, an excessive strain upon both men and horses. Need it be said, that whatever may be written about railway rates, such a method of cartage as this can hardly be otherwise than costly. There are seasons when immediate contiguity to London on the part of the market grower is advantageous, but for that privilege he must pay, perhaps double the rental paid farther out in the country, far heavier rates, and much higher wages; indeed, relative to his own returns, the average labour bill is indeed a big item. But railways have now enabled all forms of garden produce to be sent into the metropolis from remote parts of the country with great facility at fairly moderate rates whilst manure is also returned cheaply and plentifully, hence the market grower in the provinces is not so badly off in comparison with his metropolitan competitor. It has often been a matter for surprise that with such a wonderful yearly addition to the metropolitan population the demand should not have kept pace with the supply. Were the vegetable supply of ordinary home-grown produce limited to the metropolitan area of some 20 miles circumference, demand and supply might have been fairly equalised. But the railways have revolutionised the old order of things, and except that he may have better soil—and that is not always the case—the metropolitan grower is finding his market cut from under him by the abundant produce of market-growers residing some 50 to 200 miles away from Covent Garden. Whenever railway companies are compelled to reduce their rates to a moderate average charge per mile, and all preference rates are ignored, we shall but see the evil of severe competition in the London market intensified, as the country grower will be placed on even better terms than his metropolitan competitor, whose horse-power methods of getting produce to market are both slow and costly, although the return load of manure is an important consideration in the calculation.

A market grower recently remarked as an interesting fact, that even the poorest of London people seemed anxious to obtain greenstuff when the weather was hard and the supply limited, although they seemed to care little for it when it was plentiful. Assuming such to be the case, it indicates that the London poor are either governed in their tastes by caprice, or else the cold weather stimulates tastes which then are harder to satisfy. It is to be deplored that a strong taste for fresh vegetables does not more largely dominate the mass of townpeople. Were such the case the consumption would be at least double what it now is, and the present supply would be none too large. Those who favour purer modes of life and especially reform in diet, amongst the masses of the people, are better friends of the market-grower than credit is usually given for. However there is much comfort derivable from the fact that the supply of good market vegetables seems to be illimitable, and let the demand eventually become ever so great, that demand will assuredly be met.

It has been well for market growers this winter so far that they have had these favourite hardy flowers, Violets and Wallflowers, to fall back upon, for breadths of these have proved to be very profitable. Wallflowers have given an intermittent bloom, which, if imperfect in development and lacking the true colour, still has been valuable aid in increasing the market returns. But whilst the Wallflower's best season is always found in the spring—and the earlier the better—that of the Violet, although essentially a spring bloomer, is best during a mild winter. In the spring, as with everything else in its proper season, Violets become a glut, and the returns are but moderate compared with the cost incidental to cultivating and gathering. During an open winter, however, there is always an irregular, but still certain, amount of bloom, and a bushel-basket filled with bunches of the sweet-perfumed flowers often returns as much money as a waggonload of Drumhead Savoys.

The present winter so far has been wonderfully favourable to Violet flowers. We have had little frost, and much of moderately fine open weather. Fogs are harmful, but not so injurious as when accompanied with hoar frost. Still, comparatively little harm had been done to the flowers till lately, though it is to be feared that the fogs of the last few days will be very prejudicial.

As evidence of the floriferousness of the common German Violet, it is worthy of mention that one grower has been for the past three months sending up hundreds of dozen bunches of flowers per week, and during one exceptionally favourable week, he gathered 1450 dozen bunches. If these returned 1*s.* per dozen, as they should during the winter, the result for the week was satisfactory. This man has perhaps 20 acres of Violets, all wonderfully well-cultivated, and the labour incidental both to cultivation and to gathering is considerable.

The preceding summer was a remarkably favourable time for Violets, growth proceeding all through the season, whilst spider and thrips were scarcely manifested. Of course, when the plants are severely tried by a summer of heat and drought, the winter blooming is greatly affected even if the winter be open. Hard weather in any case soon destroys Violet flowers, so that in taking into account the average returns from Violets, such a season as the present needs considerable discounting. It is worthy of note, that when the weather is cool, the French Violets rule the market, as they are then fresh and sweet. Mild weather here, with perhaps warmth in the South of France, not only discolours the French flowers, and leaves them after transit a bit stale, but gives to our flowers a rich hue and delicious freshness of perfume, such as mark April gatherings. It is a good thing for our market growing trade that a strong love for sweet-scented flowers so appreciably governs public taste, as also that we have such hardy plants as Violets and Wallflowers to satisfy that desire for perfume.

THE GREAT WATERFALL AT WILHELMSHHÖE (SEE SUPPLEMENTARY SHEET).—Our illustration, taken from a photograph, shows the famous waterfall in the grounds surrounding the Palace at Wilhelms-



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THE GRAND CASCADE, WILHELMSHÖE, NEAR CASSELL.

höhe, near Cassel. In 1807, and for some years subsequently, the Palace was the residence of JEROME, King of Westphalia, brother to the first Emperor NAPOLEON, and it formed for a short time after 1870 the place of detention, "the golden cage," of the third Emperor of that name. The park, laid out at the end of the last century, has previously been alluded to in these columns as among the finest in Germany, though the severity of the winters prevents the introduction of so many evergreens as in an English park. It occupies the slopes of a mountain 1600 feet in height and which permits of the formation of cascades, celebrated throughout Germany. The Grand Cascade, shown in our illustration, is, as will be seen, not unlike that at Chatsworth. Though imposing from its magnitude, and having something of the fascination and charm that falling water always has, it is pretty certain that modern taste would not sanction the formation of such a piece of artifice. Instead of a cascade dashing from rock to rock between the trees and cutting out for itself deep pools here and there, from whose overflow the water may bound and rebound, we have here a fall of water flowing down a flight of steps. At the top of the steps is a something which suggests a huge cistern, surmounted by an obelisk that forms a resting-place for HERCULES. The cistern has apparently burst and flooded the steps, to the great peril of those who have to mount them. Perhaps HERCULES is wondering—as well he may—how he is to get down! Modern landscape gardeners would sigh to think how much more might have been effected at the same cost. But then architects and landscape gardeners rarely agree; but though they work on different lines, it is not impossible to arrive at a satisfactory compromise.

THE GARDENERS' ORPHAN FUND.—The usual monthly meeting of the committee of the above Fund took place at the "Caledonian" Hotel, Adelphi, W.C., on Friday, December 28, Mr. GEORGE DEAL in the chair, there being a full attendance. The minutes of the last meeting having been read and signed, Mr. A. F. BARRON read a letter from Mr. S. KNIGHT announcing the death on the previous day of Mr. C. HOWE, of Benham Park Gardens, Newbury, a member of the committee, and hon. local Secretary for Newbury district—a communication received with considerable regret, Mr. HOWE having actively exerted himself on behalf of the Fund. The balance at the bank was announced to be £346 18*s.* 9*d.*, and as speedily as possible it is the intention of the committee to fund another £500. A letter was read from Mr. O. THOMAS, The Gardens, Chatsworth, enclosing the sum of £31, the amount realised for the Fund at the entertainment recently given at Chesterfield, by the gardeners of the district, and enclosing the names of the twelve gardeners forming the committee, with the request that the sum should be equally divided among them as a donation, thus apportioning each man £2 11*s.* 8*d.* each, the communication also stating that it was the intention of the committee to hold the entertainment yearly in the hope of adding also to each man's amount. The Chairman pointed out that as not less a sum than £5 given as a donation conferred a vote, the sum sent if so divided would be unavailable for voting purposes. Eventually it was agreed that Mr. THOMAS should be requested to arrange so that a ballot might take place among the members of the Entertainment Committee, so that six names should appear as donors of £5 each in order that the votes should not be lost. The sum of £42 9*s.* was announced as having been sent in by seven local secretaries; also the sum of £1 1*s.* as a donation from the West Kent Gardeners' Society; the sum of 13*s.* 1*d.* from a collecting-box at the Chrysanthemum show of the Chiswick Horticultural Society; and a sum of 18*s.* 6*d.* in a box at the Chiswick Apple and Pear Conference, also the sum of 5 guineas from Mr. MCKENZIE. A letter was read from Sir SOMERS VINE announcing the intention of the governing body of the Imperial Institute, in consideration of the trouble taken by Mr. A. F. BARRON in giving assistance to the promoters, Mr. BARRON having intimated his desire that any acknowledgment should take this form. Mr. THOS. H. HARRAWAY, Vicarage Street nursery, Warminster, was appointed Hon. Local Secretary for that district. The allowance for the current quarter to the children on the Fund, amounting to £35 11*s.*, was ordered to be paid. A draft petition to the City Companies, prepared by the Chairman, was submitted and approved, and the matter of forwarding it to a dozen or so of the leading ones praying for assistance to the Fund was referred to the sub-committee appointed for the purpose. This being the last meeting in 1888 a cordial vote of thanks was passed to the Chairman, and suitably acknowledged. The great difficulty which exists in inducing the gardening fraternity in Scotland to support this Fund was illustrated in a letter from Mr. W. THOMHSON, of Clovenfords, who in dealing with this unwillingness, alluded to the prevalent belief that the orphan children of Scotch gardeners have no chance of election. There also appears to be an impression that the headquarters of the Fund being in London, and the executive composed mainly of London men, orphans round London would be certain to have the preference. This assertion has not yet been put to the test, as all the candidates at the last election were placed upon the Fund; but, it may be stated that on that occasion candidates at a distance were in as good a position at the poll as those living nearer the centre, and the votes at the disposal of the committee were appropriated to the most necessitous cases quite irrespective of locality. Of the eleven children in receipt of the benefits of the Fund, nearly every one resides at a considerable distance from London, the nearest being at Wimbledon.

THE NATIONAL CHRYSANTHEMUM SOCIETY'S JANUARY CONFERENCE AND SHOW.—The sub-committee—Messrs. CASTLE, GORDON, and PAYNE—appointed by the above Society to make arrangements for a Conference to be held in conjunction with the winter show of Chrysanthemums at the Royal Aquarium on January 9 and 10 next, announce the following programme:—The Conference will be opened in the Westminster Aquarium at 5 P.M. on January 9, when it is expected that the President, E. SANDERSON, Esq., will take the chair. The subjects of the papers (each limited to a quarter of an hour) will be as follows:—"Manures for Chrysanthemums," by Mr. E. MOLYNEUX; "Damping in Blooms," by Mr. C. GIBSON and Mr. J. DOUGHTY; "Mid-Winter Chrysanthemums," by Mr. KIPLING; and "Sports," by Mr. N. DAVIS. Each paper will be followed by discussion, as far as time will permit. All members and visitors to the show will be admitted to the Conference, and the room or hall in which it will be held will be announced on the morning of the show.

SHOW FIXTURES.—In addition to those announced in the Almanac, which is issued as a Supplement to this number, we are informed that the Stamford show will be held on July 11; Richmond, Surrey, will hold a show on March 21 and 22; and the Brighton and Hove Chrysanthemum show will take place on November 12 and 13.

THE ALMANAC.—In our present issue we give a sheet Almanac, containing as complete a list of the appointments for the year as we are enabled to make. All the large London shows and meetings, with those of Dublin, Edinburgh, Manchester, Birmingham, and a large number of the other provincial fixtures are incorporated. By the Post-office regulations, to which, however capricious and unintelligible they may be, we are compelled to conform, we are forbidden to supply any further information in the Almanac, such as we have been accustomed to do, although no objection is raised to the presence of advertisements! Verily the ways of the Post Office, as regards newspapers, are, as only newspaper proprietors know, marvels of vexatious perversity. Much useful information will be found on pp. 13—15 of the present number.

"THE GARDEN."—In the number for December 29 is published a list of the coloured plates issued with the *Garden* from the year 1875 to the present time.

"THE USES OF PLANTS."—Under this title a manual of economic botany, by Mr. G. S. BOULGER, will shortly be issued by ROBER & DROWLEY, 29, Ludgate Hill, E.C. It is stated that special attention will be given to vegetable products of more recent introduction.

HOPEFUL HARBINGERS.—Mr. WARE sends us flowers of Iris stylosa which have been in bloom in the open air at Tottenham for some weeks. Unfortunately Irises are "not good for bouquet work," and so its charms are those of a furled flag; but there they are. The lovely white hoop-petticoat Narcissus (monophyllus) have not the defect of the Iris, and whether in the frame or in the flower-glass, are alike refined and striking in appearance. Mr. WARE tells us that he has a very large number in bloom in his cold frames. A form of the Polyanthus Narcissus, with yellow segments and orange-cup, has been in flower for a week or more, as also is the early Italian Reine Marguerite.

MR. D. T. FISH.—This gentleman, who has lately been elected to the Town Council of Bury St. Edmunds, is now a candidate for the County Council of West Suffolk Bury Division. Mr. FISH's practical knowledge of the requirements of the district and of the means of supplying them should stand him in good stead.

"DIE NATURLICHEN FAMILIEN."—The last-issued part of this valuable History of Plants contains the history and description of the Genera of Rosaceæ by Dr. W. O. FOCKE, a botanist who has paid special attention to this group.

"REVIEW OF THE PLANTING AND AGRICULTURAL INDUSTRIES OF CEYLON."—Mr. JOHN FERGUSON has reprinted in the form of a small octavo volume a series of articles that appeared in the *Tropical Agriculturist* and in the *Ceylon Handbook*. The papers refer to the staple products of the island—Tea, Coffee, Cacao, Cinchona bark, rubber, and other economic plants. We are pleased to get so much authentic information in so handy and accessible a form; and those who, like ourselves, have frequent occasion to consult works on tropical cultivation, will acknowledge that this little volume is a boon to them. It may be had from Messrs. JOHN HADDON & Co., 3, Bouverie Street, E.C.

INTERNATIONAL AGRICULTURAL CONGRESS.—In connection with the Paris Exhibition of 1889, will be held an International Agricultural Congress, for the purpose of discussing various points, such as the agricultural depression, agricultural instruction, and various other matters of interest to farmers and cultivators. The Congress will be held from September 12 to 20. The General Secretary is Professor DEHÉRAIN, 63, Rue de Buffon, Paris.

M. SAGOT.—The French journals announce the death of M. SAGOT, a botanist who was well known in France for his researches in the Flora of French Guiana, and his numerous essays on the cultivation and acclimatisation of tropical plants.

METROPOLITAN PUBLIC GARDEN ASSOCIATION.—This society is doing excellent service, not only in beautifying the metropolis, but in the more important matter of maintaining the public health. Sometime since, when we had occasion to comment on what had been done in our great cities in the way of providing open spaces, we found that, for sanitary purposes, a large number of relatively small open spaces, thickly dotted over densely populated areas, was of more importance than one or more large parks at a

distance. The statistical tables from various towns then at our disposal sufficiently proved that. The work of the Association, over which the Earl of Meath presides, and in which Mr. Goldring acts as Garden Inspector, is chiefly devoted to securing and rendering available for public use small areas which otherwise would infallibly be built over. This year we learn that, owing to the liberality of a resident landowner, a space of no less than 14 acres has been secured in Camberwell, to be known as "Myatt's Fields," thus perpetuating a well known name in the district, and one in which market gardeners in particular are specially interested. Another excellent work in which the Society has been engaged has been to secure the use of the Board School playgrounds for the use of the children on Saturdays. Mr. Goldring contributes to the present report a list of trees and shrubs suitable for planting in London and the vicinity—a list which will surprise some folk who think that nothing will grow in London, but which might have been even fuller than it is. We are sorry to see the Lime included, as, except in the outermost suburbs, it is ill suited for town work. The Ginkgo (Salisburia) is a capital London tree, not mentioned in the list. The offices of the Society are at 83, Lancaster Gate, W.

Pear Anne of Brittany.—A Pear combining the flavour of Doyenné du Comice with the size of Catillac. It was sent out by MM. Transon of Orleans. The fruit is large, broadly Pear-shaped, very red on the sunny side, eye rather deep, stalk short, stout. It is figured in the *Bulletin d'Arboriculture* for December.

Importation of Plants into Greece.—The following decree of his Majesty the King of the Hellenes has been published and a translation sent to us for publication:—

"*Article I.*—It is absolutely forbidden to import from abroad:

"1. Trees and plants and any portions of them while fresh, namely, branches, leaves, flowers and fruits; 2. Potatos; 3. Madder; 4. Rushes (for the manufacture of mats); 5. Wood for fuel; 6. Earth and gravel used as ballast in ships; 7. Acorns used in tanneries; gallnuts and bark of Oak trees and Acacias; and, 8. Straw and hay, with the exception of that imported as wrappers of merchandise.

"*Article II.*—The importation of brooms* is forbidden from August 1 to the end of April in the following year.

"*Article III.*—The importation of the following articles is forbidden from countries infected with Phylloxera, namely, Australia, America, Africa, Asia Minor, and all the States of Europe, with the exception of Belgium, Holland, Denmark, Sweden, and Norway:—1. Of fleshy roots; 2. Of bulbs; 3. Of Mushrooms (Truffles); and, 4. Of vegetable or mixed manure. The importation of the above-mentioned is permitted from countries not visited by the Phylloxera, namely, Belgium, Holland, Denmark, Sweden and Norway, and the Asiatic coast of the Persian Gulf as far as the Yellow Sea. Upon the certificate by the proper Greek consular authority, or, in want of such, the consular authority of a foreign power, that the articles above-mentioned are the produce of the above-mentioned countries.

"*Article IV.*—The importation of Fir tree bark is permitted only through the port of Syra, and when transported there in sailing vessels, under the following conditions:—1. As soon as the owner of a cargo of Fir tree bark shall deliver to the sanitary authority the consular manifest and the declaration of importation, the above-mentioned authority shall place the ship under observation, and inform without delay the Prefect of the Cyclades and the custom collector of Syra.

"2. The bark before discharged shall be disinfected in a remote part of the port of Syra, to be fixed by the Prefect, after hearing the opinion of the custom collector, harbour-master, and the health officer, the by soaking it in the sea for twenty days in sacks or barges.

"3. The disinfection shall be performed under the surveillance of an agriculturist and proper guards, to be employed by the Prefect.

"4. The payment, travelling expenses, and compensation of the agriculturist, as well as the wages of the guards, shall be paid in advance by the owners of the bark thus disinfected, at a rate fixed by the Prefect.

"*Article V.*—The transfer of Fir-tree bark, acorns, or gallnuts destined for abroad, from a sailing vessel or steamer to another sailing vessel or steamer, shall be permitted at the port of Syra. If the sailing vessel or steamer is not in port at the time, permission shall be given for the above-mentioned article to be placed in barges till the arrival of the ship.

"*Article VI.*—Transgressions of any of the provisions in the present decree shall be liable to a penalty in accordance with article 2 of the law* concerning Phylloxera.

"*Article VII.*—The Royal decrees dated February 8 and November 27, 1880; May 23, 1881; June 12 and July 5 and 13, 1885; and July 21 and August 13, 1888, are abrogated. The present decree will be published and carried out by the above-mentioned Ministers. *Athens, December* 2 (14), 1888.

"The Minister of the Interior,
"(Signed) E. Dragoumis.
"The Minister of Finance,
"(Signed) Ch. Tricoupis."

Australian Acacias.—Baron Von Mueller has completed with the thirteenth decade his series of lithographic illustrations of the species of this large, intricate, and interesting group. The work will not only be valuable to botanists for the care and fulness with which the structural details have been treated, but also to horticulturists in enabling them to identify their plants; while to the colonist the importance of correct nomenclature and ready means of discriminating species possessed of such useful properties as yielding timber, gum, tannin, &c., can hardly be over-estimated.

"**A History of English Bookselling,**" by Mr. W. Roberts, editor of the *Bookworm*, and a contributor to our columns, is announced by Messrs Sampson Low & Co.

Skimmias.—Mr. Rogers, of Southampton, sends us berried shoots of his S. Rogersii×, raised several years ago from the same cross as Foreman's variety lately noticed. We have other specimens from other sources which show how great is the range of variation in seedlings, and how undesirable it is to give Latin names to any but the original native types. We reserve any further comment on the question of species for the present till we have examined additional specimens; but in reply to some correspondents who have challenged our statements, we may say that S. fragrans and S. fragrantissima, whatever be their real nature, are not identical.

Compensation for Cultivation. — Mr. Soulby, solicitor, of Malton, has issued a pamphlet (which may be had of Messrs. Hamilton, Adams & Co., 32, Paternoster Row, E.C.), and which embodies the provisions in an Act passed on August 8, 1887. This Act provides for the "compensation to the occupiers of allotments and cottage gardens for crops in the ground at the end of their tenancies." By the provisions of this Act outgoing tenants may obtain from their landlords compensation in money for crops, including fruit and fruit bushes which have been planted by the tenant with the previous consent in writing of the landlord; also for labour expended upon and manure applied to the holding since the taking of the last crop, and in anticipation of a future crop. Thirdly, for drains and outbuildings or other structural improvements made by the tenant with the written consent of his landlord. These provisions apply to any parcel of land of not more than 2 acres in extent, and cultivated as a garden, or as a farm, or partly as a garden and partly as a farm.

Thome's Flora von Deutschland. — The fourth volume of Dr. Thome's illustrated *Flora of Germany and Switzerland* (Williams and Norgate) has just been issued. Like the former volumes it is remarkable for the excellence of its coloured plates and for its relatively low price. The plates are so good that they render the book very serviceable to those to whom the language might offer difficulties.

The Flora of British India.—We have to announce the issue of a new part of this important publication (Lovell Reeve & Co.). Sir Joseph Hooker in this part completes the difficult enumeration of the species of Euphorbiaceæ and Urticaceæ, and gives a descriptive catalogue of the Cupuliferæ, Salicineæ, Coniferæ, and other orders. Dr. King has assisted him in the elaboration of the Figs and Oaks, and Mr. Dyer has described the Cycads; but with these exceptions, the whole of this tedious mass of detail has been elaborated by the patience and skill of Sir Joseph Hooker, who may be congratulated on the approaching termination of his labours. Adverting to the Indian Conifers, Sir Joseph comes to no definite conclusion as to the origin or exact position of the Cedar of Goa, nor has he been able to elucidate the mystery surrounding Pinus Royleana. Picea Pindrow is referred to P. Webbiana as a variety. But the portion of Sir, Joseph's work, which will be looked to with most interest by gardeners, is the enumeration of the Indian Orchids, of which no fewer than 113 genera are admitted. An analytical key for their more speedy discrimination is given, but for the enumeration of the species we must wait for the following numbers. It will be remembered that this comprehensive *Flora* includes the enumeration of the plants of the whole of British India, from the Himalayas to the Malayan swamps and Ceylon, and thus comprises alpine, temperate, and tropical floras within its range.

Cheadle Horticultural Society. — On December 26, the Secretary of this Society was presented with a handsome silver cup on an ebony pedestal, as a mark of esteem from the exhibitors and fellow-workers. Mr. E. H. Sykes, J.P., made the presentation, with a few suitable words; and Mr. E. D. Stone, who has filled the post of Secretary for twenty-one years, briefly replied.

Presentation.—Mr. J. Murison, on leaving the employment of Messrs. James Carter & Co., seed merchants, 237 and 238, High Holborn, London, was presented with a handsome aneroid barometer by his colleagues, as a mark of their esteem and goodwill.

Publications Received.—*Dictionary of the World's Press, and Advertiser's Reference-book.* Pp. 1400. 1889. By H. Sell. (London: Sell's Advertising Agency (Limited), 167 and 168, Fleet Street, E.C.

The Hardy Fruit Garden.

The End of the Planting Season.—Although the best month of the season for the planting of all kinds of fruit trees has passed by, still so long as the weather keeps mild and the soil is in good workable condition, planting may be advantageously carried on. If there are still to be planted trees of the Peach and Nectarine in old borders I would strongly advise first of all that every particle of the old soil should be removed to the depth of 2 feet and even deeper if the soil be of a heavy and adhesive character. The new station, making good allowance for ample drainage, should not be less than 4 feet from the wall: see that the drainage is made perfect prior to filling up the holes with new soil, which, if obtainable, should be that of a moderately heavy fibrous loam, and adding to it a few shovelfuls of old mortar. Manure at planting time as a rule is not needed, but if the soil is in its nature poor, a

* Brooms used in Greece are made of vegetable substances.

* The Law in question, passed on January 22, 1880, punishes transgressions of regulations against Phylloxera by an imprisonment of from one to fifteen months, and a fine of from 50 to 500 drachmas.

little mixed along with it, provided that it is sweet and in a half decayed state, will assist the young trees; but avoid by all means a green manure from the stock-yard. Having filled up the holes to within 6 inches of the level of the border, making the soil moderately firm by trampling, trim off any damaged roots and plant the trees, taking great care to cover them at various levels, but none too deeply. In cold soils and localities, and where the soil is naturally heavy, it is better to plant all wall trees on well raised borders; but if the soil be light and loose plant on the level and mulch heavily in the summer months.

Training and Nailing.—The Morello Cherry trees have lately received much attention in pruning and nailing—a rather tedious job, as in many cases the trees must be taken entirely from the wall before relaying-in the shoots. To prevent the crossing of the branches we annually remove some of the old ones, spur in the weakest to a couple of buds, and fasten to the walls those only of stout, fruitful growth. About 4 inches apart is a nice distance at which the young shoots may be laid in. When finished, the whole of the trees will receive a thorough wash with the garden-engine, using soap-suds for the purpose of destroying harbouring insects, and the border may be lightly forked over, leaving all in neat order.

Gooseberries and Currants.—If not already pruned, and the gaps made good, this should be done at once, excepting in gardens much troubled with birds. In pruning the Gooseberry, the thinning-out of the branches is an essential part of the work, so that air and sunlight may reach those left for fruiting, and the same remarks apply to the black Currant, while the red and white variety should be spurred in to a couple of eyes of the stems; exceptions, however, must be taken in favour of gaps, reserving a few shoots for the purpose of filling them up. Young trees not having not grown to the required height, should be shortened back at about 6 to 8 inches accordingly to an outside bud.

The pruning of Vines, if not done, should be done at once, as late pruning this season may lead to much bleeding.

If the weather is not favourable for outside work, see that an abundance of shreds are prepared in readiness for Peaches and Apricots, &c. The burning of old nails needs attention, and the fruit-room must be looked over, removed therefrom any fruit that is in the least decayed; but do not handle good fruit. *H. Markham, Mereworth Castle, Maidstone.*

The Kitchen Garden.

The success or non-success in a kitchen garden largely depends on a proper selection of seeds of the first quality, and suitable situations in which to sow the same at the proper times. In the preparation of the soil for their reception much more depends on the tilling of the ground than many people suppose. Some think if the surface be scratched with a spade or tickled with a fork some 5 or 6 inches deep, that that is quite enough to cause it to produce a plentiful crop. I have heard of such happy experiences, but after over thirty years' experience, have not yet been able to realise them. The inexorable law—"In the sweat of thy brow shalt thou eat bread"—I take to mean something more than ordinary expenditure of physical exertion; and it is only when we labour much that we can expect to reap abundantly. It is, however, an utter impossibility to grow first-rate vegetables year after year without a fair supply of manure, and there are few gardens in the enviable condition of enjoying a superabundance of this indispensable commodity. Heavy, tenacious soils require less manure than light sandy ones; some kinds of the latter will consume great quantities every year, and in these cases cow and pig-dung should be applied in large quantities. Heavy soils are better suited with horse-stable litter, decayed leaves, and materials which will add to their porosity—such as lime rubbish, brick-dust, charred soil; and a capital plan it is to ridge up the ground into 3 feet ridges, and to place a quantity of lime in lumps fresh from the kiln in the furrow, forking the soil of the ridges over the lime, which will then fall, and assist in pulverising and aërating the soil.

Rotation of Cropping.—This should also have due attention, and some sort of system of changing crops should be followed out. For instance, Onions may be sown on land that carried Celery, and without manuring. The Onions, again, may be succeeded by winter Cabbages for use in the spring, when the ground can be double dug and a good coating of manure given and a crop of late Peas taken, which it will be seen results in three crops in two years. Early Peas may follow Potatos, if a good dressing of manure be given in winter, and the ground dug not less than two spades deep and ridged. Roots such as Parsnips, Beet, Salsify, Carrots, &c., may follow Peas, without manure; but the ground should be deeply worked in order to aërate it to as great a depth as possible. The benefits of deep cultivation are most apparent when the summer rains are less abundant than usual, the roots then find their way down through the loosened soil in search of moisture; and in a wet season the egress of water is rapid. Take now ordinary digging of 8 inches limit, which is about as deeply as an ordinary spade will move the soil, the plant food is mostly deposited in this narrow limit, and the plant is forced to make its roots in this, but what happens?—the manurial ingredients become locked up by want of water, and are not at the service of the plant until moisture sets them at liberty; and the result is stunted growth and produce of poor quality. A word of caution is, however, necessary in deep cultivation—very little of the poor subsoil should be brought to the surface at one time, and if the ground be shallow it is best to dig the bottom soil and leave it in place, spreading a good coat of manure on the top of it, so that in time it will be available as a fertile soil.

Frame Ground.—Hotbeds should now be got in readiness for French Horn Carrots, Radishes, Potatos, and early Milan Turnips. The most economical way of forcing early Potatos is to place the sets in shallow boxes pretty thickly, and place them on a top shelf in a vinery at work. If they are afforded plenty of light and air they will yield a fair return. They must not be over watered. Sets for planting on hotbeds should be laid quite close together in shallow boxes to start, not allowing the roots to get matted before planting them out. Take advantage of frosty mornings, and get manure wheeled on to the vacant quarters, spread it over the ground at the same time to prevent the frost penetrating, and prevent digging being done. Let the digging be thoroughly done, and ridge the ground generally, exposing thereby as much surface to the action of the atmosphere as possible. For deep rooting crops place the manure in the bottom of the trench; for ordinary crops first turn over one spit and place the manure on the top of it, throwing the second spit into a ridge on the top of the manure. Ground treated in this manner will be in better condition for the reception of seeds than that that is flat dug. Place Seakale, Whitloof, and Endive in the forcing house once a week, and keep up successional supply of Rhubarb by placing a number of crowns in heat once a fortnight. *Wm. M. Baillie, Luton.*

Nursery Notes.

ORCHIDS AT MESSRS. VEITCH'S, CHELSEA.

In the week before Christmas no fewer than thirty-six species and varieties were in flower in the Royal Exotic Nursery, Chelsea. Many of them were hybrids raised in the nursery, a few of them being rare; but a large proportion of them are now plentiful, and may be grown in any collection of Orchids. One of the most recent acquisitions now in flower is Cypripedium Galatea, a very distinct hybrid, which boasts of the same parentage as C. œnanthum superbum; but it is quite distinct from it. The dorsal sepal is more densely spotted, and blotched with purplish maroon, the smaller spots at the top being pinkish. The parents of this fine variety are C. insigne Maulei and C. Harrisianum.

C. Leeanum, in flower in several distinct forms, is certainly more beautiful than either of its parents; it is also, as might be expected, very free in growth. The variety superbum has the dorsal sepal nearly all white, and very prettily spotted.

The best varieties of C. insigne are also very beautiful. C. Sedum candidulum is also most charming. The pure white sepals and petals, slightly flushed with rose on the edges, renders more striking the reddish-purple lip.

C. cardinale is to be seen in large handsome specimens, and gives a dash of distinct colouring to the group. The sepals and petals are blush, the lip cardinal-red. C. calurums also, plentifully in flower, is in its way quite distinct from any of the others; it is also very vigorous in growth; the sepals and petals are darker in colour, greenish, but deeply flushed rosy-red; the lip deep purplish crimson. C. leucorhodum is by far the finest of this group, the flowers large in size, and of the delicate tint in the sepals and petals of C. Sedeni candidulum; it is also very vigorous in growth. C. Arthurianum, a scarce garden hybrid, has been in flower for the last two months; it is quite distinct from any other, and is remarkable for the prominent crimson veins on a greenish-yellow ground. It is worthy of remark that only one plant was raised from seeds of each of the two last-named varieties; they are, therefore, very scarce, and likely to be so. The pretty little C. Schlimii album was also in flower amongst the others. If King Fog permits there will be a fine lot of Angræcum sesquipedale in flower soon; but the flowers of this plant are quite as sensitive to the dense fogs as those of the graceful Phalænopsids. It is rather singular that the Orchid plants themselves do not suffer in the least. A few of the seedling deciduous Calanthes are always in flower during the winter months; some of them are remarkable for their richly-coloured lips; one of the best is C. excellens, a hybrid form between C. Regnerii and C. vestita; the sepals and petals are white, the lip is of a rich purplish colour at the base, the front pinkish.

A very lovely hybrid Dendrobium was in flower—D. euosmum leucopterum; it has been raised in the nursery by crossing D. endocharis with D. nobile. The first-named is itself a hybrid, and is sweetly perfumed; so also is the plant alluded to. The flowers are very fragrant, as large as those of D. nobile, pure white, except the disc of the lip, which is a pleasing purplish-red colour.

Scattered about in the various houses are numerous species of Orchids in flower. The lovely Lælia anceps Dawsoni, which is still greatly valued by collectors, notwithstanding that white forms of anceps are now common enough. The broad, well-formed, pure white sepals and petals of Dawsoni stamp this form as still unsurpassed. There are few flowers open in the Cattleya house at present, except the different forms of L. anceps. A few stray plants of Barkeria Lindleyana, dangling from the glass roof, show how exquisitely beautiful are the rosy-purple flowers, poised on slender spikes, in these dull December days.

A good mass of Arpophpllum spicatum had thrown up a number of its formal-looking flower-spikes, the flowers rosy-red in colour, of small size and closely set. Quite a contrast to it was a number of large, well-flowered plants of Cymbidium Mastersii. This is an excellent winter-flowering species, some varieties of it being much finer than others. It has been long in cultivation, and is badly figured in the *Botanical Register* for 1845, t. 50. This species may easily be taken for C. eburneum in its manner of growth, but the flowers are smaller—white, and rosy-purple spotted; they are also sweetly perfumed. The visitor cannt fail to be impressed with the value of the Cypripediums for winter flowering. Take this genus away, and how great would be the void. The flowers also continue such a very long time in good condition. It is no wonder that this genus is so very popular, and that scarce and beautiful varieties are so eagerly purchased at higher prices than may be obtained for any other class of Orchids. The demand for the best forms is greater than the supply, but one may safely predict that, during the next few years, scores of handsome seedling forms will be produced to satisfy the craving for them.

Orchids at Mr. W. Bull's.

We usually associate the fogs and frosts of mid-winter with a general barreness of flowers in our glasshouses, and especially in those in which these natives of tropical lands are cultivated. A visit to any large trade Orchid grower or to any private collection would at this date dispel, in most instances,

this preconceived notion born of early experience, when the species were comparatively few in number, and the skill of the cultivator less than at present. We recently received a lengthy list of species and varieties of Orchids in bloom at Mr. Bull's nursery, Chelsea, and without doubting in any degree the accuracy of the list, we were desirous of seeing under what conditions of culture these various plants were producing their blooms. It was conceived that, like the summer arrangements at this nursery, we should find them all brought together in one house, but that is not so, the plants being scattered in the many different houses, in which their cultivation is mainly carried on. There is, therefore, no endeavour to obtain effects by grouping, or by contrast, and to see all it was necessary to make a tour of the place.

We may state that the total number of species and varieties in flower amounted to 115, and includes first, on account of their numbers, Cypripedium, Odontoglossum, Oncidium, then Lælia, Dendrochilum, Masdevallia, Cœlogyne, Ada, Angræcum, Barkeria, Cattleya, Miltonia, Epidendrum, Sophronitis, Lycaste, &c. A mention of the more showy, or the more rare, will suffice on this occasion, and we must advise those desirous of fuller acquaintance with winter-blooming Orchids to pay an early visit, if possible, to the establishment.

Of Cypripediums we observed Lawrenceanum expansum, a fine form with a dorsal sepal of great breadth; hence the latter part of its specific name. Many forms of C. insigne, notably punctatum violaceum, a variety with a broadish margin of white, into which the spotting spreads, these spots being violet in colour, whilst the others are brown. Other nice things were C. Sedeni, C. Stonei, C. superciliare, C. Dautheri, and C. hybridum marginatum—another variety, in which the increase of the white margin in the dorsal sepal is a noticeable feature.

A lot of Lælias were grouped together, and so they were very effective, their cheerful colours lighting up the house. There were noticed L. anceps, L. a. Barkeri, L. a. splendens, L. a. venusta, L. a. oculata, and the darkest in colour L. a. rubra; L. albida Bella was very beautiful.

In one of the Odontoglossum houses was a pretty group of Odontoglossum Pescatorei; in another, O. maculatum and many of O. crispum and Rossi majus. Other Odontoglots nicely in bloom were Arnoldianum, cirrosum, Hrubyanum (new), Halli, constrictum, nebulosum pardinum, grande, and Insleayi leopardinum.

The rare Pleurothallis scapa, a plant formerly in the late Mr. John Day's collection, was in flower; it is of curious structure, and large for a Pleurothallis, but not possessing anything very striking in colour. A large number of Sophronitis grandiflora, together with Ada aurantiaca, made a brilliant show in one of the smaller houses. Masdevallias in small numbers were in flower, and spikes of unopened flowers bristled over the numerous plants; M. Tovarense made the best show; and blooms were observed on M. ignea militaris purpurea, M. i. speciosa, M. polysticta, M. triangularis, and others. Of Oncids in bloom we may have counted twelve species, especially good being O. papilio and its better variety, O. Kramerianum; the soft yellow Weltoni, the sweet-scented cheirophorum, crispum, unguiculatum, varicosum, nubigenum splendens, and tigrinum. Lycastes were found in some variety, viz., L. Skinneri, L. S. alba, L. S. rubella, L. S. rubro-marginatum—this last with rich-coloured flowers.

Of miscellaneous Orchids in bloom were several Miltonias, as Clowesii pauciguttata, spectabilis, and cuneata; Burlingtonia decora, Barkeria Lindleyana, B. elegans, Cattleya chocoensis (whitish, with its apparently half-opened flowers), C. Trianæ delicata, C. T. Vesta, and C. luteola; several Dendrochilums, Dendrobium nobile, D. Ainsworthi, D. Veitchianum, a number of Angræcum sesquipedale; these last, with numbers of their pure white flowers, but which soon fade and fall under the influence of fog, and the consequent reduction of sunlight; Cœlogyne cristata, Calanthe Veitchii, and others; two species of Zygopetalum crinitum rubro-venosum, with reddish-coloured bars, and Mackayi majus, whose prevailing tints are bluish.

Other than Orchids deserving mention were plants of Amaryllis ignescens, with scarlet, Vallota-like blooms produced before the leaves; and Clivia chloraceum = C. miniata × C. cyrtanthiflora, large corymbs of tubular flowers of an orange-yellow colour.

CONTINENTAL NOVELTIES.

PAPAVER LÆVIGATUM.

THIS, a native of the Levant, Caucasus, &c., is introduced by Messrs. Haage & Schmidt, of Erfurt, to whom we are indebted for the accompanying illustration (fig. 4, p. 21). The plant is about 1½ feet in height, much branched and bears flowers of about 3—4 inches diameter. Their colour is dark scarlet, with a spot of black at the base of each petal, the spot itself being bordered by a white band. The two exterior petals are nearly twice as large as the other two. It is stated that the plant is very floriferous, and that the cut flowers will remain fresh for several days, which generally is not a characteristic of Poppies. We give the above particulars on the authority of Messrs. Haage & Schmidt, but their account does not tally in all points with the plant of this name described in Boissier's *Flora Orientalis*, vol. i., p. 114.

GODETIA FAIRY QUEEN.

This, another novelty from Erfurt, is a compact dwarf plant after the style of Lady Satin Rose. The



FIG. 3.—GODETIA FAIRY QUEEN: FLOWERS WHITE AND ROSE.

flowers are white, edged with flesh, and each petal has a carmine spot at the base, as shown in the illustration (fig. 3).

HOME CORRESPONDENCE.

FUELS AND STOKING.—There are very few private places in the country where a man is regularly employed to do the stoking, the work being performed by the young gardeners as a part of their duty, and it is patent to every gardener who has much glass under his charge that some young men show more aptitude than others as stokers. A good knowledge of stoking is a very important item in a gardener's education. There are some young men who are constantly going from one extreme to the other; the pipes are either too hot or too cold (these are both ugly evils), and are what one might term fuel-wasters; but to have a man attending fires who studies them and his temperatures is a boon, and such a one should always receive credit from his superiors. The former class of men are found in the minority. But cases have come under my notice where the young men are not altogether at fault, the fault lying in the furnace or the fuel used, and in these days it is a very easy matter to rectify such mistakes, considering the number of different boilers there are in the market, and the variety of fuels obtainable. Perhaps the most common kind of fuel in use is ordinary gas-coke; this is clean, and produces very little smoke, which is an important point in a garden, or when the glasshouses are situated near a town. This is the kind used at Kew to heat the numerous compartments for the growing of tropical plants (or it was solely in use some three or four years ago). It generally gives satisfaction in almost any kind of boiler, whether large or small, and is readily obtained. Foundry-coke—or, as it is sometimes called, charcoal coke—no doubt on account of it being shaped in long narrow pieces; this is made at the collieries, and large quantities of it go to London instead of sending up the coal from which it is made. It is much harder and a little more expensive than gashouse coke, and has more lasting power in it, and is very suitable for burning in upright tubulars, as it gives off more heat than gashouse coke and does not require so much attention. We find it more liable to become lodged between the tubes of upright boilers than other coke, which sometimes causes serious inconveniences; to modify this, it is all broken up to the requisite size before putting it on the fire—a thing we scarcely have to do with gashouse coke. Anthracite or Welsh coal is not in very general use at present; we are giving it a trial, and at a later period shall be in a position to speak of its merits or demerits. Suffice it to say for the present that we find it of very slow combustion, producing but little smoke and flare, lasting longer than any other fuel we have tried; in fact, I was going to say you might make a fire up with it and shut off the draught closely at the beginning of the week, go out for a few days, return, and find your fire still alight—but with what results I must be mute. Occasionally we meet with boilers that have by far too much piping attached to them, and the hot water having to travel a long way to complete some of its work. This is a mistake, it being always better to have an extra boiler put in so that they may work together or separately, or, better still, in some cases to build another stokehole instead of doing all the work from one centre. *W. H.*

CHRISTMAS ROSES.—Mr. Hartland's opinions about the difference of Helleborus altifolius and Mr. Poë's Riverston variety are quite correct; the latter is evidently a niger variety; the foliage of H. altifolius of gardens is so massive and distinct that it cannot be mistaken, and the foliage of altifolius type and altifolius albus is also more lanky and narrower than that of any niger variety. The flowers of all the niger varieties, whether of the stellate or cup-shaped section, have an even smooth surface and outline, the edges soft and roundish; the flowers of the altifolius group are always uneven, somewhat rugose, undulate, the edges broken and ruggish. I do not put much value on a pink or white stigma, or on mottled or green stalks, evidence of which opinion I have just before me in the shape of an altifolius variety having apple-green stalks, white stigmas, and pure white flowers. This has been found in the garden attached to an old mansion in Silesia, and the plant is so characteristic that there can be no doubt it is an accidental variety of altifolius. Helleborus niger ruber is a stately plant but flowers rather late. *Max Leichtlin, Baden-Baden.*

CHRISTMAS ROSES AND SLUGS.—A question was asked in the *Gardener's Chronicle* of Dec. 22 How to save Christmas Roses from slugs? In autumn, as soon as the buds show signs of moving, I go over my plants, removing all dead leaves and rubbish, and keeping a sharp look-out the while for slugs, and when all is clean I mulch the crowns with cocoa-nut fibre refuse. The Christmas roses come very clean through the fibre, especially if helped later on with a hand-light, which should be raised from the ground to allow a free circulation of air. If the enemy were in very strong force something more might be necessary. Much may be done with baits of bran, Cabbage-leaves, &c. *J. S. W.* [The slug in question is not the common one, but one of very small size and dainty appetite. ED.]

LILIUM GIGANTEUM SEED.—In July, a lily, blooming in a bed at Wisley, had much richer coloured flowers than I had ever before seen, so I cut the stem and took it up to the Royal Horticultural Society's show on the 24th of that month. Some good authorities there were as much struck with the colour as I had been, so I regretted that all the flowers had been cut and

chance of seed lost. I brought the stem home, and as a forlorn hope, set it in a pickle-bottle full of water in our porch, the seed-pods formed and swelled, and though not as large as usual, some of them were plump. When cold weather came and the pods seemed damping, they were cut off, and the ripening process continued in my den. On the 24th of last month I had the pleasure of sowing a fair lot of what appeared to be good seed. *George F. Wilson.*

MANURES TO VINES.—The Vines in the vineyards of the Ahrthal have generally been manured with stable manure, but in order to test the effect of an artificial manure on the quantity and quality of the Grape crop, a manurial mixture was prepared, containing the following ingredients:—7 per cent. soluble phosphoric acid, 6 per cent. potash, and 3 per cent. nitrogen. This was applied in small doses at a time on the surface of the soil, and loosely forked in. The final result showed an average increase by the artificial dressing of 20 per cent. of Grapes over the stable manure, and on analysis the artificial manured crop was the richest in sugar. *John J. Wills, Harpenden.*

HERBACEOUS PLANTS.—I had no intention of returning to this subject; but as Mr. E. Jenkins makes such random statements (p. 757, vol. iv.), I feel it my duty to do so, in the hope that those who may have acted on my previous advice will not be misled by his remarks. In alluding to my original list he now states, "It will be observed that the front row would be nearly bare of flowers for nearly nine months of the year." I, on the contrary, assert that it will only be bare of flowers for one month in the year, viz., November. The names of the species, with the time of flowering for each, are as follows:—Campanula collina, June—July; C. carpatica, April—October; Dracocephalum austriacum, June—July; Gentiana verna, April—May; Hepatica triloba and varieties, February—April; Iberis gibraltarica, April—June; Tussilago farfara variegata, March—April; T. fragrans, February—March; Veronica candida and V. reptans, June—July; Helleborus niger and its varieties, December—January. The accuracy of the above may easily be verified when the plants have become well-established. In regard to Onosma tauricum not being a "miffy" subject, the cultural details of your correspondent constitute in themselves a sufficient refutation on that point, and I may pass it by without further comment, coming to Veratrum nigrum. "Dinginess of their flowers" I consider to be an insufficient reason for their only being fit for a botanical garden. *J. Horsefield.*

CHRYSANTHEMUM MRS. COBAY. — When I answered the enquiry as to the description of the Chrysanthemum, named Mrs. Cobay, by "R. D.," I thought he meant Mr. Cobay; but as he classed it with the Princess of Wales' type, I thought it might be a new variety in spite of its bearing the surname of another variety. Of course I could not be positive that the Mrs. was a misprint for Mr., and as Mr. Cobay has no connection with Princess of Wales or Mrs. Heale in form, that, I am aware of, being a sport from Prince of Wales, I am at a loss to know how this variety can be classed with the Princess of Wales type. *E. M. C.*

PEAR GOSSIP.—May I once more trespass on your space for a few remarks on this subject? I would suggest that those who have any Pears ripe during January and February would kindly send up a dish to the meeting of the Royal Horticultural Society. This would be far more valuable than a dozen letters on the subject, I remember well about a dozen years ago a dish exhibited, I think in February, of Beurré de Jonghe; every one was delighted with the flavour of this medium-sized, cinnamon-coloured Pear, and yet it is not generally grown. I quite forgot when writing lately about Pear Pitmaston Duchess, to say that the raiser's name was Sprague. He was for fifty years, gardener to Mr. Williams of Pitmaston, and lived to the great age of ninety years, and that although hundreds of seedling fruits were raised by him it was all done in a haphazard way. Probably it is not generally known that many years ago Lord Scudamore had, for reasons unexplained, to leave this country and take up his residence in France, and it was to him that Herefordshire owes many of the Pears cultivated in the orchards of that county; and it was also this nobleman who at the same time sent the white-faced breed of cattle now known as Herefords, which he found in Normandy, but which originally came from Russia. *J. Rust, Eridge Castle.*



FIG. 4.—PAPAVER LEVIGATUM: FLOWERS SCARLET. (SEE P. 20.)

PLANT PORTRAITS.

AMPELOVITIS SP., *Revue Horticole*, December 1, 1888. China.

KALMIA LATIFOLIA PAVARTI, *Revue Horticole*, December 1, 1888.—Said to differ from the type in the brilliant colour of the flowers.

OSTROWSKYA MAGNIFICA, *Garden*, December 29. (See *Gard. Chron.*, p. 65, vol. iv., 3rd series.)

SPINOVITIS DAVIDII, *Revue Horticole*, December 1, 1888. A Chinese Vine with spiny stems.

VITIS RENIFORMIS, *Revue Horticole*, December 1, 1888, p. p. 537. China.

VITIS ROMANETI, *Revue Horticole*, December 1, 1888, p. 536. China.

PLANTS IN FLOWER AT KEW.

COLUMNEA KALBREYERI. This genus comprises about sixty species, all natives of the tropics of America and the West Indies. Only very few of them have become known as garden plants, the best of these being C. scandens and C. Schiediana, which are strong herbaceous climbers, with rooting stems, lance-shaped leaves, and large axillary flowers of attractive colours. C. Kalbreyeri differs very much from these. It is dwarf, never more than a foot high, clothed with opposite distichous leaves, one in each being small and bract-like, the other 18 inches long, 4 inches broad, somewhat drooping, falcate, olive-green above, purple beneath. The flowers are axillary, several from each node; they are subtended by small green leafy bracts. Peduncle 1½ inch long; calyx composed of five lanceolate leaf-like yellow segments, 1½ inch long; corolla fleshy, 2 inches long, irregular at the mouth, yellow, with a few red stripes inside. The plant flowers very freely, the blooms lasting a long time. This species was introduced by Veitch several years ago.

JUSTICIA CALYCOTHRICHA.

Amongst the Acanthaceous plants now in flower this is one of the most interesting. It forms a shrub 1½ foot high, with erect branches, and opposite lance-shaped leaves 6 inches long. The flowers are crowded in terminal spikes, which have a singular appearance, owing to the erect hair-like calyx lobes, which give the flower-heads a bristly look. The corolla is nearly 2 inches long, and of the form usual in this genus. The colour of the whole inflorescence is bright canary-yellow. There is a second species very similar to this under the name of J. flavicoma. Natives of Brazil.

BROMELIADS.

If for no other reason many of these plants ought to become popular in gardens on account of their flowering in winter. At Kew there are some most attractive kinds in flower now, amongst them being the following Billbergias: — B. Bakeri, this has leaves 1½ foot high, almost erect, green with yellowish spots, and an erect spike, nodding at the top where the yellowish-green flowers are clustered. They are 2 inches long, and are subtended by lance-shaped bracts 2 inches long, rosy-red in colour. B. Sanderiana has erect, broad-toothed, stout green leaves, and a noddding spike of green flowers tipped with blue, the bracts being rosy. B. speciosa is very similar to B. Bakeri, but the bracts are larger, they are 2½ inches long, ¾ inch broad, concave, and bright rosy-red. The leaves in this species are unspotted. B. Cappei, already noted, is still in flower. Several Æchmeas, Tillandsias, and Pitcairneas are also in bloom. *W. W.*

THE HERBACEOUS BORDER.

SOME SELECT HARDY PLANTS.

IRIS GIGANTEA.—This magnificent plant seems to be little known in gardens, though it possesses almost every possible claim to favour. It is easy to grow, has fine foliage, and produces superb white flowers of great substance marked with yellow. Height 4 feet.

I. ochroleuca is similar to the above, but has smaller flowers. I have the two plants growing side by side in my garden, and they are certainly distinct, though, no doubt, near relations.

I. orientalis, a better known, but still comparatively neglected plant, in the way of I. sibirica, with rich

blue flowers of a very distinct shade. It soon makes large plants, and blooms freely. The foliage in its earliest stages is decidedly handsome, being streaked with bright red.

I. sanguinea, as it has been sent to me, is apparently a dwarf variety of I. orientalis. The flowers are of much the same colour, with reddish stems. It is a free grower.

I. graminea.—The flowers, of an unusual shade of red-purple, hide themselves in the grass-like foliage, and, in consequence, this modest little beauty is generally passed by, unnoticed by visitors to my garden. But cut a dozen blossoms and put them in a vase, and most people who are asked whether they like the scent of them will say, "How delicious! It reminds us of ripe Green Gages. What is the name of this charming flower?"

I. Cengialti, a plant now becoming fairly well known. A very free bloomer, the blossoms being nearly as large as those of I. germanica. There are several varieties to be obtained, of various shades of lavender-blue. I think I prefer the one known as Loppio. (See Professor M. Foster's article, *Gardeners' Chronicle*, May 1 and 8, 1886.)

I. benacensis,—A comparatively dwarf plant, with large dark blue flowers, possessing "the light of a dark eye in woman."

I. Redoutei.—Semi-dwarf; has red-purple flowers, with a not unpleasant scent.

I. Pseud-acorus variegata has blossoms similar, though a little darker in colour, to the common yellow Water Flag; but the foliage, green and pale yellow, is very handsome in early spring. Very free grower.

I. aurea.—A noble plant in the style of I. gigantea, with golden fringed flowers. One of the most beautiful Irises with which I am acquainted. Likes a damp but not sunless place.

I. Monnieri.—Another splendid form: rich yellow, but not fringed like I. aurea. It is difficult to get large pieces of these two last Irises. Perhaps the reason why they do not seem to bloom freely is that the plants take a good time to establish themselves.

Hemerocallis.—Some of this meritorious genus are well known in gardens as the golden Day Lily (H. flava), and the tawny Day Lily (H. fulva), perhaps I should add the variegated Day Lily (H. kwanso variegata); but the following seem to me to claim at least equal attention, inasmuch as they are no less decorative in the border, while the last on the list, H. Thunbergi, is very useful as a cut flower.

H. Dumortieri.—Yellow with bronze exterior—a distinct and useful plant, 1 foot high, early. H. rutilans and H. Sieboldi, as sent to me, are similar to, but not so good as, H. Dumortieri.

H. graminea.—A very pretty dwarf form with soft yellow flowers.

H. Middendorfii.—Flowers rich yellow; about 12 to 16 inches high, possibly taller in very favourable situations. Handsome.

H. disticha plena.—Large double flowers; in colour fiery orange flamed with scarlet. Very effective.

H. Thunbergi.—Much to be recommended. It is about the same height as H. flava, but the colour of the flower is a pale yellow. The blossoms, like those of H. flava, are sweet-scented. This species flowers after H. flava is over, and is very useful for cutting.

Single Pæonies.—I should like to draw attention to a few single Pæonies, which seem to me most desirable for all gardens:—

Pæonia anomala.—A lovely flower, in colour almost scarlet, with golden anthers. This plant strikes everyone who sees it in blossom. As far as I can make out it is identical, or nearly so, with one they have at the York Nurseries under the name P. insignis. P. anomala has very pretty much divided foliage. I bought a plant of it at the sale by auction at the Exotic Nursery, Tooting, and in planting it broke a very small piece off the main plant; this, last summer, had nine blossom-stems, and the small bit two. This shows that it is a free grower and flowerer.

P. albiflora var. festiva fragrans.—Under this name I obtained from the York Nurseries a handsome rosy-pink flowered plant, which I can recommend. It is tall and free. The blossoms are large, and look very well by artificial light when cut.

P. Whitleyi major.—This is a handsome and striking plant, received from the same source. The flowers are very large, white, with yellow anthers. I give the names of these two last Pæonies as I received them, without offering any opinion as to their correctness,

Montbretias.—These flowers are, I think, likely to take a foremost place for winter decoration, and for cutting. I have seen in blossom a fair number of named varieties, and out of them would most strongly recommend Etoile de Fer (Fiery Star), fiery vermilion and yellow; and Gerbe d'Or (Golden Sheaf), a golden-yellow self. M. crocosmæflora is very handsome in a mass, and a variety with dark coloured leaves and yellow flowers, called Solfatara, struck me as desirable, but I have not yet flowered it in my own garden. These plants require a little protection in winter, but their profuse bloom, free habit, and bright colours, will repay a little trouble. A good loam, with a little sand, is what they like. *North-Easter.*

PLANT NOTES.

CENTROPOGON LUCYANUS.

The free-flowering disposition of this plant, and its easy culture, ought to make it more popular than it is at present. The flowers are of a rose-red, produced in great profusion at this time of the year. Cuttings put in during the early part of the year and grown on in a compost of loam, leaf, and sand, make sturdy plants for decorative purposes at the present time. On account of their semi-erect habit they are suitable for growing in baskets. A few old plants pruned in after flowering, and kept growing on, are more useful than those propagated in the spring for cutting from.

Thunbergia fragrans.

Of this there are two kinds, one answering to its specific name, the other which does not, has been named T. f. var. lævis. They are slender twiners, with dark foliage, bearing pure white flowers, and are particularly suited for covering walls or other places in the warm-house. It is in bloom more or less throughout the whole year. It propagates as readily as a piece of Willow; pieces with two or three joints should be put into pots. Should it be required for covering a large space it should be planted out in a well-drained situation and given a compost of loam, leaf-mould, and sand. Seeds are produced somewhat freely, especially if assisted by pollinating the stigmas.

Thunbergia laurifolia (T. Harrisii).

This plant may be grown, in pots, trained to stakes or on a wire balloon, but best of all trained on a trellis, or on the roof, where it can have ample room, and where it never fails to be a source of admiration. In small houses, where room cannot be afforded, it should be grown in pots. When planted out it should be somewhat confined at the roots, and this is best done by making a small brick partition for its reception: this tends to make it all the more floriferous.

About the nodes on the younger growths there are a large number of small cup-shape secretory glands, of which Mr. W. Gardiner, in one of his papers before the Cambridge Philosophical Society, says, "The secretion is of a watery nature, and possesses a slightly acid reaction." Mr. Gardiner believes that the secretion serves to attract ants, which, besides feeding upon it, also protect the thin young climbing shoots by attacking and destroying other creeping insects of alien races with whom they may meet in their passage up and down the stem. Many of these insects, such as cockroaches and caterpillars, are known to be very destructive to young buds. Mr Gardiner has been able to establish from actual observation of plants at Kew, that ants actually visit the hairs and feed upon the secretion. Similar hairs are found upon the calyx."

Impatiens Hookeriana.

The blossoms of this species are equivalent to those of many an Orchid. The flowers are large, white spotted, and marked upon the lower portion with crimson, doubtless for the purpose of attracting insects to the mouth of the spur to partake of the nectar therein. The other day I noticed ants after the sweet juice, and one had got so far down the spur as to completely wedge itself in, clearly showing that the flower was never arranged for its accommodation, but for some larger being who would bring about cross fertilisation in its endeavour to reach the nectar. This plant is now in flower in one of the new stoves of the Cambridge Botanic Gardens.

Linum tetragynum and L. trigynum.

These plants like many others are shown off to the best advantage when arranged in small groups of say from half-a-dozen to a dozen plants in a batch. The first named species bears fine truss-like heads of lemon-coloured flowers, its habit is somewhat stiff and strong, and does not make such neat plants as L. trigynum, but it should be more frequently met with than it generally is. The kind of treatment for the one is suited for the other save that L. tetragynum does not require so much stopping as trigynum. Cutting should be put in sometime during the spring months, they soon strike if kept in a close damp case and shaded from the rays of the sun. They should be potted on as soon as rooted, and as they root freely and are to be kept in pots—either 48's or 32's—they should be put into some good strong yellow loam and sand with a little leaf-mould added. When the season is advanced enough they should be removed to the cool frame, or may even be plunged in the open; but they are more likely to make better plants if kept under glass, where their wants can be better seen. The syringe should be brought into use two or three times a day when the weather is suitable, in order to keep down the pest that they are much subjected to, viz., red-spider. Abundance of air should be given them on all suitable occasions. An occasional top-dressing of Clay's Fertiliser and soot mixed together is a great assistance in keeping the foliage strong and healthy. They can be made to last in flower over a long period by keeping the main batch in an intermediate temperature, and introducing them to a warmer structure as needed. *W. Harrow, Botanic Gardens, Cambridge.*

COLONIAL AND FOREIGN.

JAMAICA.

Grafting the Mangosteen.—It may be of interest to place on record the fact that the Mangosteen (Garcinia Mangostana, L.) has been successfully grafted on the Gamboge tree (Garcinia pictoria, Roxb.) at the Castleton Botanic Gardens. The Mangosteen fruited at Castleton for the first time in the latter part of 1885. Only a few fruits were then produced, and none of them contained any seeds. By way of experiment the Mangosteen and the Gamboge were grafted by the process known as inarching, or approach grafting. When the plants had been grafted a month we began to sever them from the parent tree: this was done very gradually, the cut being deepened a little each week, and at the end of three months the plants were taken from the tree and it was found that union had perfectly taken place.

The tree has not proved fruitful at Castleton, but I think that is due mainly to the poorness of the soil, and when a little manure can be scraped together there are so many things in need of it that the larger plants like the Mangosteen, &c., are generally overlooked. The Mangosteen undoubtedly requires good treatment. The true which fruited in 1885 received a heavy dressing of manure about nine months previously, and it had several applications of liquid manure. The tree which is now fruiting

had also a heavy dressing of rich manure mixed with fresh soil about seven or eight months ago.

The "Jew Plum" (Spondias dulcis, Forst.) is called Mangosteen in some parts of Jamaica, but this is an entirely different tree from Garcinia Mangostana. *W. Harris, in "Bulletin" of Jamaica Botanical Department.*

BANGALORE GOVERNMENT GARDENS.

The following summary of the report of the progress of the Botanical Gardens at Bangalore, under the charge of Mr. Cameron, is of interest. It is, however, strange to see the Chocho spoken of as a new introduction. The season of the year (1887-88) was on the whole favourable for gardening, and the experiments made with new and rare plants encouraging. The important botanical work of examining plants, naming them, and compiling as far as possible a correct list of the vernacular names of them is progressing steadily. Mr. Cameron has received valuable assistance in this work from Mr. M. A. Lawson, botanist to the Madras Government, and the thanks of the Darbar are due to this officer for his kindness. The results of the experimental cultivation of food plants are very encouraging. New Potatos of various kinds imported from England and Scotland have yielded "most satisfactory" results, and the crop raised in the Palace Gardens was the "finest." The Sechium edule or Chocho, is a new introduction from Tropical America. Under "fruit trees," very large varieties of Grape-vine, Apple, Apricot, Peach, and other English fruits have been planted with very encouraging results. The experiment of Date Palm cultivation is similarly hopeful.

CULTIVATION OF USEFUL PLANTS IN HAINAN.

(*Concluded from p. 678, vol. iv.*)

SUGAR-CANE.

THIS plant can be grown on any ground, high or low, sandy or muddy. The beds are about 5 feet wide, and on each side of them room is left for an ox to walk. The plants are raised from the points of strong canes kept over from the previous year, and these are placed in the ground sideways about the month of February, and in a few days a number of shoots start from the joints. Human manure is put in with the points at the time of setting. When the shoots are about 14 inches long the sheath is cut off, and a hole made with a kind of trowel in the ground at the side of each plant, into which a quarter of a ground-nut cake is put; an ox-plough is then used to throw up the ground at the sides of the beds, and, if ground-nut cake is used several times, this throwing up of the ground also takes place each time. By frequent manuring the canes become stronger. In the eighth and ninth seasons the canes are sufficiently matured, and they are then cut down day by day as required for pressing, an end being left in the ground to prevent planting afresh in the following year.

Sugar cannot be grown successfully on the same ground three years in succession, and ground-nuts are the best alternative crop for the third year. In the fourth year Sugar-cane can be again planted.

Another kind of Sugar-cane is cultivated at Kiungchow, known as the "Water Sugar-cane," from which sugar cannot be expressed, and which is only used for sucking. Of this sort there are two varieties, purple and green. The plants are raised in the same manner as ordinary Sugar-cane, and are fit for eating in three months after planting.

SWEET POTATOS (IPOMÆA BATATAS).

These form the largest crops in Kiungchow, and can be planted at any time of the year, and in any soil except fine sand. They should not be planted deeply, and the ground should be loosely covered over them. Ox manure and wood ashes are used at the time of planting, and there is no necessity either for further manuring or watering. They mostly reach maturity in a hundred days, but one kind is ready in sixty days. The natives use them for feeding pigs. Fields specially devoted to Sweet Potatos can be planted twice a year, but after the first crop it is necessary to wait till the weeds appear, which must be ploughed up and left to rot for a month or more, when the second crop can be planted. If the second crop is planted immediately on top of the first the Potatos are sure to rot. Sweet Potatos are generally grown as an alternate crop, and are raised as follows:—"Healthy tubers of last year's crop are planted, and these form shoots, which are allowed to grow about a foot long, and till they have six joints, when they are cut off, and the original Potato is useless. The shoots are then planted, three joints being put in the ground, and three left outside. Those outside produce leaves, and those in the ground Potatos." The average yield is about 30 cwt. per acre.

WATER MELONS.

Two kinds are described as being cultivated, one with large, and the other with small fruits, the latter being about the size of a large breakfast cup. The large fruits contain a quantity of edible pulp, for which they are valued, while the small ones yield only seeds, which are eaten at dessert. One crop of large Melons is produced each year, the seeds being sown in February. As the plants appear they are watered every evening at sunset with liquid manure. They flower about the end of April, and produce fruit from the end of May to October or November. When the Melons are about the size of a breakfast cup, the weak ones are gathered and sold for cooking as vegetables; only half are left to ripen. Two crops of the small Melons are gathered each year, namely, in June and September.

A large variety of Pumpkins is also grown, the fruits of which are developed a month after the seeds are sown, and they continue bearing for four months. Various other vegetables can be successfully grown, and as many as six crops can be raised on the same ground each year.

VARIORUM.

COTTAGE GARDENS.—On Col. TOMLIN'S estate at Orwell Park, near Ipswich, the following fruit trees are grown for the benefit of the cottagers on the estate, viz., Walnut trees, one to each garden; Victoria Plums, Hawthornden and Keswick Codlin Apples. It would be well if this example were generally followed, and that the prizes at local horticultural shows should, as we believe is the case at Grantham, consists of a selection of the kinds of trees, bulbs, seeds, &c., best adapted to the requirements of particular situations.

WOOD OF THE RED CEDAR.—From a note in the *English Mechanic and World of Science* it appears that the paper manufactured from the wood of the Red Cedar (Juniperus virginiana) has been found useful for underlaying carpets, and for wrapping wool, furs, and other articles liable to be injured by moths, which are driven away by the peculiar odour of this wood. The wood from which this paper has been made has been the waste of pencil factories; but if it is found to possess the value which is attributed to it, the establishment of pulp mills in parts of this country where the Red Cedar abounds will, no doubt, prove an exceedingly profitable enterprise. The Red Cedar is the most widely distributed of North American trees. It is found growing, often in great abundance, from Canada to Texas, and from the shores of the Atlantic to those of the Pacific. In some parts of the country, especially in Florida, where the best pencil wood has been procured, and along the valley of the Red River in Texas, it grows to a large size, with tall, straight trunks, which yield straight-grained lumber of high quality. More often the trunks of the trees are short, often contorted, and filled with knots, and, therefore, unfit to manufacture into lumber, and up to this time have been of very little value, except for fence-posts and inferior railway-ties. If Cedar paper, however, is really valuable, the trees which have been considered worthless can be profitably utilised. In the central and in the eastern parts of the States of Kentucky and Tennessee there are hundreds of square miles of rocky and sterile soil—Barrens, as these lands are known locally—covered almost entirely with Red Cedars, which, if they can be profitably manufactured into paper-pulp for this special purpose, will give a much greater value to these lands than they have ever been suspected of possessing.

THE WOOD OF TAXODIUM DISTICHUM.—It appears from a recent issue of the *Southern Lumberman*, published in Nashville, that the soft, spongy wood of the knees, peculiar growths upon the roots of the Southern Cypress (Taxodium distichum), is sometimes manufactured into razor-strops, which are pronounced more effective than the leather-covered, stiff strops in general use. It is necessary, however, to keep them protected from dust, which adheres readily to the soft wood, and soon becomes embedded in the grain, ruining it for this purpose. *Garden and Forest.*

Obituary.

VISCOUNT EVERSLEY.—We regret to have to announce the death of Lord Eversley, on the 26th ult., at the patriarchal age of ninety-five. He died at Heckfield, the place he loved so well, and where, we believe, he was born.

As a public man Lord Eversley was best known as a former Speaker of the House of Commons—a post which he held with dignity and impartiality from 1839 to 1857, and on his retirement received the reward due to such distinguished services. But it is with the deceased nobleman as a gardener, rather than as a public man, that we have to deal, and few men occupying a similar position in society were more devoted gardeners than he. It was not merely that he had much gardening knowledge, he loved gardening, and that very love also promoted in him a wonderfully deep attachment for his beautiful home at Heckfield. Never was he so happy as when there; always loth to leave it—always delighted when he could return to it. Towards his well-known gardener, Mr. Wildsmith, he was much less an employer than a friend, and there had grown up between these two, though so widely differing in social status, a kindliness of feeling far too seldom met with under similar circumstances. When Mr. Wildsmith met with an unfortunate accident, some years since, Lord Eversley's concern was of the most marked character, and he felt the misfortune to his gardener as deeply as any one. Only gentlemen animated by deep love for their gardens would have similar anxiety for a gardener's welfare. In all the various alterations and extensions which have been carried out at Heckfield, whether large or small, all tending to improve and enlarge the gardens, Lord Eversley showed the liveliest interest—in fact, the beautiful gardens were his delight. The deceased Viscount was a Fellow of the Royal Horticultural Society, and probably one of its oldest members. He was a liberal supporter of the local societies in his own district, and entered into the competitions in which Heckfield was concerned with all the zest of an enthusiastic gardener.

It may be stated that a pure white break from Chysanthemum Princess Teck, raised at Heckfield, and which bids fair to make one of the most useful as well as popular of market varieties, worthily commemorates the late noble lord in the Chrysanthemum world.

Heckfield, we have been informed, passes into the hands of Miss Shaw-Lefevre, a very hearty though now aged lady, for her life, after which it will pass into the possession of Mr. G. Shaw-Lefevre, M.P. for Bradford, the late Viscount's nephew. Lord Eversley having no sons the title thus becomes extinct. Miss Shaw-Lefevre is happily devotedly attached to Heckfied, and we trust that Mr. Wildsmith's association wsth it will yet long continue.

THE WEATHER.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree — a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE. Above or below the Mean for the week ending Dec. 24.	ACCUMULATED. Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	5 above	25	8	— 178	+ 103
1. SCOTLAND, E. ...	5 above	12	24	— 397	+ 26
2. ENGLAND, N.E. ...	3 above	[illegible]	21	— 449	— 50
3. ENGLAND, E. ...	3 above	13	24	— 313	+ 93
4. MIDLAND COS. ...	4 above	24	14	— 389	+ 67
5. ENGLAND, S. ...	5 above	28	4	— 370	+ 111
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	5 above	25	6	— 289	+ 44
7. ENGLAND, N.W....	3 above	25	6	— 294	+ 18
8. ENGLAND, S.W....	4 above	33	1	— 408	+ 205
9. IRELAND, N. ...	2 above	23	8	— 207	— 62
10. IRELAND, S. ...	3 above	32	8	— 174	+ 13
— CHANNEL ISLANDS	3 above	43	0	— 204	+ 126

DISTRICTS.	RAINFALL. More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	BRIGHT SUNSHINE. Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	5 less	236	42.6	9	27
1. SCOTLAND, E. ...	0 (aver.)	204	30.3	7	28
2. ENGLAND, N.E. ...	3 less	182	25.4	8	26
3. ENGLAND, E. ...	0 (aver.)	183	24.4	13	29
4. MIDLAND COS. ...	1 less	172	25.7	7	27
5 ENGLAND, S. ...	0 (aver.)	180	27.8	12	28
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 less	195	45.5	3	29
7. ENGLAND, N.W....	4 less	195	30.5	3	27
8. ENGLAND, S.W....	4 above	203	38.0	6	33
9. IRELAND, N. ...	3 more	210	36.3	11	27
10. IRELAND, S. ...	16 more	192	39.4	15	32
— CHANNEL ISLANDS	2 less	222	30.6	20	39

THE PAST WEEK.

The following summary record of the weather for the week ending Dec. 31, is furnished from the Meteorological Office :—

"The *weather* continued unsettled and rainy during the earlier part of the period, but subsequently became dry and fair—at first in the west and north, and afterwards in the south and east. At the end of the period, however, the conditions had again become rainy on our western and northern coasts. Thick fogs were experienced in some parts of England on the 31st, especially in the metropolis.

"The *temperature* was generally above the mean during the first part of the period, but towards its close it decreased rapidly so that the average values for the week have been from 1° to 3° below the normal in all districts except 'England, S.,' and the 'Channel Islands.' The highest of the maxima were recorded in most places on the 27th, when they ranged from 45° in 'Scotland, N.,' to 53° in 'England, "S.W.," and 54° in the 'Channel Islands.' On the 31st the maximum in London and at Cheadle and Strathfield Turgiss was only 32°, while at Oxford it was as low as 29°. The absolute minima, which were generally registered either on the 30th or 31st, varied from 16° to 18° in Scotland, from 19° to 25° in England, and from 20° to 21° in Ireland. In the 'Channel Islands' the lowest reading was 38°.

"The *rainfall* has been rather more than the mean in most districts. In the 'Midland Counties' the excess has been considerable.

"*Bright sunshine* has been more prevalent than of late. The percentage of the possible amount of duration has, however, still been rather low, having ranged from 11 in 'Scotand, N.,' to 23 in 'England, N.E.,' and 'Ireland, N.,' to 27 in 'Ireland, S.,' and to 32 in 'England, S.W.'"

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE. Above or below the Mean for the week ending Dec. 31.	ACCUMULATED. Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 3, 1888.	Below 42° difference from Mean since Jan. 3, 1888.
Principal Wheat-producing Districts.	°	Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	3 below	0	43	— 186	+ 117
1. SCOTLAND, E. ...	3 below	0	55	— 405	+ 40
2. ENGLAND, N.E. ...	2 below	0	41	— 457	— 43
3. ENGLAND, E. ...	1 below	5	40	— 314	+ 100
4. MIDLAND COS. ...	2 below	0	38	— 398	+ 70
5. ENGLAND, S. ...	1 above	9	27	— 375	+ 112
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 below	0	37	— 301	— 31
7. ENGLAND, N.W....	3 below	0	33	— 305	+ 23
8. ENGLAND, S.W. ...	2 below	10	32	— 423	+ 223
9. IRELAND, N. ...	3 below	3	34	— 219	— 50
10. IRELAND, S. ...	3 below	10	38	— 185	+ 32
— CHANNEL ISLANDS	1 above	29	0	— 203	+ 122

DISTRICTS.	RAINFALL. More or less than the Mean for the Week.	No. of Rainy Days since Jan. 3, 1888.	Total Fall since Jan. 3, 1888.	BRIGHT SUNSHINE. Percentage of possible duration for the Week.	Percentage of possible Duration since Jan. 3, 1888.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	3 more	242	43.7	11	26
1. SCOTLAND, E. ...	4 less	208	30.7	21	28
2. ENGLAND, N.E. ...	1 more	187	26.1	23	26
3. ENGLAND, E. ...	1 less	188	24.8	18	29
4. MIDLAND COS. ...	6 more	175	26.9	17	27
5. ENGLAND, S. ...	1 more	184	28.5	17	28
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	5 less	200	47.0	18	29
7. ENGLAND, N.W....	1 more	200	31.4	18	27
8. ENGLAND, S.W....	0 (aver.)	208	39.1	32	33
9. IRELAND, N. ...	4 more	217	37.4	23	27
10. IRELAND, S. ...	0 (aver.)	197	40.4	27	31
— CHANNEL ISLANDS	5 more	228	32.0	19	39

BOTANICAL NOTES ON COMMON PLANTS GROWING IN JAMAICA.—The Inspector of Schools requires that students in training colleges should prepare for examination in botany, the chapters referring to this subject in PAUL BERT'S *First Year of Scientific Knowledge*, and should be able to describe thirty plants commonly found in Jamaica.

MARKETS.

COVENT GARDEN, January 3.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

MARKET still very quiet, with heavy supplies. Canadian Apples lower. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, half-sieve...	2 0– 4 6	Grapes, per lb. ...	0 6– 3 0
— Canada and Nova Scotia, per barrel	5 0– 12 0	Lemons, per case ...	12 0–21 0
Cobs, 100 lb. ...	100 0–110 0	Pine-apples, Eng., lb.	1 6– 2 0
		— St. Michael. each	2 0– 8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English, per 100 ...	5 0– ...	Mustard and Cress, punnet	0 4– ...
— French, bundle	0 8– ...	Onions, per bunch ...	0 5– ...
Beans, Jersey and French, per lb. ...	1 6– ...	Parsley, per bunch...	0 8– ...
Beet, red, per dozen	1 0– 2 0	Peas, French, per lb.	1 0– ...
Carrots, per bunch...	0 6– ...	Potatos, per cwt. ...	4 0– 5 0
Cauliflowers, each ...	0 3– ...	— kidney, per cwt.	4 0– 5 0
Celery, per bundle ...	1 6– 2 0	— new French, lb.	0 6– ...
Cucumbers, each ...	1 0– ...	Rhubarb, bundle ...	0 6– ...
Endive, per dozen ...	3 0– ...	Seakale, punnet ...	2 6– ...
Green Mint, bunch...	1 0– ...	Shallots, per lb. ...	0 6– ...
Herbs, per bunch ...	0 6– ...	Spinach, per bushel...	4 0– ...
Leeks, per bunch ...	0 4– ...	Tomatos, per lb. ...	2 0– ...
Lettuce, per dozen ...	1 6– ...	Turnips, per bunch, new	0 6– ...
Mushrooms, punnet	1 6– ...		

POTATOS.—Beauty of Hebron, 80*s.* to 100*s.*; Imperators, 70*s.* to 90*s.*; Dunbar Regents, 110*s.*; do. Magnums, 120*s.*; and York Magnums, 100*s.* per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Epiphyllums, doz....	18 0–30 0
Arum Lilies, p. doz.	9 0–15 0	Ferns, in var., doz.	4 0–18 0
Azaleas, dozen ...	24 0–42 0	Foliage plants, various, each ...	2 0–10 0
Chrysanthems., doz.	4 0– 9 0	Ficus elastica, each .	1 6– 7 0
— large plants, each	2 0– 4 0	Hyacinths, dozen ...	9 0–12 0
Cyperus, per dozen .	4 0–12 0	— Rom., doz. pots	9 0–10 0
Dracæna terminalis, per dozen	30 0–60 0	Lily-of-Val., doz. pts.	18 0–30 0
— viridis, per doz.	12 0–24 0	Marguerites, doz. ...	6 0–12 0
Erica hymalis, doz...	12 0–24 0	Palms in var., each	2 6–21 0
— caffra, dozen ...	6 0–12 0	Pelargoniums, scarlet, per dozen ...	6 0– 9 0
— gracilis, dozen...	8 0–12 0	Poinsettias, dozen ...	9 0–15 0
Euonymus, in var., per dozen	6 0–18 0	Primulas, per dozen	4 0– 6 0
Evergreens, in var., per dozen	6 0–24 0	Solanums, dozen ...	9 0–15 0
		Tulips, dozen pots ...	6 0– 9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutillons, 12 bun....	3 0– 6 0	Marguerites, 12 bun.'	3 0– 6 0
Arum Lilies, 12 blooms	4 0– 8 0	Mignonette, 12 bun.	2 0– 4 0
Azaleas, 12 sprays ...	0 9– 1 0	Narcis., paper-white, (French), 12 bun...	3 0– 6 0
Bouvardias, per bun.	0 9– 1 6	— double, 12 bun...	3 0– 4 0
Camellias, 12 blms.	3 0– 6 0	Pelargoniums, 12 spr.	1 0– 1 6
Carnations, 12 blms.	2 0– 3 0	— scarlet, 12 spr....	0 6– 1 0
Christmas Roses, 12 blooms	0 6– 1 6	Poinsettias, doz. ...	4 0– 9 0
Chrysanthemums, 12 blooms	0 6– 3 0	Primulas, dbl.,12 sp.	1 0– 1 6
— dozen bunches...	4 0–12 0	Roses, Tea, per doz.	2 0– 4 0
Eucharis, per dozen	3 0– 6 0	— coloured, dozen.	2 0– 4 0
Gardenias, 12 blooms	12 0–15 0	— red, per dozen ...	1 0– 2 0
Heliotropes, 12 spr.	0 6– 1 0	— Safrano, dozen...	2 0– 3 0
Hyacinths, Roman, 12 sprays	1 0– 1 6	Stephanotis, 12 spr.	12 0–15 0
Lapageria, 12 blooms	1 0– 2 0	Tuberoses, 12 blms....	1 6– 3 0
Lilac, white Fr., bun.	5 0– 7 0	Tulips, 12 blooms ...	1 0– 1 6
Lily-of-Val., 12 spr.	0 9– 1 6	Violets, 12 bunches...	1 0– 1 6
		— dark, Fr., bunch	1 6– 3 0
		— Parme, Fr., bun.	6 0– 7 6

SEEDS.

LONDON: *Jan.* 2.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that the trade for farm seeds exhibits a strong undertone for the time of year, and a fair speculative business has been taking place. The most favoured article is still red Clover-seed, several parcels of which have changed hands at full prices. French and American markets for this article are advancing. There is no change in either Alsike, white or Trefoil. For bird-seeds the sale, as is usual at the turn of the year, is slow. Peas and Haricots realise former terms. Linseed is hardening.

FRUIT AND VEGETABLES.

SPITALFIELDS: *Jan.* 2—Very good supplies of all kinds of greenstuffs. Trade exceedingly quiet. Quotations :—American Apples, 8*s.* to 12*s.* 6*d.* per barrel; English do., 3*s.* to 5*s.* per bushel; do., 1*s.* 6*d.*

to 2*s.* 6*d.* per half-bushel; Pears, 2*s.* 6*d.* to 5*s.* per bushel; Savoys, 2*s.* to 2*s.* 6*d.* per tally; Cabbages, 1*s.* to 2*s.* do.; Guernsey Broccoli, 1*s.* to 1*s.* 3*d.* per dozen; Guernsey Cauliflowers, 1*s.* to 1*s.* 6*d.* do.; Spinach, 6*d* to 1*s.* per bushel; Brussels Sprouts, 1*s.* 6*d.* to 2*s.* 3*d.* per half-sieve; Seakale, 1*s.* to 1*s.* 3*d.* per punnet; forced Rhubarb, 1*s.* 6*d.* to 2*s.* per dozen bundles; Parsnips, 6*d.* to 8*d.* per score; Greens, 3*s.* to 4*s.* per tally; Turnips, 1*s.* 6*d.* to 2*s.* per dozen bunches; Carrots, 1*s.* 6*d.* to 1*s.* 9*d.* do.; Parsley, 3*s.* to 4*s.* 6*d.* do.; Beetroots, 8*d.* to 9*d.* per dozen; Celery, 6*s.* to 12*s.* per dozen bundles; Horse-radish, 10*d.* to 1*s.* 2*d.* per bundle; English Onions, 4*s.* 3*d.* to 4*s.* 9*d.* per cwt.; Dutch do., 2*s.* 6*d.* to 2*s.* 9*d.* per bag; Belgian do., 2*s.* 6*d.* to 2*s.* 9*d.* do.; pickling do, 4*s.* to 4*s.* 6*d.* do.; Endive, 1*s.* to 1*s.* 6*d.* per dozen; Carrots, 26*s.* to 32*s.* per ton.

STRATFORD: *Jan.* 1.—The market has been well supplied with all kinds of produce during the past week, and with a good attendance of buyers a brisk trade was done at the undermentioned quotations:—Cabbages, 2*s.* to 3*s.* per tally; Savoys, 2*s.* 6*d.* to 3*s.* do.; Greens, 5*s.* to 6*s.* per dozen bunches; Carrots, household, 25*s.* to 35*s.* per ton; do, cattle feeding, 20*s.* to 22*s.* do.; Mangels, 17*s.* to 20*s.* do.; Swedes, 15*s.* to 17*s.* do.; English Onions, 90*s.* to 115*s.* do.; Dutch, 3*s.* 6*d.* to 4*s.* per bag.; do. German, 4*s.* 9*d.* to 5*s.* 6*d.* do.; Apples, English, 2*s.* to 5*s.* per bushel; Watercress, 6*d.* per dozen; Celery, 6*d.* to 1*s.* doz. rolls; Turnips, 2*s.* 6*d.* to 3*s*, 6*d.* per bushel; Carrots, 2*s.* to 3*s*, do.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended December 29:—Wheat, 30*s.* 7*d.*; Barley, 26*s.* 10*d.*; Oats, 16*s.* 3*d.* For the corresponding week in 1887:—Wheat, 30*s.* 9*d.*; Barley, 29*s.* 5*d.*; Oats, 16*s.* 1*d.*

POTATOS.

BOROUGH AND SPITALFIELDS: *Jan.* 1.—Supplies are light, and the trade quiet, foggy weather and holiday influences still having effect.—Regents, Scotch, 80*s.* to125*s.*; English, 60*s.* to 90*s.*; Hebrons, 70*s.* to 110*s.*; Magnum Bonums, 60*s.* to 120*s.* per ton.

SPITALFIELDS: *Jan.* 2.—Quotations:—Champions, 62*s.* to 65*s.*; Regents, 80*s.* to 95*s.*; Imperators, 65*s.* to 80*s.*; Magnums, 60*s.* to 85*s.*; Beauty of Hebron, 70*s.* to 85*s.* per ton.

STRATFORD: *Jan.* 1. — Quotations: — Scotch Regents, 85*s.* to 105*s.*; Magnums, do., 70*s.* to 110*s.*; English, do., 60*s.* to 80*s.*; Germans, 40*s.* to 105*s.* per ton.

Imports:—The imports into London last week consited of 1998 bags from Hamburgh, 1769 from Riga, 1300 from Stettin, 22 barrels from New York, 16 baskets from Rotterdam.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, old, prime, 120*s.* to 145*s.*; good second, 80*s.* to 110*s.*; inferior, 45*s.* to 75*s.*; prime meadow hay, 120*s.* to 130*s.*; good new hay, 60*s.* to 100*s.*; inferior, 40*s.* to 70*s.*; old straw, 42*s.* to 49*s.*; new, 29*s.* to 42*s.* per load.

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, *do* PLEASE NOTE *that letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the* PUBLISHER, and that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

CREEPERS ON HOUSE-WALL: *D. W.* The landlord has the power to prevent their removal. Trade stock only may be removed, except by arrangement with the owner of the land.

PEACH BORDERS, &c.: *J. H.* We believe the substance to be moss litter. We do not think the sulphur would do material injury to the roots, but, nevertheless, we should remove it as soon as possible. Read *Plant Life* (Bradbury, Agnew, & Co). which deals with both the subjects you name; or the articles on Chemistry and Physiology in *Cassell's Popular Gardening*, now in course of publication.

GARDEN WALL: *A. W.* The thickness of a wall 8 feet in height need not to exceed one brick lengthwise if flat pilasters are erected at every 20 feet; and for this 99 bricks will be required per superficial square yard. The cost of building, when all materials are found, would be afforded by any respectable builder in your neighbourhood. The best and cheapest copings for garden walls in your district would be either moulded bricks made in the locality, or at the Norwood Junction Pottery; or the blue coping slabs made in Staffordshire. Copings should always be set in cement, to exclude moisture.

NAMES OF FRUIT. *Ernest Townsend.* Your Apple is Apam's Pearmain.—*J. H. J.* 1, Grange's Pearmain; 4, Fearn's Pippin; 39, Colonel Vaughan; 26, Mank's Codlin; 7, Nonsuch; 5, Court of Wick; 9, rotten.

NAMES OF PLANTS: *Constant Reader.* Eranthemum pulchellum.—*W. P. J.* Lælia anceps, a pretty form, but not to be varietally distinguished.—*E. R.* You should send better specimens. 1, Eupatorium salicifolium; 2, probably Lasiandra macrantha, but we cannot be certain from so bad a specimen, and without flowers; 3, Acacia armata; 4, Pteris tremula.—*G. H. G.* Thank you for the excellent specimens you send. If all who sent plants for naming sent as good samples, our difficulties would be much lessened. 1, Pteris cretica albolineata; 2, Adiantum formosum; 3, Pteris serrulata; 4, Asplenium flaccidum; 5, Ligustrum lucidum; 6, Euonymus radicans variegatus.

STARRY PUFFBALL: *F. W. B.* We take the greater to be one of the forms of G. striatus: the striato-sulcate mouth is characteristic. It is a variable plant, and there may be more than one species described under the name. See *Gardeners' Chronicle*, 1873, p. 469, fig. 88.

SEEDS: *T. H.* The Melon seeds, if they have not been kept in too warm a place, may still be capable of germinating. The other seeds are Beans of some kind, and will have lost their vitality probably.

VINES: *R. H. B.* It is a root trouble, and as the roots have wandered very wide of the border during the thirty years of their existence, it is but little use trying remedial measures. Grub them up and make a new border of sweet, sound, material, planting healthy young canes in May.

CATALOGUES RECEIVED.

HOGG & WOOD, Coldstream and Dunse, Scotland—Nursery Stock.

THOMAS METHVEN & SONS, 15, Princes Street, Edinburgh, N.B.—Garden Seeds, Implements, &c.

IRELAND & THOMSON, 81, Princes Street, Edinburgh, N.B.—Seeds and Hybrid Gladioli.

DICKSON, BROWN & TAIT, 43 and 45, Corporation Street, Manchester — Vegetable and Flower Seeds.

CHARLES SHARPE & Co., Sleaford, Lincolnshire—Garden and Farm Seeds.

H. AND F. SHARPE, Wisbech, Cambridgeshire—Garden and Agricultural Seeds (Wholesale).

UNITED STATES NURSERIES, Short Hills, N.J., U.S.A.—New Chrysanthemum Mrs. Alpheus Hardy.

DICKSON & ROBINSON, 12, Old Millgate, Manchester—Vegetable and Flower Seeds.

DICKSONS (LIMITED), Chester—Vegetable and Flower Seeds.

E. WEBB & SONS, Wordsley, Stourbridge—Spring Catalogue for 1889.

J. R. BOX, East Surrey Seed Warehouse, Croydon—Begonias.

COMMUNICATIONS RECEIVED.—D. M. (with thanks).—J. H. B.—E, C.—J. B.—L. L., Brussels.—H., Copenhagen.—W. H. R., Southampton.—Dr. S., Cooper's Hill.—S. & Sons, Reading.—J. V. & Sons.—T. W.—G. H.—J. H.—C. T. & Co.—J. H. & Co.—W. D.—J. Jno. F.—W. H. T.—I. J. W.—G. Hanson.—M. C.—W. K.—R. A. R.—W. B.—Visitor.—R. J. W. (next week.—A. Allen (unless you give good reasons for wanting the address it cannot be sent).—O. H.—J. V. F.—G. G.—J. B.—J. C.—W. B.—W. E.—L. C. J.—Emigrant's Information Office.—W. H.—J. B. W.—W. Chitty.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.*

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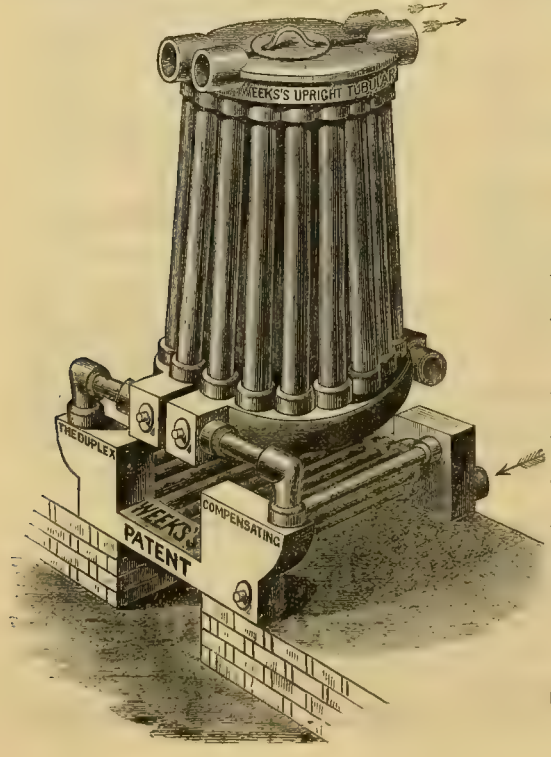
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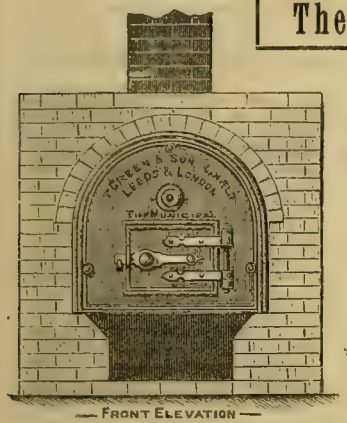
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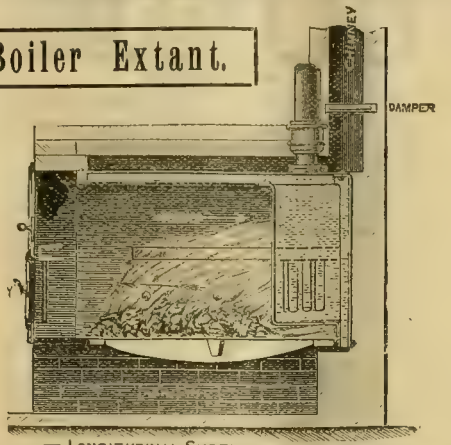
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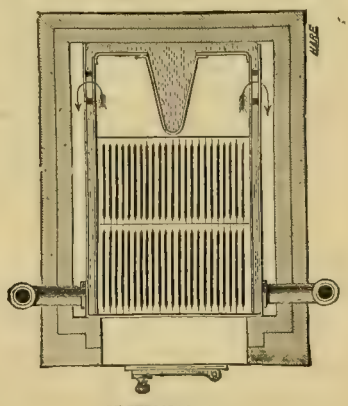
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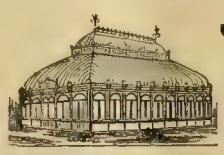
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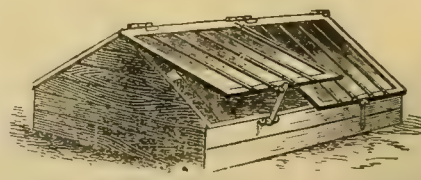
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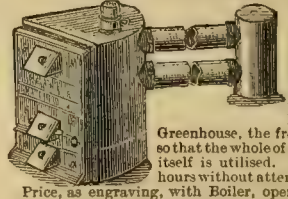
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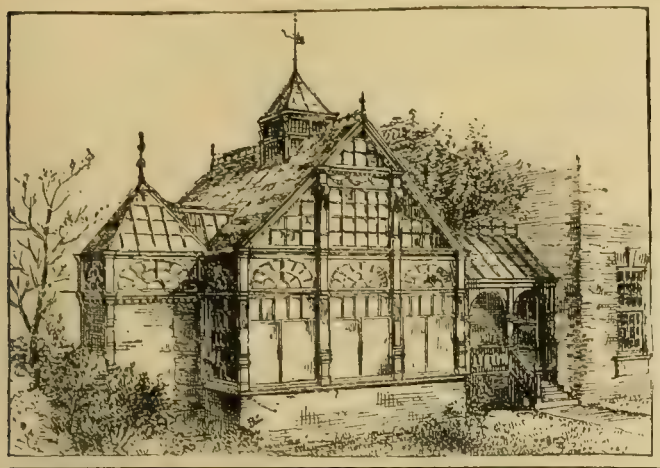
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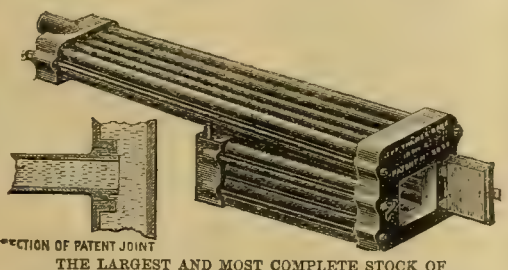
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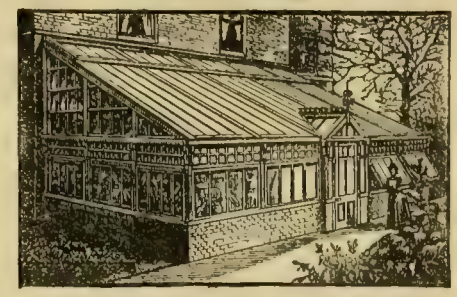
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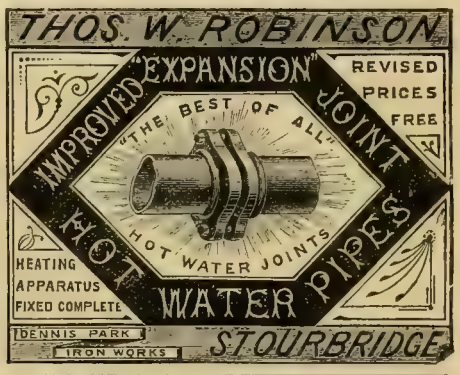
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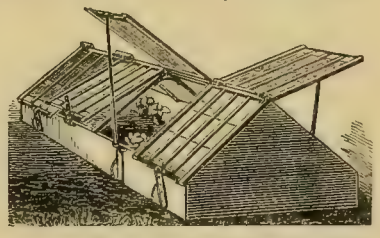
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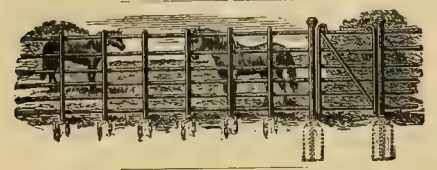
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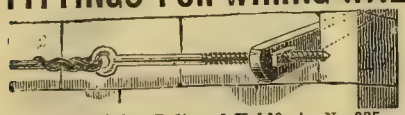


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WANT PLACES.

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"SIR,—Your strain of Brussels Sprouts is the best in cultivation. I tried it the first year alongside **three** of the leading strains, but it proved so much **superior to the others** that I have grown no other since."

"The exhibit of your strain of Brussels Sprouts at our Chrysanthemum Show will not easily be forgotten by those who were present, drawing high encomiums from the Judge, Mr. J. WRIGHT, *Journal of Horticulture. January* 5, 1888."

The Fern Nurseries, Leamington, Oct. 16, 1888.

"DEAR SIR,—Your Brussels Sprouts, 'President Carnot,' are, without a doubt, the best we have ever grown for crop and quality.—Yours truly, RAPER AND IRWIN."

Bentley Road, Doncaster, Oct. 21, 1888.

"DEAR SIR,—Your 'President Carnot' Brussels Sprouts are the best I have ever grown.—Yours truly, JNO. TURNER."

11, *Midland Road, Wellingborough, Oct.* 25, 1888.

"SIR,—I consider 'President Carnot' Brussels Sprouts are just what we require, being compact in growth, fine sprouts, and excellent quality.—Yours respectfully, GEORGE DOUGLAS."

Wantage, Oct. 25, 1888.

"DEAR SIR,—Your Brussels Sprout, 'President Carnot' is undoubtedly a variety of great excellence.—Yours truly, W. CAUDWELL."

1, *Sepulchre Street, Sudbury, Suffolk, Oct.* 24, 1888.

"DEAR SIR,—I believe the Brussels Sprouts 'President Carnot' to be a very good one. I have grown it by the side of several others and find it much the best.—I am, dear Sir, yours truly, C. CANDY."

Swanley, Kent, Oct, 25, 1888.

"DEAR SIR,—It is rather early to speak of Brussels Sprouts, however, we can see sufficiently that your 'President Carnot' is a very fine selection; every plant is well studded with close, round, hard heads of Greens; we are of opinion it will prove the best in our trial ground, where we have all the best varieties of vegetables in cultivation. —Yours truly, H. CANNELL AND SONS."

Ordsall Lodge, Retford, Oct. 15, 1888.

"DEAR SIR,—Your Brussels Sprouts, 'President Carnot,' are the largest and best I have ever grown. You deserve much praise from all lovers of this most useful vegetable, for introducing such an excellent variety.—Yours truly, THOS. BESCOBY."

North Walsham, Oct. 16, 1888.

"DEAR SIR,—The 'President Carnot' Brussels Sprouts are, in my opinion, as good as can be, being large and firm buttons. I may add, I shall grow a larger quantity another year.—I am, Sir, yours truly, A. D. HEALEY."

Aberdeen, Oct. 26, 1888.

"DEAR SIR,—Owing to an exceptionally dry season at the time of planting out many of our plants were lost, but those which remain are excellent sprouters. We like the 'President Carnot' Brussel Sprouts, and can confidently recommend them to our customers.—We are, yours faithfully, J. MAVOR AND SONS."

Brigg Nov. 12, 1888.

"DEAR SIR,—I find my gardener is very well satisfied with the 'President Carnot' Brussel Sprouts they are the best we have this year.—Yours truly, D. J. BRIGGS."

9, *Heath Terrace, Leamington, November* 29, 1888.

"DEAR SIR,—The 'President Carnot' Brussels Sprouts are enormous. I never saw such grand stuff, and although so large they are quite equal in flavour to the standard sorts. I have them side by side with Wroxton and Sutton's Matchless, which are not worthy to be named with them.—I am, truly yours, J. HARPER."

Norfolk Nurseries, East Dereham, Dec. 29, 1888.

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Surplus Cut Flowers.
HOOPER AND CO. (Limited) RECEIVE and DISPOSE of any quantity of above at best Market Prices. Boxes, &c., supplied.—Address, Commission Department, HOOPER AND CO. (Limited), Covent Garden, W.C.

PRICE AND CO. will be pleased to RECEIVE and DISPOSE of any quantity of Choice CUT FLOWERS at best Market Prices. 60, Castle Street, Long Acre, W.C., and Flower Market, Covent Garden, W.C. Reference: London and County Bank. TELEGRAPHIC ADDRESS—ADIANTUM, LONDON.

MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, London, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied.
Telegraph Address—"COMMISSION, SIDCUP."

WANTED, Maiden-hair Fern, Bouvardia, Orchids, Eucharis, Roses, Camellias, and any other choice Cut Flowers. Best Market Prices returned weekly.
Address S. HILL, Jun., 21, Charlotte Street, Fitzroy Square, W.; and Stand 383, Covent Garden Flower Market, W.C.

WANTED, with clean stems, good heads and roots, 30 PLANES, 9 to 12 feet; 30 LIMES, 8 to 10 ft.; 6 LABURNUMS, 6 to 8 feet; 12 Standard THORNS, Double Red, Pink and White, in equal quantities, delivered free to West Kensington. State price, &c., to
GARDENER, 35, Land Street, High Street, Croydon, S.E.

WANTED TO RENT, several Houses, suitable for Growing Cucumbers, Tomatos, Cut Flowers, &c., for Market, within 12 miles of London.
Full particulars to F. F., Marden Hill, Hertford, Herts.

WANTED TO RENT, a small GARDEN, with Glassbouses and Pits, suitable for market purposes, with Cottage. S. or S.W. suburbs of London preferred. No Stock required.
R., 30, South Street, Cuckfield, Sussex.

CARTERS' VADE MECUM for 1889 is Now Ready, and has been posted to Messrs. CARTER'S Customers. Price ONE SHILLING (post-free) to unknown Correspondents. It contains 7 elegant Coloured Illustrations, and will be found a most thorough Book of Reference by all who desire to cultivate successfully the choicest Vegetables and the prettiest Flowers.
JAMES CARTER AND CO., The Queen's Seedsmen by Royal Warrant, 237 and 238, HIGH HOLBORN, W.C.

LILIUM AURATUM.—THE GOLDEN-RAYED LILY OF JAPAN can now be purchased in Cases containing 50 fine Bulbs, just as received from the Japanese Bulb Farms, unopened and unexamined, at 25*s.* per Case; sent Free to any Railway Station in England and Wales on receipt of Postal Order for 23*s.* 9*d.* Cases containing 100 fine Bulbs, price 40*s.* Fine and sound Bulbs per dozen, 4*s.*, 6*s.*, 9*s.*, 12*s.*, and 18*s.* Mammoth Bulbs, 2*s.* 6*d.* and 3*s.* 6*d.* each. All sent packing and carriage free.
CARTERS', Royal Seedsmen by Seale'd Warrants, 237 and 238, HIGH HOLBORN, LONDON, W.C.

Calceolarias, Spotted.
H. CANNELL AND SONS have now the nicest young strong Plants, and the most varied and brilliant colours and best strain ever seen. 2*s.* per doz., 14*s.* per 100; in small pots ready for a shift, 3*s.* per doz.; 22*s.* per 100.
Swanley, Kent.

Having Grown
A DIANTUM CUNEATUM ELEGANS five years, I have proved its value as a Cut Frond for Market. Will put on Rail Plants in 8-inch pots, 7*s.* 6*d.* each, cash.
E. TUDGEY, Home Farm, Walton-on-Thames.

SEEDS.—RICHARD SMITH & Co., Worcester, beg to draw attention to the Low Prices of individual articles (Peas especially), and the liberality of the Collections at Fixed Prices as set forth in their Illustrated SEED LIST, which will be sent Free on application. All Seeds, &c., are of the *best possible* quality.

Barr's Spring Catalogue, Now Ready, of
THE BEST HERBACEOUS PLANTS, for Borders, Rockwork, and Cutting, contains a select List of HIGH-CLASS AND EASILY cultivated plants only.
Free on application.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

ORCHIDS a SPECIALTY.—See New Interleaved CATALOGUE, post-free on application.
FRED HORSMAN AND CO., Colchester.

Lilium auratum.
HURST AND SON have received, direct from Japan, a large consignment of the above in excellent condition, and will quote low prices on application.
Seed Warehouse, 152, Houndsditch, London, E.

DICKSON'S IMPROVED MUSHROOM SPAWN, most superior, now reduced to 5*s.* per bushel of 14 cakes. Circular with Cultural Notes and List of Testimonials post-free on application.
DICKSONS (*Limited*), The Royal Seed Warehouse, CHESTER.

CHRYSANTHEMUM CULTURE.—Standen's Manure, admitted by growers to be unrivalled for this purpose; in tins, 1*s.*, 2*s.* 6*d.*, 5*s.* 6*d.*, and 10*s.* 6*d.* each.
Sold by all Seedsmen.

SULPHIDE of POTASSIUM (Harris).—A certain cure for Mildew on Plants, Red Spider, Aphis, &c. Enough to make 32 gallons of solution, free for 1*s.* 3*d.* The only kind to use is "Harris's specially prepared Sulphide of Potassium." Sole Manufacturers:—
PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

1,100,000 GARDEN POTS, 3½ in. diam., in stock, ready for immediate delivery; carriage and breakage free on £10 orders; half carriage on £5. Acknowledged by the trade to be the best pots manufactured. Largest Stock and Largest Manufacturers in United Kingdom.
RICHARD SANKEY AND SON, Bulwell Potteries, Nottingham.

SALES BY AUCTION.

Tuesday Next.—(Sale No. 7846.)
10,000 grand BULBS of LILIUM AURATUM (some in cases as received), L. Krameri, L. longiflorum, and other LILIES, just received from Japan in the finest possible condition; Double South African TUBEROSES and AMARYLLIS. Also splendid Berlin Crowns of LILY OF THE VALLEY, AMARYLLIS BELLADONA, SCILLA PERUVIANA, LILIUM HARRISII, Home-grown LILIES, and a large quantity of DUTCH BULBS for present planting. SPIRÆA JAPONICA, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY NEXT, January 15, at half-past 12 o'Clock precisely.
On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.
First-class named Dwarf-trained and Pyramid FRUIT TREES, consisting of APPLES, PEARS, PLUMS, CHERRIES, PEACHES, &c.; CONIFERS, FIRS, LAURELS, PRIVET, Dwarf ROSES, BERBERIS, and other Hardy ORNAMENTAL SHRUBS; a choice collection of BORDER PLANTS, comprising DAHLIAS, HOLLYHOCKS, PHLOXES, CARNATIONS, IRIS, &c., to name, in great variety; Home-grown LILIES, LILY of the VALLEY Crowns for Forcing, SPIRÆA JAPONICA, and several hundred lots of DUTCH BULBS, for present planting.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, January 16 and 19, at half-past 12 o'Clock precisely.
On view mornings of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7848.)
SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 17, at half-past 12 o'Clock precisely, a choice Collection of ORCHIDS in FLOWER and BUD, comprising a fine specimen plant of Lycaste Skinneri alba, Cypripedium Chantini superbum, Dendrobium Wardianum album, D. nobilior and Sanderianum, Odontoglossum Eduardii (strong plant), some fine forms of O. Alexandræ, Cattleya Percivalliana, C. Trianæ, and other good Orchids; a few choice NEPENTHES, ANTHURIUMS, &c.
On view mornings of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7848.)
2000 very fine Home-grown Bulbs of LILIUM HARRISII (the Bermuda Easter Lily), 3000 LILY OF THE VALLEY Crowns for Forcing, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, January 17.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7848.)
CHOICE DENDROBES IN FLOWER.
DENDROBIUM NOBILE COOKSONI.
,, LEECHIANUM.
,, SPLENDIDISSIMUM GRANDIFLORUM.

MR. J. C. STEVENS will include fine plants of each of the above in his SALE of ORCHIDS IN FLOWER AND BUD, on THURSDAY NEXT, January 17.
On view morning of Sale, and Catalogues had.

The remaining Portion of the Collection of Orchids
formed by C. Hamerton, Esq., Stockwell Green.

MR. J. C. STEVENS has received instructions from C. Hamerton, Esq, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, January 24, at half-past 12 o'Clock precisely, the remaining portion of his Collection of ORCHIDS, consisting of well grown plants of Phalænopsis Schilleriana and P. amabilis, Cypripedium Spicerianum and others, Cymbidiums, Odontoglossums, Oncidiums, &c.
On view morning of Sale, and Catalogues had.

Tuesday Next.—Sale by Sample.
NURSERY STOCK and PLANTS in POTS.
Important to the Trade and Private Buyers.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, January 15, at half-past 12 o'Clock precisely, large quantities of NURSERY STOCK and PLANTS in pots from Sample, including the following:—

5000 Asparagus	Laurels in lots suitable for the Trade
1000 Seakale	5000 Currants of sorts
5000 Gooseberries	1000 Dwarf-tained and Standard Fruit Trees
5000 Raspberries	10,000 Scotch Firs
3000 Poplars	2000 Carnations.
2000 Latania borbonica	
10,000 fine bushy Caucasian	

Thousands of Forest Trees
A COLLECTION of French Artificial WREATHS and CROSSES in Lots for the Trade.
Samples will be on view the morning of Sale. Catalogues had on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Wednesday Next.
10,000 LILIUM AURATUM and other LILIES, just received from Japan in splendid condition.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION, on WEDNESDAY NEXT, January 16.
On view morning of Sale, and Catalogues had.

Wednesday and Saturday Next.
LILIUM AURATUM, splendid Bulbs, just received from Japan; English-grown LILIES, Japanese IRIS, LILY OF THE VALLEY, SPIRÆAS, AZALEAS and CAMELLIAS from Belgium, STOVE and GREENHOUSE PLANTS, various hardy BULBS, ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT and SATURDAY NEXT, January 16 and 19, at half-past 12 o'Clock precisely.
On view morning of Sale, and Catalogues had.

Friday Next.—Important Sale.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. F. Sander & Co. to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, January 18, at half-past 12 o'Clock precisely some very rare and valuable HYBRID CYPRIPEDIUMS and other choice ESTABLISHED ORCHIDS:—
CYPRIPEDIUM CROSSIANUM PSITTACINUM,
a most beautiful and new Hybrid, fully described by Professor Reichenbach in the *Gardeners' Chronicle*, January 5, 1889.

Cypripedium Crossianum mitens	Cattleya superba variety
,, albo purpureum	Cypripedium Arthurianum
,, Laforcadei	,, Barlettii
,, microchilum	,, Leeanum superbum
,, vexillarium	,, politicum
Lælia anceps, new variety section of Dawsonii	,, species
Trichosma suavis alba	Lycaste Skinneri alba
	Trichopilia lepida

On view morning of Sale, and Catalogues had.

Friday Next.
By Order of Messrs. F. Sander & Co.
DENDROBIUM DEAREI.

2000 Imported Plants of this lovely Dendrobe in good condition, also a fine lot of CATTLEYA TRIANÆ, abundantly furnished with healthy green leaves, and having sound, dormant eyes. DENDROBIUM NOBILE in very good condition, and many other valuable ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE of ORCHIDS on TUESDAY NEXT, January 18.
On view morning of Sale, and Catalogues had.

Friday Next.
14 New and Rare DISAS, and other South African Terrestrial ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE on FRIDAY NEXT, January 18.
On view morning of Sale, and Catalogues had.

Monday, January 21.
SPECIAL SALE of LILIES.
Important to the Trade and Large Buyers.

5000 LILIUM AURATUM, including about 500 exceptionally large Bulbs, some of the finest imported this season.
Also about
9000 various LILIES,
including large quantities of Lilium speciosum rubrum and album, and L. longiflorum.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY, January 21, at half-past 12 o'Clock precisely.
Catalogues are now ready, and will be forwarded on application.

Tuesday, January 22.
ORCHIDS in FLOWER SPECIAL SALE.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be glad to receive notice of ENTRIES as soon as possible.

The Barvins Park Collection of Established Orchids.
UNRESERVED SALE of this extensive COLLECTION, by order of the Proprietor, who is leaving the neighbourhood and selling the Estate.
EIGHT DAYS' SALE.
Important to the Trade and Large Buyers.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheadside, London, E.C., on

JANUARY	25	FEBRUARY	6
FEBRUARY	1	,,	15
,,	4	,,	19
,,	5	,,	20

at half-past 12 o'Clock precisely, the whole of the above extensive COLLECTION of ESTABLISHED ORCHIDS, without the least reserve. The Collection comprises about
20,000 ODONTOGLOSSUM ALEXANDRÆ, in various sizes, all unflowered, principally selected from Messrs. Shuttleworth, Carder & Co.'s importations of the broad-petalled Pacho varieties.
5000 ODONTOGLOSSUM ROSSII MAJUS, a number of them being very large masses in pans; also O. INSLEAYI, O. CITROSMUM, 1000 O. PESCATOREI, 300 O. HARRYANUM, O. VEXILLARIUM, O. GRANDE, and others; 700 LÆLIA ANCEPS, many of them immense plants, L. A. ALBA; 600 EPIDENDRUM VITELLINUM MAJUS, mostly in spike; 200 CŒLOGYNE CRISTATA, together with a large quantity of CATTLEYAS MOSSIÆ, MENDELII, GIGAS, and other varieties; ONCIDIUMS, &c.
The Auctioneers desire to call special attention to this Sale. The plants are clean and well grown, and Gentlemen desirous of adding to their Collections, or Florists, for growing for Cut Flowers, will find the Sale an exceptional opportuntity for obtaining these favourite varieties of Orchids in large quantities at Auction Prices.
The Plants will be on view the mornings of Sale. Catalogues of the first portion will shortly be published, and copies will be forwarded, free by post, on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Eltham.
Expiration of Lease. Further CLEARNCE SALE.
Preliminary Notice.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Nursery, Eltham, Kent, on THURSDAY, February 7, and two following days, a further portion of the unusually well-grown NURSERY STOCK.
Further particulars will appear.

Seed Business.

FOR IMMEDIATE DISPOSAL (owing to the death of Proprietor), an Old-established Retail SEED BUSINESS, in London, with high-class connection, including Leases of Premises, Stock, Fixtures, &c.
Apply by letter in first instance to H. M., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

To Market Gardeners, Florists, Nurserymen, &c.
HAMPTON-ON-THAMES.

FOR SALE, choice FREEHOLD LAND, in Acre Plots, suitable for above. Rich Garden Soil with gravel and sand sub-soil. The land is considered by the Trade the finest near London for Grapes and all other Market Products.
Apply, SECRETARY, Estates Investment and Villa Farm Company, Estate Office, Tangley Park, Hampton-on-Thames.

To Seedsmen.

FOR SALE, the BUSINESS of a WHOLESALE SEEDSMAN in St. Albans. Lease about fourteen years. Rent £60. Commodious Premises. Stock, Fixtures, and Book Debts (£592) at valuation. Price for Lease and Goodwill, £100.
Apply to Mr. F. C. GOODCHILD, 25, Old Jewry, E.C., Trustee in Bankruptcy.

South of England.

LARGE GARDEN, 20 Acres, with Twenty Greenhouses and Vineries. £7000 has been spent on the property. Seven years' lease. Two Cottages inclusive. £150 a year. ELDRIDGE, Portsmouth.

TO BE LET, 1 to 10 Acres of GRASS LAND, suitable for Nurserymen and others, on Lease, for 7, 14, or 21 years. Rent from £8 to £12 per Acre, with the option of Purchase of the Freehold within the first seven years. No Tithe or Land-tax. Near the main road, Enfield Highway, about 9 miles from London.
Apply, H. MOORE, 59, Bishopsgate Street Within, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,
Are continually receiving Importations of

ORCHIDS

from various parts of the World.

They have also an immense stock of
ESTABLISHED AND SEMI-ESTABLISHED ORCHIDS,
ALL IN FINE CONDITION.
Full particulars on application.

THE VINEYARD AND NURSERIES,
GARSTON, LIVERPOOL.

HENRY ECKFORD (late of Boreatton) begs to inform his Patrons and Friends that he has REMOVED to WEM, where he will continue to Raise, Grow, and Sell, his celebrated Culinary and Sweet Peas, and hopes by prompt and careful attention to merit a continuance of their support.
Please note the Address—HENRY ECKFORD, Culinary and Seed Pea Merchant, WEM, SALOP.
TELEGRAPHIC ADDRESS—"ECKFORD, WEM."

CLEARANCE SALE OF SPRING FLOWERING BULBS.
Hyacinths, Daffodils (Narcissi), Tulips, Crocus, Snowdrops, Winter Aconites, Chionodoxa, Scillas, Spanish Irises, early flowering Gladioli, Alliums, Star of Bethlehem, Alstrœmerias, &c. All in splendid condition, at reduced prices.
LIST free on application to
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

The Best Present for a Gardener.

VINES and VINE CULTURE.
The most complete and exhaustive Treatise on Grapes and their Culture ever published.
New Edition.
Price 5*s.*, post-free 5*s.* 6*d.*
A. F. BARRON, Royal Horticultural Society, Chiswick.

KENT-GROWN FRUIT TREES.—Thousands of Standard, Pyramid, Bush, and Espalier Fruit Trees, comprising most of the best sorts of Apples, Pears, Plums, and Cherries; strong, healthy trees, with good fibrous roots. 500 Kent COB NUTS, large bushes, 5 feet.
1000 Common LAUREL, 3 feet.
500 Silver BIRCH, 8 to 10 feet.
500 LABURNUMS, 7 to 9 feet.
Price LISTS of above and General Nursery Stock post-free on application to
EVES & DALTON, Nurserymen and Fruit Growers, Gravesend.

Yucca gloriosa.

GEORGE LEE, F.R.H.S., has some fine Plants of the above, many of which are strong blooming plants, spreading 4 or more feet each, fine for planting in open spaces near Woodland Paths or Drives, at from 1*s.* 6*d.* to 5*s.* each. Clevedon, January 12.

TO THE TRADE.
HELLEBORUS NIGER, good healthy imported Plants, at very low prices per 100 and 1000.
LILY OF THE VALLEY.—Fine Berlin forcing Buds, cheap to clear out.
HOOPER AND CO. (Limited), Covent Garden, London, W.C.

CHRYSANTHEMUMS.—600 best sorts, true to name, strong Cuttings now ready, 1*s.* 6*d.* per doz., 10*s.* per 100. Many of the best Prizes and Silver Cups are taken by my customers. For price of new sorts, see Catalogue (2 stamps), of WM. ETHERINGTON, Chrysanthemum Grower, Swanscombe, Kent.

MRS. BENNETT STANFORD has some fine PALMS to DISPOSE OF, as they are too large for her Houses.—Apply by letter to
The HEAD GARDENER, Pyt House, Tisbury, Wilts.

IF YOU CANNOT GET FRUIT TREES
TRUE TO NAME,
Write to GEORGE BUNYARD AND CO.

IF YOU WANT ANY CHOICE SORTS that your Local Firms cannot Supply,
Write to GEORGE BUNYARD AND CO.

FOR FRUIT TREES by the Dozen, Hundred, or Thousand,
Write to GEORGE BUNYARD AND CO.

SEND INTO KENT, and get the FINEST TREES—No Starvelings, No Blight—at GEORGE BUNYARD AND CO'S.

ILLUSTRATED CATALOGUE OF FRUIT TREES, 800 Kinds, Six Stamps.
SKELETON LIST—Names and Prices—also all Outdoor Stock, Gratis.
ROSE LIST, CONIFER and SHRUB LISTS, Free.
One Hundred Acres Nursery. Liberal terms.

GEORGE BUNYARD AND CO.,
POMOLOGISTS and GENERAL NURSERYMEN,
MAIDSTONE, KENT.

To the Trade.
H. AND F. SHARPE'S Wholesale CATALOGUE of VEGETABLE SEEDS for 1889 has been forwarded to their customers. If those who have not received it will kindly inform them another one shall be sent.
Seed Growing Establishment, Wisbech.

HENDER'S PETUNIAS are the best offered. Double Fringed, 1s. 6d. and 3s. per packet; Single Striped, 1s. and 2s. per packet.
HENDER'S BALSAMS.—A grand Strain, eight varieties, separate, 2s. 6d. per packet; mixed, 1s. per packet.
HENDER'S Select SEED LIST, Post-free on application.
HENDER AND SONS, Plymouth.

FRUIT TREES at very low prices to clear ground. Extra strong and well rooted Pyramidal PLUMS, PEARS, and CHERRIES, Standard and Dwarf-trained Victoria PLUMS, 3 and 4-yr. old GOOSEBERRIES and CURRANTS. Names of Fruits and CATALOGUE of General Nursery Stock.
JOHN CARTER, Nursery, Keighley, Yorkshire.

Full of Useful Information—No Charge.
BARR'S 1889 SEED CATALOGUE, now ready. In addition to the usual valuable information, will be found special remarks on the Culture of the TOMATO and TOBACCO as INDUSTRIES, with a Special LIST of HIGH-CLASS POTATOS, handsome in form, pleasant in flavour, and bountiful croppers. CATALOGUE free on application to
BARR AND SON, King Street, Covent Garden, W.C.

BEGONIA SEED and TUBERS.—BOX'S varieties are the best, as testified by all purchasers. Both quality and quantity. SEED from latest novelties of Singles, mixed colours, small packets, 6d.; larger packets, 1s. and 2s. 6d. Collections, 4 separate colours, 1s. 6d.; 8 ditto, 2s. 6d. Of Doubles, small packets, 10d.; larger packets, 1s. 6d., 2s. 6d., and 5s. Collections, 4 separate colours, 1s. 6d.; 8 ditto, including white and yellow, 2s. 6d.; double orange, very extra, 2s. 6d. and 5s. per packet. TUBERS, unnamed Singles, to colour superior to named sorts, 12 or more distinct colours, for pots, per dozen, 9s., 12s., 18s., and 24s. per dozen; for bedding, 40s. and 50s. per 100; mixed colours, 28s. per 100. Unnamed Doubles, very superior, 6 or more colours, per dozen, 24s., 36s., 48s.; mixed colours, 15s.; choice, to name, from 24s. All post-free. Full LIST on application.
JOHN R. BOX (for 10 years J. Laing's sole Partner), Seedsman and Begonia Grower, Croydon.

WHOLESALE SEED CATALOGUE for 1889.—We have now published our Catalogue of Vegetable and Flower Seeds, containing also all the best Novelties of the season. May be had on application. Any of our customers not having received one by post will oblige by letting us know, when another shall at once be posted.
WATKINS AND SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, London, W.C.; Seed and Trial Grounds, Feltham and Twickenham, Middlesex.

CHRYSANTHEMUMS to and from all parts of the Globe. By far the best collection of new and old varieties in commerce. Descriptive Catalogue with Cultural Directions by E. Molyneux and C. Orchard. Acknowledged in Europe and America as the best Descriptive Catalogue. Price 6d.; free to customers. Awarded 3 Medals and 20 First-class Certificates. I never exhibit for prizes in competition with Gardeners or Amateurs. Open to purchase new varieties of merit.—R. OWEN, F.N.C.S., Floral Nursery, Maidenhead.

To the Trade.
VEGETABLE and AGRICULTURAL SEEDS.
H. AND F. SHARPE are now prepared to give SPECIAL QUOTATIONS for all the best kinds of VEGETABLE and FIELD SEEDS grown this season from carefully selected stocks. The quality is very good, and the prices will be found advantageous to purchaser s.
Seed Growing Establishment, Wisbech.

Palms, Healthy, in Quantity.
W. ICETON, Putney, S.W., has a very fine Stock of the above to offer in all sizes; also a few fine extra large fruiting PEACH TREES, &c.
129 and 130, Flower Market Covent Garden, W.C.

CARNATION "GLOIRE DE NANCY."—We are sending out for the fourth season our true strain of this the grandest White Carnation in cultivation, quite hardy, and for pot culture for cut bloom it has no equal. Robust and free bloomer. £1 per 100, 11s. for 50, 6s. for 25, good rooted layers. We have a fine stock of GARDENIAS, the best sorts in cultivation, from 1s. to 40s. each, Cash with Order.
E. COLLINS AND SONS, Cumberland Park Nursery, Willesden Junction.

SPECIMEN CONIFERS.—Trees for Avenues, Evergreens, and Forest Trees in great variety. CATALOGUE free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

FOR SALE, price 12 guineas, a handsome LATANIA BORBONICA, 10 feet high, and 36 feet in circumference; 12 large leaves, and in good condition.
Apply to the GARDENER, White Hall, Tarporley.

SEEDS
VEGETABLE & FLOWER SEEDS,
SEED POTATOES, GARDEN TOOLS & SUNDRIES.
All of finest quality. Prices Strictly Moderate. Delivered free by Rail or Parcel Post.
Illustrated Descriptive Priced Catalogue, No. 353,
POST FREE ON APPLICATION.
DICKSONS
(Limited)
The Royal Nurseries & Seed Establishments,
Chester.
ADDRESS FOR LETTERS & TELEGRAMS: } Dicksons, Chester.

CANNELL'S SEEDS
PERFECT ONLY—DIRECT FROM
SWANLEY—KENT.

It is a settled question that our seeds (200 acres), owing to our sunny position, warmer and better soil, are a lot the best, the difference between them and those grown farther north, bought and sold half-a-dozen times by those who never grow a grain, is immense. Have them direct from us, the ACTUAL GROWERS, at nearly wholesale prices, effecting a great saving. Numerous First-class Certificates the last quarter of a century stamp ours the best strains. All Seeds Carriage Free, except heavy kinds. Send for ours, the best Illustrated Catalogue ever issued.

From Mr. R. R. OSWALD, *Chapel Street, Birkenhead, February* 10, 1888.
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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.
NOTICE IS HEREBY GIVEN that the ANNUAL GENERAL MEETING of the Members of this Institution will be held at "Simpson's," 101, Strand, W.C., on WEDNESDAY, 16th inst., for the purpose of receiving the Report of the Committee and the Accounts of the Institution for the present year, and Electing Officers for the ensuing year, and also for the Election of Nine Pensioners.
The Chair will be taken at 3 o'Clock precisely, and the Ballot for Nine Pensioners will Close at 5 o'Clock precisely.
By order, EDWD. ROGER CUTLER, Sec.
50, Parliament Street, London.—Jan. 1, 1889.
P.S.—The Voting Papers have all been delivered, any Subscriber not having received one, is requested to communicate with the Secretary.

THE GARDENERS' ORPHAN FUND.

DONATIONS and SUBSCRIPTIONS
WILL BE THANKFULLY RECEIVED BY
A. F. BARRON, Hon. Sec.,
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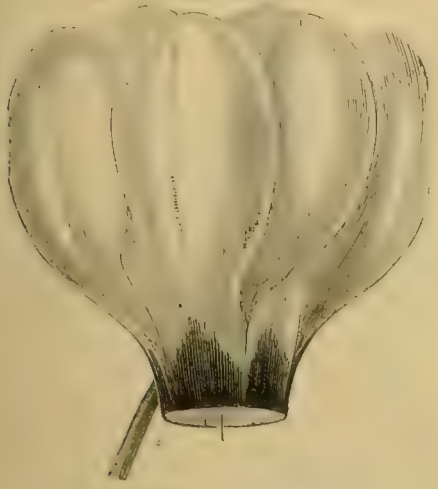
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SATURDAY, JANUARY 12, 1889.

CHRYSANTHEMUM CONFERENCE.

MIDWINTER CHRYSANTHEMUMS.*

So much has been said and written on the general cultivation of the Chrysanthemum by eminent writers and growers that it is not necessary for me to refer to it. There is, however, one phase of the culture of the flower which has received but little attention, and which is, consequently, the least understood by the majority of growers. I allude to what is now usually known as the cultivation of midwinter Chrysanthemums, which matter I have adopted as the subject of this paper.

A quickened and increasing interest is being taken in this branch of the culture of Chrysanthemums, and rightly so, considering that it enables us to have their flowers in perfection for at least two months longer than formerly, and at a time when there is a great paucity of other flowers. By establishing the Midwinter Exhibition and the very liberal prizes offered, the National Chrysanthemum Society has done much, no doubt, to bring about and foster this interest in late cultivation with the view to prolonging the season and decorative usefulness of this increasingly popular flower.

Growers who essay the cultivation of midwinter Chrysanthemums will, by selecting the naturally late-flowering kinds, by late propagation, and by suitable treatment of the plants, find it a comparatively easy matter to prolong the blooming season to a much later date than at one time was considered possible. They will no longer be satisfied to see, as in the past, the greater part of their Chrysanthemum blooms pass away with the dying year. No; they will

* A paper read by Mr. J. Kipling, Knebworth House, at the Chrysanthemum Conference, Royal Aquarium, January 9, 1889.

find it is possible to prolong the season, and to have blooms in quantity up to the end of February, into March, or even into April. Indeed, the production of mid and late winter blooms is only in its infancy. We have, so to speak, only just crossed the threshold of knowledge as to what can be accomplished in the direction indicated.

Having been fairly successful in the cultivation of mid-winter Chrysanthemums, I will, without troubling to give the minor details, describe as briefly and as lucidly as I can the procedure by which I have been enabled to span the year with Chrysanthemum blooms. Referring first to the cuttings, I would state that they are taken mostly from plants that have bloomed in November and December. After they have bloomed the stems are cut down, all weakly shoots removed, and the stools placed in a cold pit to keep them back. The cuttings are struck at three different times—namely, February, March, and April, in the last week of each month. Those struck in February are put under handlights in a cold pit; and those struck in March and April have the assistance of a slight hotbed. The cuttings selected are the latest sucker or root growth, preference being given to those that are stout and short-jointed.

As soon as the cuttings are struck they are carefully hardened and placed in a frame with a north aspect. When sufficiently advanced the cuttings are potted and returned to the frames, kept close till the roots begin to run freely, and then gradually exposed. As soon as the weather will allow the plants are stood out-of-doors on a bed of ashes; before they become root-bound they are shifted into 6-inch pots and returned to the ashbed, where they are placed in a north aspect, with a view to keeping them back. By the middle and end of July respectively most of the plants are ready to be transferred to their flowering pots.

Those intended for the supply of cut flowers are shifted into 9, 10, or 12-inch pots, three plants in each; and those intended for decorative purposes are shifted into 7 or 8-inch pots. When all have been potted they are ready to be placed in their summer quarters, to the proper selection of which I attach much importance, for on it will depend in no small degree the success in procuring very late blooms. It will be seen that our practice differs somewhat from the generally accepted "full exposure to the sun" course of procedure.

In growing Chrysanthemums for late flowering it is necessary to defer to the latest date possible the formation of the crown bud. This can be done in two ways—first, by the constant pinching-back of the shoots or cutting down the plants at a certain date, so as to produce late growths, and thus delay the production of the crown bud, which practice I find weakens the plant too much, and the blooms produced by it are poor. The second method is to place the plants in such a position through the summer that the ripening of the wood is delayed, and the pinching-back of the shoots be reduced.

It is well known that Chrysanthemums which are placed where exposed to the sun's rays throughout the day have the maturing process of the wood begun and finished early, and as a consequence of this the early formation of the crown bud takes place; it follows then that if plants are placed in such a position as to have less direct sunlight on them through the day the ripening process will not begin so early, and will proceed more slowly. As a result the production of the crown bud is greatly retarded; indeed, it shows itself at a much later date, which is exactly the result desired in growing them for late blooming.

My plants occupy a position on the north-east side of a Laurel hedge, but are not overshadowed by it. They have the benefit of the morning sun up to 10 o'clock, when, through the intervening of some trees, it does not shine on them again till 3 o'clock in the afternoon. In this position they grow slowly, the wood ripens late, but sufficiently to ensure us a good crop of flowers. I may here state that a partly shaded position might not be suitable in very late or northerly localities; nor is it possible by this practice to have huge, or even very large blooms. But very large blooms are not wanted at this season of the year to which I am referring; smaller blooms, or trusses of blooms, are more serviceable for the various purposes of decoration, and also for personal adornment. They are certainly more appreciated by a majority of those who love the Chrysanthemums. In my case cut bloom is the principal requirement, and consequently but little attention is paid to the training of the plants, my object being to have good strong bushes with stout shoots, from nine to twelve to a plant, and containing plenty of stored-up force. Shoots of this description will give a second crop of side flowers after the first or leading blooms have been cut.

The plants which are grown principally to cut from are stopped only once, namely, at the second potting, and those intended for pot or specimen plants are topped three times, the final topping taking place in the last week in July.

The plants are carefully attended to as regards watering, tying, &c., but very little liquid manure is given them. If satisfactory progress is made, the crown buds will begin to show at the end of September, but principally through October. These buds I retain on one-half of the plants, while on the other half they are rubbed out, and the terminal bud selected later on, for the purpose of keeping up a succession of bloom. The plants are left outside to as late a date as is considered safe. They are then taken in and arranged in an unheated Peach-house, from which the frost is excluded by two paraffin stoves. In this house they continue their growth and swell their buds very slowly, the terminal buds appearing at the end of November and through December. About the end of November we begin to draft the plants as required to a very light and airy vinery, where, with the assistance of a little artificial heat and supplies of liquid-manure, the flowers gradually expand.

As fast as the blooms are cut from each set, the flower-stems are slightly shortened, and the plants are encouraged to make side breaks or shoots, which some varieties do very freely, especially those with not over-ripened wood. These side growths give us a goodly supply of small flowers through March and April.

It was from the side and basal shoots of cut-back plants that I obtained a box of flowers and sent them to my friend Mr. Holmes on April 20 last. My notes show that the last blooms were cut on May 29, and at that date we had blooming in pots, under glass, the early Pompons, St. Mary, La Petite Marie, and Nanum, of which varieties we usually pot a good stock in the early autumn to propagate from for summer display. These Pompons carried on the blooming period, and shook hands, as it were, with similar kinds which bloomed with us outdoors on June 20. Such was the manner in which I was enabled to wreath the year with Chrysanthemum blooms.

With reference to the varieties which are best for growing for late blooming, I would say that there are sorts which are naturally late to bloom, and are invaluable for the purpose. But there are a few of the mid-season varieties which, as I have proved, cannot be excelled by any, especially for giving second crop flowers. They all, or mostly all, belong to the Japanese section. I have found very few of the incurved kinds worth the time and labour spent on them for giving late blooms. They are not free enough, the blooms opening indifferently, and do not keep well—at least, such is my experience of them. Of the Japanese varieties I have found the following varieties the best:—Belle Paule, Kæmpferi, Etoile du Midi, Ethel, Mrs. C. Carey, Cérès, Mdlle. Cabrol, Gloriosum, Cry Kang, Comtesse de Beauregarde, Meg Merrilies, and its sports, Ralph Brocklebank, and Countess of Lytton—the last-named sport having originated with myself. Mr. D. B. Chapman and W. G. Drover are also proving very late, but not over free in blooming. For pot specimens I find the best to be Père Délaux, Virginale, Miss Margaret, Snowdrop, Golden Gem, and Boule de Neige. The two last-named cannot be surpassed by any that I know for late pot work. There may be others quite as good for late blooming, and if there are, I hope those who have grown them will, in the course of the discussion, give us their names.

CHRYSANTHEMUM SPORTS.*

No plant, so far as I am aware, can bear comparison with the Chrysanthemum for its proclivity to what is generally termed sporting. Anyone studying the scientific features of these flowers in this respect cannot but be intensely interested in tracing the origin of these so-called sports. The word sport does not to my mind seem a very appropriate one; the nearest definition we have of the word is playful or freakish, and hence we hear sports called freaks of Nature. Now a freak of Nature is a a monstrosity, something abnormal, or a distinct departure from Nature's laws, as for instance fasciation—fruit or other trees flowering out of their natural time, foliage becoming variegated, &c. Such freaks as these may arise from disease or climatic influences, whereas Chrysanthemum sports are developed on a fixed principle, probably by purely chemical means, and I should say admit of explanation. However, the term is not a question of great moment.

In this paper I will glance through several features in connection with sports, in order to show that Nature works with man, not against him by any eccentric divergence, except on rare occasions, as before said, of unnatural freaks; and that these changes in colour in the Chrysanthemum take place in such a systematic order as to give encouragement to the scientific man to find out by experiments the causes that are at work, enabling him eventually to wrest from Nature its secrets, and then, so to speak, place at his disposal the knowledge how to produce these sports at will. I shall show that sports are divided into two sections—the simple variation on the original ground colour, and the complete changes or cross from one section to the other. I shall also speak of the natural colours of flowers, then trace the variation from the primitive colour we find belonging to the Chrysanthemum, and give a list of such sports known more generally to Chrysanthemum growers of the present day.

In the first place, from how many distinct colours do we suppose that the many thousands of tints seen in numberless flowers have originated? That all flowers have originated from comparatively few, I think no one will question, that of original colours there must have been fewer still. If anyone were to ask me which I considered the most distinct colours in flowers, I should point them to our Union Jack and in the red, white, and blue there displayed I think we have the three colours from which all others are derived. Yellow is the next important colour, but whether yellow is, or was, an original colour of itself, or a variation from the white, is doubtful. I shall, at all events, I think, be able to show that it is but a secondary colour in the Chrysanthemum. Red is an original colour, and as a ground colour does not appear in these flowers. What reds we do find are simply reflections on a distinct brown colour. A true red must be a self colour—as, for instance, in the scarlet Pelargonium. But where one colour is simply a reflection on another, in such instances the ground colour changing also creates a different reflection; thus the colours red and purple are really the same; the white reflects a purple, but the yellow turns it into red, and neither red nor purple are produced as ground colours of themselves. I have come to the conclusion that

* This paper was written by Mr. N. Davis, Camberwell, for Mr. Lewis Castle's *Chrysanthemum Annual of* 1889, and read at the National Chrysanthemum Society's Conference, January 9.

the ground colour of a flower can only be changed at the original starting point. Take another class of flowers, the Pelargoniums. Some are trying to produce a yellow through the medium of a scarlet, but I fancy they will work in vain, for careful study leads to similar facts as I have pointed out in the Chrysanthemum. We get purple as well in the Pelargonium, not as a sport, but as a separate cross by fertilisation. A yellow Pelargonium, in my opinion, is only likely to be produced from a white flower, and then only by cross-fertilisation with a species bearing flowers containing the desired colour. So it is with the Chrysanthemum. We have but two ground colours, neither of which will produce anything but reflections. Unless a new colour enters by a change gradually from the white in the same way as yellow has done, it cannot come at all, and I should say that it could not be done unless by cross-fertilisation with other flowers as mentioned before.

It must be difficult in a paper like this to explain all one's reasons, but I have long ago come to the conclusion that it is almost impossible to expect any other distinct colour in the Chrysanthemum, that is either a scarlet or a blue. Take another flower, the Primula. Some people expect to raise a true blue from a lavender. I do not say it cannot be done, though I very much doubt it. Lavender is but a variation from a white. There is none of the force from which a blue may be produced, and I should say there is far more chance of obtaining it from the original colour, and the farther you get away from it the less chance there is. Blue is not obtained by a mixture, but is one of the original colours.

Of course we can go on deepening the reflective colours in the Chrysanthemum till eventually we get to black, because black is but a dark purple; it is produced on two ground colours, purple and white. When a black Pansy, for instance, is held to a light, the purple shows itself plainly enough, and the shading of the white, too, as a rule—thus a black Chrysanthemum may originate from a white, through all the shades of blush, mauve, and purple. In bringing illustrations of other flowers into my remarks I do so but to put more force upon the lessons to be learnt from a study of Nature's laws in regard to colour, and to show that it is unreasonable to expect Nature to alter its laws at the will of man. As I have said before, Nature will work with man so long as he follows her laws. So far as we find out nature's secrets, so far can we work at will.

In the following tables I hope to show clearly that the original colour of the Chrysanthemum was white, and that from this colour in systematic order proceed all the hundreds of tints we now find, from dark purple on the one side to its equivalent colour on the branch side.

ORIGINAL COLOUR WHITE.

Gradual change of ground colour and same variation as on the original branch.	Gradual variations on the original ground colour.
White.	
Cream	Blush
Sulphur	Peach
Primrose	Pink
Yellow	Salmon
Golden	Rose
Amber	Lilac
Orange	Mauve
Bronze	Violet
Red	Amaranth
Crimson	Purple
Black.	

These are only outlines; between the several degrees there are numerous shades. The various tints found on the white ground flowers will create the same tint, or its equivalent, when sporting to the other section. Thus, from the original colour we get by minute gradations two distinct branches, and I shall further follow this up by showing, which I will do in another list of sports produced, what a systematic course these sports take. There is no erratic change from one extreme to the other, but all takes place in a most regular order.

I think this is not a subject that has been often entered upon; why, I cannot understand, because there must be a vast amount of information to be gathered by anyone following up known facts by careful experiments. I read of an instance once where sports of Chrysanthemums were incidentally mentioned; I think it was a member of the Scientific Committee of the Massachusetts Horticultural Society who introduced the subject; but the only fact he recorded was, that the Chrysanthemum did sport, and he illustrated the fact by stating that yellow flowers become white ones; but this was directly contrary to my experience with sports, for, with the exception of yellow sports from white reverting to their original colour through not being properly fixed, I have never known an instance where any yellow-ground flower sported to the original, and this I think is an important point to keep in view—viz., a white Chrysanthemum will continually sport to a yellow, but never the reverse. Other sports are only in the secondary degree, being but variations in the same branch; these may be called sports, but it is in the reflective colour only. The term reflective used here is one I have adopted as the most suitable one I can think of to illustrate my meaning, but perhaps some explanation may be desirable.

We already have such phrases as tinted, flushed, flaked, striped, shaded, &c. A white does not cease to be a white because it is tinted; it has lost its purity and commenced to assume other colours, but the white is still the ground colour. Although the tint may deepen to such a degree as to eventually create a deep purple, the white is still seen in the reverse of the florets; the flower as it dies away throws off this reflective colour more or less. I have seen the colour in such varieties as Madame de Sevin and the old Striatum die away and leave nothing but the white ground colour. James Salter, again, throws off its mauve reflection and leaves the white Lady Selborne. On the yellow branch most crimson tints die off and leave the yellow ground, hence these surface colours are reflected different according to the ground colour, as pointed out before.



FIG. 5.—TACHIADENUS CARINATUS: FLOWERS PURPLE, TUBE WHITE. FROM A DRAWING BY MR. WEATHERS. (SEE P. 43.)

I have neither the means nor the knowledge for ascertaining any definite cause or the order of things that create these changes; but it seems to me that if such sports are continually occurring, it is surely reasonable that these causes could be ascertained. The change must, I think, be simply a chemical one, and by chemical analysis it should be investigated. The investigation might be a long and tedious matter, but, as I have before hinted, the question opens up an important subject. The Chrysanthemum forms a good subject to work upon.

Sports sometimes come in seedlings, sometimes from the root, but more generally from the branches. Root sports are very deceptive. If we find a single branch sport, we naturally look to that branch entirely to fix it. We often find the whole plant sport, and we are apt to call it a root sport, but this does not always follow. If a plant sport on, say, all three or four branches, may not the change take place at the break, and affect all the branches as it would one? It would not then be a root sport, and propagation from the root would generally lead to disappointment. I have known valuable sports lost in this way. Even when a sport does take place at the root, it never fixes itself. Not only will a large percentage revert at once, but the sport will continually be doing so. On the other hand, my experience teaches me a true branch sport will fix itself and remain constant.

The lesson to be learnt from this is, never cut a sportive plant down, but propagate from the branches above the break. I should say that the sun is the chief agency that works upon the chemical properties of the plants, and the sun being at its full power at the time the Chrysanthemum makes its break, is the reason that the plants sport at this particular period. That sports occur in seedlings I have had an opportunity of witnessing. I had some seed from Madame Desgrange taken from a plant at a time and place where no other variety of Chrysanthemum was in bloom. The seedlings came all shades of blush and white with one exception, and that had a distinct yellow ground. Now, as the plant from which the seed was procured could not have been crossed with any yellow variety, this must have been a sport.

Another remarkable thing I should like to call attention to is a sort of natural affinity in these sports. A variety rarely seems to sport in one place alone. Such a variety may go for many years without showing any inclination to sport, and then all at once sports appear in all directions. I used to think this must have been through the change being fixed in the root previously, and carried away by propagation, but careful inquiry tells me this is not a fact, but that each sport is a separate fixture, and as the same thing occurs in nearly every instance it seems to show that the same climatic influences work upon the whole.

My remarks have been entirely applied to sports of colour; there are at times slight alterations or changes in the plants themselves, but in most instances they are more fanciful than real. I have had numberless so-called sports submitted to me that have no foundation for their being so at all; in fact, in most instances I have found them wrongly named. In some instances pieces from one plant will accidentally take root in another pot, and it is difficult to persuade anyone who has little knowledge of varieties that they have not actually got a sport. I have never known any plant to make any remarkable change, though the sport in colour often fixes itself either on a weaker or stronger average plant, and the future constitution may be retained accordingly. I cannot see any reason for this, but it seems so, and we have such instances in the Queen of England family.

Lord Alcester is undoubtedly an improved flower, whereas, on the other hand, Bronze Queen is just the reverse. Ralph Brocklebank, again, is a stronger constituted flower than ever its parent was, but these changes are but slight. We secure more sports now than we used to, not that there are any greater influences at work, but because growers have more knowledge of sports, and again, there are far more growers, and consequently a wider range for them altogether. Notwithstanding this, however, the sports that come before the public I am inclined to think they form but a small proportion of what actually are produced. It may seem a strange thing, too, that we rarely hear of sports anywhere but in this country. The reason of this is, I consider, that the majority of sports have occurred in the incurved varieties, the culture of which until very recently was almost exclusively confined to this country.

The value of sports can best be illustrated from the following. Suppose we had to make up a stand of twenty-four distinct varieties incurved Chrysanthemums only being able to show one variety each of any one family—only one Queen, one Princess, &c. We now take these two, together with Princess Teck, Venus, and Beverley, and here we have five original varieties which total up in families to no less than twenty-six varieties, or if we add Prince Alfred, Jardin des Plantes, Lady Hardinge, Prince of Wales, Mrs. G. Rundle, Novelty, and White Globe, we have but twelve varieties, and these total up in groups to forty distinct flowers, which, together with about five or six others that have not sported yet, they form almost the total list of what are regarded as first-class exhibition varieties. The appearance of these sports has driven out of general cultivation a number of smaller flowers that many of us part with with regret.

We do not see such well-formed flowers shown now as we used to when Captivation, Little Harry, Formosa, Lady Slade, Enamel, &c., were favourite varieties, and the varieties of the Rundle family are fast going out of cultivation. It behoves such Societies as the National not to allow these smaller, but more ideal types, to be altogether lost.

The following is a list of sports in which the ground-colour does not change:—

JAPANESE.

Parent.	*Developed.*	*Sport.*
Bouquet Fait		Miss Gortoon
James Salter		Lady Selborne
Roseum pictum		Striatum
Mdlle. Lacroix		Pink Sport

INCURVED.

Golden Beverley	Mr. Bunn
Queen of England	Empress of India
Golden Queen of England	*Bronze Sport
Queen of England	Alfred Salter
George Glenny	Golden Geo. Glenny
Guernsey Nugget	Bronze Sport
Jardin des Plantes	Bronze Sport
Princess of Teck	Hero of Stoke Newington
Princess of Teck	Lord Eversley
Mrs. N. Davis	Chas. Gibson
Princess of Wales	Violet Tomlin
White Globe	Mrs. Crossfield
Venus	White Venus
Venus	Mrs. Weston
Novelty	Alfred Lyne

REFLEXED.

Christine Peach	Christine Pink
,, Pink	,, White
Golden Annie Salter	Orange Annie Salter

POMPONS.

St. Mary	Higham
Mrs. Cullingford	Miss Davis
Mrs. Wood	Bronze red Sport
St. Crouts	White Trevenna
Rose Trevenna	White Cedo Nulli
Lilac Cedo Nulli	Miss Wheeler
Rose d'Amour	

The following is a list in which the ground colour changes, the variation or reflective colour being retained:—

JAPANESE.

Parent.	*Developed.*	*Sport.*
Baronne de Prailly		Carew Underwood
Bouquet Fait		Wm. Robinson
Ethel		Mrs. H. J. Jones
Edouard Audiguier		Mrs. Wm. Walters
Madame John Laing		Sarah Owen
Meg Merrilies		Ralph Brocklebank
Lady Selborne		Yellow Sport

INCURVED.

Beverley	Golden Beverley
Empress of India	Golden Sport
Empress of India	Lord Alcester
Queen of England	Golden Queen
Formosum album	Formosum luteum
Mrs. Geo. Rundle	George Glenny
Lady Slade	Angelina
Lady Hardinge	Mrs. W. Shipman
Princess of Teck	Mrs. Norman Davis
Hero of Stoke Newington	Lady Dorothy
Mrs. Heale	Miss Haggas
White Globe	Yellow Globe
Prince Alfred	Lord Wolseley
Prince of Wales	Mr. Cobay

* This sport did not originate direct from Queen of England.

REFLEXED.

Christine Peach	*Developed.*	Bronze Sport

ANEMONE.

Lady Margaret	Anne Lowe
Madame Goderaux	Mrs. Russell

POMPONS AND EARLY.

Lyon	Alice Butcher
Madame Picol	Mr. W. Piercy
Madame Desgranges	G. Wermig
White Trevenna	Golden Sport
White Cedo Nulli	Golden Sport
Miss Wheeler	Mrs. Bateman
Rosinante	Nellie Rainford
Snowdrop	Golden Sport

DAMPING IN CHRYSANTHEMUM BLOOMS.*

DAMPING of the blooms is one of the greatest annoyances Chrysanthemum growers have to contend with, for in a severe case damp steals over the blossoms so suddenly as to do irreparable mischief in a few hours. What makes it more vexatious, it does not occur in the early part of the season when there might be time to secure fresh plants, and so in some measure recover our loss, but after a season's labour and care have been bestowed on the plants, and those in charge are looking hopefully forward for satisfactory results to reward them for their patient and enthusiastic labour.

There are few cultivators of the Chrysanthemum whose experience extends over two or three seasons who have not felt the annoyance and perplexity which this damping causes, and as all good cultivators are enthusiastic and devoted to their plants it naturally leads them to try and ascertain the cause of this mysterious evil. Everything is thought out to try and find where in the past treatment of the plants cause may have been given for such bad results. The supply of stimulants, chemicals, the drainage of the pots, and ventilation, are all reviewed in order to find where culture may have been wrong or unsuited to the plants, in order to avoid those bad results in the future.

In my own experience I have not suffered more than others, not so much as many have, but I have considered there are two forms of damping. One form damps from the base and centre of the florets, gradually stealing over the bloom until it is useless; and in the other, where the bloom is suddenly affected at the upper part and presents the appearance of having been scalded with hot water.

In the first form my opinion is it is chiefly caused by over-feeding and over-watering. To obtain the highly developed blooms we meet with in the prize stands at the exhibitions, it is necessary to assist them with manure, either in a liquid state from the farmyard, or some of the various chemical compounds to be had at the present day. While the plants are growing, manure judiciously applied is of great benefit to build up vigorous plants, especially when the pots are full of roots and there is no danger of turning the soil in the pots sour. At the approach of autumn —say the middle of September—the buds have all been taken, some perhaps five weeks, and the wood has become hard up to the buds, a few of the earliest will be showing colour. Owing to the heavy dews we have at this season the plants are unable to take up so much water as they have been accustomed to, and also partly because they are not making growth. But strong manures are continued at this stage to obtain size and substance in the florets. In my opinion they are necessary to bring the blooms to perfection, although we may lose a few, especially in the case of varieties that are especially susceptible to damp. But I think care in watering the plants will reduce the evil to a minimum. By careful watering, I mean by applying water only when needed. If water is applied at this stage when the soil is wet, and especially if the air is charged with moisture, the plants cannot find an outlet for the superfluous moisture except in the most tender part of the plant—the bloom—leading with the first

* Read by Mr. C. Gibson, Morden Park Gardens, Mitcham at the National Chrysanthemum Society's Conference January 9.

adverse weather to the decay of the florets called "damping."

In the second form of "damping" the worst case I remember occurred about three seasons ago. We had a few days very hot and bright, succeeded by a sudden change to wet with a little fog; it was about the third week in October, and the early blooms damped most severely at the time. I well remember there was a general lament amongst the growers at the Floral Committee meeting we had a day or two after. But having another favourable change in the weather damping stopped, and in fact, I may say we were free from it for the rest of the season. As a grower I have had to guard against earliness, my plants having a tendency that way. Consequently, when housed, I used no fire-heat while the weather kept favourable. When the atmosphere was not overcharged with moisture the blooms appeared all right, but with rain or fog suddenly setting in the chief damp occurred. The fire would then be lighted and the pipes kept constantly warm, more or less according to the weather, but the fire was out at no time except on the morning of a bright day, to be lighted again in the afternoon. From the time the firing was commenced there was a reduction in damping. This leads me to conclude that the atmosphere and the sudden changes of the same have much to do with the damping, and especially where the blooms are suddenly affected.

Fire-heat dispels the stagnant moisture, and causes a buoyant motion in the air favourable to keeping the blooms. Where fire-heat is first applied, and blooms are opening, take great care to keep the house well ventilated, and to let the pipes warm gradually, or the sudden heat might cause a great quantity of moisture to ascend, and then be condensed on the blooms, thus aggravating the evil it is intended to cure.

Numbers of early blooms were lost this season through a kind of damping of the lower florets, which faded in the way a bloom would through age, although these had, perhaps, not finished their centres. I believe this is attributable to the foggy weather we had at the time, for, with drier weather, a great improvement at once became apparent, although, I think, blooms generally did not have the staying powers of an average season when we had more sun. I think this season the Chrysanthemums have suffered with most other plants. As this is such a very exceptional season I need not dwell on this matter, for, after all, our efforts are feeble without that prime agent, the sun. In conclusion, whilst I think where high feeding is carried on for the production of high-class blooms, damping will be present to some extent in most seasons, I think the best safeguards against damp are careful watering and ventilating, a dry and airy atmosphere, avoiding as much as possible all sudden changes, and by the frequent use of stimulants rather than by strong doses occasionally.

[The damping is caused by a fungus mould, a species of Botrytis or Polyactis. ED.]

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM MARGARITACEUM, *Franch.*, *in* "*L'Orchidophile*," viii., p. 368, *with a coloured plate and a woodcut.*

IN the *Orchidophile* for December, 1888, the above very remarkable new Cypripedium is, as mentioned last week, described by M. A. Franchet. It is a dwarf plant with a pair of elliptical leaves, 3 to 5 inches long, beautifully spotted with dark brown on a green ground, and of a single flower of 3 inches in diameter. The segments are ciliate, light purple with blackish-purple spots, and the lip blackish-purple. The latter organ is altogether novel in structure; trigonous, with the anterior face flat or slightly concave, with a circular opening with corrugated border about the middle; the whole structure reminding one of the Italian musical instrument called the mandolin. This circular opening is completed behind by a pair of small rounded side lobes whose apexes overlap. The plant grows under tall trees, in a soil composed of decayed leaves, on Mount Tsang-chan, in the province of Yun-nan, Western China, where it was discovered by the Abbé Delavay. It has, however, been known to the Chinese for many years, and is figured in the great Chinese Encyclopædia, *Tchi wou Ming chi thou kao* (an examination of the more remarkable plants cultivated in China), part xxviii., (fragrant and ornamental plants), under the name Lan-hou-Chouang ie tsao (plants with two leaves, and an orchid flower). This work appeared in 1848, and comprises thirty-eight volumes and about 1600 plates. The rude Chinese figure is reproduced.

M. Franchet establishes a new section, Trigonopedia, to receive the plant, which he only compares with C. niveum. It has, however, in my opinion, no real affinity with that species; on the contrary, it is certainly a typical member of the section Diphyllæ, and only differs from the six species of that group in the structure of its remarkable lip. Trigonopedia may, therefore, be placed as a sub-section of Diphyllæ. These other six species are, C. debile, from Japan; C. elegans, from Thibet; C. japonicum, from Japan and China; C. guttatum, widely diffused in Northern Asia; C. acaule, from North-east America; and C. fasciculatum, from California.

The remarkable lip of C. margaritaceum, with its circular opening, indicates some curious connection with its insect fertilisers, which it would be extremely interesting to investigate further. *R. A. Rolfe.*

CYPRIPEDIUM INSIGNE HORSMANIANUM, *Rchb. f.*

Mr. F. Tautz, Studley House, Goldhawk Road, London, W., has kindly sent me a most elegant and very well coloured flower of this variety, telling me he has had it for two years, it having been imported by Mr. F. Sander. It is really surprising in its peculiar shape and very elegant colours. It comes near to Cypripedium nitens ×, which has a very broad upper sepal. I believe C. Sallieri × is not distinct from C. nitens. *H. G. Rchb. f.*

CYPRIPEDIUM CROSSIANUM TAUTZIANUM ×.

This is exceedingly interesting. It has the short green leaves, and the dark copper-brown, richly spotted petals of Cypripedium Crossianum psittacinum, and the narrow dorsal green sepals, with very little white at the apex, and the nerves covered inside with numerous very small Indian-purple spots, and the blunt-lobed staminode of Cypripedium Crossianum amandum. It is rather pretty. It is thankfully inscribed to its benevolent sender, Mr. F. Tautz, Studley House, Goldhawk Road, London, W., the lucky possessor of lovely Cypripedium Tautzianum ×. *H. G. Rchb. f.*

EPIDENDRUM RADIATUM (*Lindl.*) FUSCATUM, *n. var.*

Sir Trevor Lawrence has kindly sent me an inflorescence of this well-known plant, whose perigone is totally suffused with a peculiar purple tint, not a bright clear one, but one verging a little to mauve and to reddish-brown. *H. G. Rchb. f.*

TACHIADENUS CARINATUS.

THIS is a pretty stove annual (see fig. 5, p. 41) of the Gentian order, and is closely related to Chironia, Lisianthus, and Exacum. It was introduced by the Rev. William Ellis in 1858, who brought home seeds with him from Madagascar. It grows freely, branches naturally at the base, and attains the height of a foot or so. If stopped when young the stem branches freely, and bushy little specimens may be thus formed. The flowers are produced in autumn, and last over a month before fading. The corolla-tube is white, from 2 to 3 inches long, the colour of the lobes being bright purple. Seeds are invariably produced by cultivated plants: they should be sown in February, and treated like Gloxinias. The plants like a well drained soil and plenty of moisture at the root always.

There are five species known, all natives of Madagascar. The best of them is L. longiflorus, which is a stout plant with small leaves and large flowers 5 inches long and 2½ inches across the limb. A pinch of seed placed in an envelope and sent by post would be the means of introducing this and similar plants into gardens. Colonial and foreign readers please note. The illustration on p. 41 (fig. 5), was prepared from a plant at Kew in September last.

NOVELTIES OF 1888.

(*Concluded from p. 8.*)

OF late years we have looked in vain for the introduction of a stove or greenhouse plant of equal merit with Stephanotis or Allamanda, although some very acceptable things arrive, chiefly through the diligence of the Orchid collector, who might do far more than he does in that direction, as instanced by the plants which come up on imported Orchids, and which were not intentionally sent by the collector. Of that class is the brilliant Anthurium Chamberlainii, Mast., with its noble foliage and showy crimson spathes, which makes such a feature in the rockery in the Right Hon. Joseph Chamberlain's gardens at Birmingham. For new stove or greenhouse plants of 1888, therefore, we have mainly to turn to the hybridist. Messrs. James Veitch & Sons have given to our gardens during the past year two grand new Nepenthes in N. Dicksoniana and N. rufescens, which are superior to anything in their section. The same firm also have been as markedly successful as of yore in new and worthy Amaryllis and greenhouse Rhododendrons, although the excellent quality of those raised formerly for them by their foreman, Mr. John Heale, renders the certificating of these plants more difficult each year.

The new section of winter-flowering Begonia socotrana hybrids, of which the neat little beauty, B. John Heale, was a startling first break, bids fair to become a popular and almost indispensable class for the florist—the new variety B. Winter Gem being a winter flowerer of vivid crimson. We have also Gloxinias, Chrysanthemums, and other florists' flowers, of which Messrs. Veitch & Sons have in 1888 produced some fine novelties.

M. Ed. Pynaert van Geert, of Ghent, introduced, among other pretty-leaved plants, two very neat ones of great service in garden decoration in Dichorisandra pubescens var. tæniensis, and Begonia Lubbersii.

Mr. B. S. Williams received a certificate for Cordyline australis variegata, also for a very rich scarlet Amaryllis Emperor Frederick, Sarracenia Williamsi ×, Leea amabilis splendens, Anthurium Scherzerianum atro-sanguineum. Mr. John Laing secured Botanical Certificates at the Royal Horticultural Society's exhibition for Anthurium Laingii, as also Mr. James, for Anthurium Scherzerianum sanguineum. A First-class Certificate of the Royal Horticultural Society was taken by M. Linden, of Brussels, for Anthurium Desmetianum—all these various plants being good in their way, and the last-named especially so.

During the past season Mr. John Laing and Mr. Cannell, of Swanley, seem to have run neck and neck in large-flowered tuberous Begonias of double and single types, the excellent quality of many of which has enabled them to obtain First-class Certificates.

The year was marked by the recognition of the handsome-flowered, fine-foliaged Cannas, as being worthy decorative plants for the conservatory—Mr. Cannell, Messrs. Veitch, and Mr. Laing receiving certificates for several varieties of which the beauty and usefulness could not be doubted. The Eulalia japonica gracillima, too, of Messrs. Veitch & Sons, an elegant plant, will prove to be useful as a decorative subject.

The Royal Horticultural Society's shows at the Drill Hall, Westminster, have, during the past year, been made noteworthy by the fine displays of old but still scarcely-known plants, sent chiefly from the Royal Gardens at Kew, and also from that rich collection of rare plants belonging to Sir George Macleay, of Pendell Court, which is under the charge of Mr. F. Rose, who, in accordance with the

revised rule, received a First-class Certificate for the fine white-flowered Oxera pulchella, although not a new plant. To our list of greenhouse plants Mr. Chas. Turner, of Slough, adds some magnificent novelties in Indian Azaleas, and in Pelargoniums; and Mr. John Laing two Cliveas, new in colour, viz., C. Orange Perfection, and C. sulphurea.

FERNS

received a few additions, chiefly garden forms. The Adiantum versaillense, of Mr. B. S. Williams, is a very neat plant resembling a densely-crested A. excisum or A. Capillus veneris; and the A. Waltoni diffusum, a strong-growing and effective decorative plant, probably a hybrid of the favourite A. cuneatum. What beauty and variety there is in a really large representative display of Ferns was capitally exemplified by the collection shown by Mr. Birkenhead, of Sale, at the meeting of the Royal Horticultural Society on July 24, and also by that of Mr. May, of Edmonton, at the September meeting. At the former meeting Mr. Birkenhead was awarded First-class Certificates for Nothoclæna Muelleri and Lastrea montana ramocristata, and a new Scolopendrium; whilst Mr. May secured like awards for Pteris cretica nobilis and P. tremula elegans—varieties whose merit as market plants cannot be over-estimated. Mr. B. S. Williams also introduced a very pretty Lycopod in Selaginella cuspidata crispa. The new Gymnogramma Pearcei robusta of Messrs. Jas. Veitch & Sons will place the coveted G. Pearcei in the grower's hands bereft of its fatal delicate constitution.

HARDY PLANTS.

These and other plants for the outdoor garden have received a few excellent additions, and it is gratifying to note that many fine old plants have been deemed worthy of a certificate in order to encourage their cultivation more, and in bringing such plants into notice again, Mr. Ware and Messrs. Paul & Son have done good service. The best hardy plant of the past season was the noble, pale blue Ostrowskya magnifica, and for which Messrs. James Veitch & Son received the Royal Horticuitural Society First-class Certificate on July 10, and which was beautifully illustrated in the *Garden*, December 29. Of very rare Lilies recognised were L. nepalense, shown by Messrs. Hugh Low & Co.; and L. Wallichianum, shown by Mr. Ware, both among the *élite* of rare Lilies. Crocosma aurea var. maculata is a distinct plant and the best of its section, and likely to make a favourite plant for the open border or the conservatory—its duration in flower being surprising.

The Stuartia pseudo-Camellia of Messrs. Veitch is a fine white-flowered shrub; their Senecio elægnifolia, Styrax obassia, and Cæsalpinia japonica are distinct shrubs; the Thuiopsis borealis lutea of Mr. Slocock is a valuable addition to fancy Conifers; and the Gladioli, Pyrethrums, Gaillardias, Pæonies, Delphiniums, and other subjects for which Mr. Kelway has justly received Certificates, fine novelties. Mr. P. Barr had several new Narcissus worthy of his renowned collection; Mr. R. Dean likewise received a First-class Certificate for a new and brilliant dwarf Dianthus, D. Scarlet Bedder, which gave great promise as a garden plant and permanent bedder; also for D. splendens. Mr. Wm. Gordon, of Twickenham, noted for the latest additions in Japanese plants, took Certificates for two new Iris Kæmpferi vars., a fine new Tree Pæony, P. Prince Albert; and a very distinct and beautiful double Camellia with handsomely folded imbricated petals was shown, which he had imported direct from Japan.

In the Rose Climbing Niphetos of Messrs. Keynes, Williams & Co., a fine addition to the climbing class was made; and among Tea Roses Madame Hoste, Sappho, Cheshunt Scarlet, and Duchess of Albany, all four from Messrs. Paul & Son; May Queen, Messrs. Rivers; and Princess Beatrice, of Mr. Bennett, were welcome additions; the last-named receiving, also, a Certificate for a neat little miniature Rose, R. minutifolia alba. Messrs. Paul & Son received for a compact variety, R. Gloire de Polyantha, a similar award. The last certificated plant of the season, a seedling Skimmia from Mr. Foreman, was appropriately bright in its scarlet berries. If we add to those already enumerated the Dahlias of Messrs. Keynes, Cheal, Turner, and others, the Chrysanthemums, Primulas, Cinerarias, and such-like, of various nursery firms, a cheering account of progress in the garden will be arrived at.

Among the new or specially rare and noteworthy plants illustrated in the *Gardeners' Chronicle* in 1888 will be found Anthurium Chamberlainii, April 14, pp, 464, 465; Crocosma aurea var. maculata, November 17, p. 565; Iris Korolkowii, July 14, p. 37; Ostrowskya magnifica, July 21, p. 65; Oxera pulchella, February 18, p. 209; Stuartia pseudo-Camellia, vol. iv., p. 187; Dichorisandra tæniensis, May 5, p. 557; Erythronium giganteum albiflorum, May 5, p. 556; Begonia Lubbersii, March 10, p. 301; Stachys tuberifera, January 7, p. 13; Styrax obassia, August 4, p. 131; Lilium nepalense, October 13, p. 412; Cæsalpinia japonica, November 3, p. 513; Nepenthes rufescens, December 8, p. 669; and N. Dicksoniana, November 10, p. 541.

SPECIMEN TREES AT KEW.

ONE of the most characteristic trees at Kew is Pinus Sabiniana. Seen isolated on the lawn it presents a striking appearance from its pyramidal habit, long pendulous grey leaves, which wave to and fro in the wind, and which, when still, are so thinly set, that they screen the light, as it were, through the very wide meshes of a sieve.

The tree here represented (fig. 6), from a photograph, has, according to Mr. Nicholson—to whom we are under so many obligations—a height of 35 feet, a spread of branches of 28 feet, while the stem at 4 feet from the ground, girths 5 feet 6 inches. It is a Californian tree of little value for timber, but its huge cones furnish seeds used as food by the Indians. We may refer the reader to the figure of the cone of this fine species at p. 43, vol. iv., 1888, where also the botanical history of the tree is given. A moderately rich well-drained soil, in not too exposed a situation, suits the tree.

THE CULTURE OF PHALÆNOPSIS.

PERHAPS there is no section or genus of Orchids more generally admired than this, and every Orchid collector who possesses a healthy lot of plants takes a pride in showing them to his friends. In many good collections of Orchids the Phalænopsids do not succeed, and on the other hand some other collections which have been obtained at a very moderate cost are famous for the fine development of these plants. I alluded quite recently to the grand plants found in Mr. Augustus Sillem's collection at Sydenham, where these plants were grown in a house with other East Indian Orchids, and every year I have an opportunity of seeing the fine plants belonging to Mr. J. Partington, at Heaton House, Cheshunt.

At p. 649, vol. ii., new series, I alluded to the use of salt, and stated that Mr. Searin, who has charge of the Heaton House collection, uses it freely sprinkling it on the floors and also washing with it the gravel on which the plants are placed; and this seemed to be in accordance with the atmospheric conditions under which the plants grow in their native habitats, that is, with greater vigour within a short distance of the sea beach than they do much further removed from it. On the other hand we cannot lose sight of the fact that Phalænopsids have been grown remarkably well when no salt had been sprinkled in the houses—Mr. Sillem's plants to wit. For many years, too, I had the pleasure of observing how well these plants were grown by the gardener to Mr. F. A. Philbrick, Avenue Road, Regent's Park, and again by Mr. Heims, the gardener, in a house of much smaller size, at his place at Oldfield, Bickley, Kent; and in neither case was salt employed. There is, however, one point gained from the Heaton House superintendent, and that is of some use to us in our search for the best method of cultivation—that salt may be used freely, and if it does no good, it certainly does no harm; and as is sometimes the case when all efforts have failed to grow the plants well, salt may be tried as a last resource. Mr. Searin stated to me the other day that he had not observed any of his plants make more than three leaves in one season; the more usual number is two. It may be possible to obtain six leaves in one season; indeed, as I stated in a recent number of the *Gardeners' Chronicle*, this had been done at Summerfield House on a plant under the care of Mr. Solly. It will be interesting to watch the future development of any plant that has made such extraordinary growth to see how long it will maintain its vigour.

Whatever the form of house in which the plants are grown, one point is of more importance than any other, viz., that of giving the plants a decided season of rest during the winter months. They must, of course, be rested in quite a different way from the Cattleya, or any other plants with thick pseudobulbs. A Cattleya may be left without water for six weeks, and be all the better for it; but Phalænopsids are quite of a different nature and must not at any time be quite dry at the roots. Water should be supplied with caution in winter, but the plants ought to receive enough to prevent them from drying up to the extent of causing the sphagnum moss to wither. This ought to be maintained in a living state at all times. The main point is to keep the atmosphere in the right state of moisture. A high temperature with too much moisture will probably induce spot and other evils. Most Orchid-houses have evaporating troughs over the hot-water pipes; but in winter they ought not to have any water in them, and the atmospheric moisture ought to be supplied by sprinkling the paths and stages, but they should be allowed to become dry before they are again sprinkled. It depends much upon the state of the weather how often this ought to be done. Drying winds with sunshine soon cause moisture to evaporate, whereas in close moist weather it might not be necessary to sprinkle the houses more than once in twenty-four hours. It is not only necessary that a man should be skilful as a cultivator, but he must also be able to judge accurately the requirements of his various plants, and by daily—nay hourly—attention, be able to tell at once whether they like the treatment they are receiving. It is impossible to do more than enunciate general principles in an article of this kind, as the special treatment the plants require in a span-roofed house may be different to that of a lean-to. For instance, take the resting period of the plants, which is also their flowering period; indeed, as I write these lines, the house at Cheshunt has a charming effect. The flowering spikes are very numerous—some of them 4 feet in length on P. grandiflora; and another vigorous single plant gave two spikes which together produced 108 flowers. They last a long time, too, in the rather dry and—for them—cool atmosphere of about 60°. The growth of Phalænopsis ought to be made up by the end of October, and it is better that they do not begin leaf-growth for at least three months afterwards, during which period a minimum temperature of 60°, more or less according to the state of the weather, may be maintained, and rather erring, if at all, on the side of dryness. The leaves made in a higher temperature, during the summer and autumn months, will not "spot." It is only immature leaves—the result of a high, over-moist atmosphere at an unsuitable season—which spot. This fact was pointed out by Dr. Lindley many years ago.

When the plants start into growth in the spring the temperature must gradually be raised, and during the summer there is much danger to be feared from too much moisture in the air. The aim should be to get the plants to make a steady and good growth up to October, when they should be allowed a resting period.

I have seen them grow in all manner of ways—as far as relates to the root-run—in pots, shallow pans, cylinders, rafts, and baskets of Teak, but, all things considered, I am in favour of the latter, 3 or 4 inches deep, and made of equal breadth at the sides; and when the plants are once well established and

doing well, it is not desirable to disturb the roots much, and instead of turning out the plants when they require a renewal of the compost, it is better to pick the decayed sphagnum out, and pack in the fresh material without disturbing the roots at all. Clean crocks and a little broken charcoal should be freely mixed with it. In collections where these plants are really doing well, the lower leaves are retained for three or four years, and amongst those nearest the base strong roots push out freely, a few of them dipping downwards into the live sphagnum moss; but the greater portion prefer to go straight outwards into the air; the healthiest roots do not go into the sphagnum at all. A mass of rotten moss in the centre of a basket or pot is a source of danger always, as it becomes saturated with water, and the roots get destroyed as fast as they push into it.

During the last ten years or so this genus has been greatly enriched, not only by introduction from the tropics, but by hybrids raised in England; although it may be as well to admit that the garden hybrids are so few that only those who have plenty of money can afford to purchase them, therefore we must at present depend entirely upon the skill and enterprise of Orchid importers to supply us with stock for our hothouses at a reasonable price. It may not be safe to say that any introduction of late has surpassed or even equalled the majestic P. amabilis. It was the first species that flowered in Europe exactly fifty years ago, first flowering at Messrs. Rollisson's nursery at Tooting, from a plant sent to them from Manilla by Mr. Cuming.



Fig. 6.—Pinus sabiniana at Kew. (see p. 44.)

Rumph was the first traveller who noticed it in Amboyna, where it was found growing on short thick-stemmed trees, covered with moss, up which, he said, it twined like a rope. Dr. Blume also met with it before Mr. Cuming sent it to Tooting, "on the wooded coast of Nusa Kambanga." Dr. Lindley described and figured it in *Bot. Reg.*, 1838, t. 34 under the English name of the Indian Butterfly plant. The next introduction was P. grandiflora, about ten years later, and it was described by Dr. Lindley in the *Gardeners' Chronicle*, 1848, p. 39, as a distinct species. Messrs. Veitch, then of Exeter, introduced it into Europe from Java, and it first flowered with J. H. Schroder, Esq., of Stratford Green, who exhibited it before the Horticultural Society on September 7, 1847, and received for it the award of a Silver Banksian Medal. About the same time Mr. Thos. Lobb sent from Manilla a quite distinct species, with rose-coloured flowers, to Messrs. Veitch & Sons. This Dr. Lindley also described in the *Gardeners' Chronicle*, 1848, p. 671 (with woodcut), under the name of P. rosea. It was figured in the year 1860 in *Bot Mag.*, t. 5212.

Next in order came that lovely small-growing species, P. Lowii, discovered by the Rev. C. S. P Parish in Moulmein, from whence it was sent by him to Messrs. Low, of Clapton. It has very delicate rose-coloured flowers, shading to white at the margin, and is quite distinct from P. rosea. It was first described by Dr. Reichenbach, in the July number of the *Botanische Zeitung* for 1862, and figured very beautifully in *Bot. Mag.*, t. 5351.

In the year 1865, no less than three new species of Phalænopsis were figured in the *Botanical Magazine*. P. Lüddemanniana was introduced by Messrs. Low, of Clapton, from the Philippines, but it was first flowered with M. Lüddemann, of Paris. It is a well-known and pretty species. P. sumatrana first flowered in the collection of Mr. Day, at Tottenham, in that year, although it had flowered in the Botanic Garden at Leyden about the year 1856. P. Schilleriana was also introduced and flowered with the Orchid growers on the Continent before it flowered in England. Lindley described it in *Gard. Chron.*, 1860, p. 216. Yet another pretty Phalænopsis has to be recorded as flowering for the first time in England, in 1865, viz., P. Parishii; it was sent from Burmah by Mr. Parish to Messrs. Low in 1864, and flowered in the collection of Mr. Dawson, at Meadowbank, and also with Mr. Day. The sepals and petals are white, lip yellow, blotched purple.

The year 1881 saw a very important introduction in P. Stuartiana by Messrs. Low, of Clapton, through their collector, Mr. Boxall. It flowered for the first time in their nursery at Clapton in December of that year, and has quite fulfilled the great expectations first formed of it. It is quite distinct as a species.

P. speciosa is a lovely Orchid of recent date, introduced from the Andaman Islands by General Emeric S. Berkeley. It is very distinct, and, though of large size, the richly coloured flowers of a deep crimson-purple tint, lightly barred with white, are very striking.

P. violacea is a very desirable plant, and no collection should be without it. It has not been long in cultivation, but long enough to establish itself as a first-class Phalænopsid. Its large handsome leaves arrest attention, and the flowers are most distinct; the upper portion of the sepals being creamy-yellow, and the lower part rich purple, they have a peculiar effect. P. Sanderiana is perhaps the most recent of the new introductions. It was discovered by one of Messrs. Sander's collectors in the Eastern Archipelago a few years ago, and soon became plentiful. It is a most beautiful plant, and in its delicate and pleasing variety of colour is unsurpassed in the whole genus. Although a supposed natural hybrid it is as easily to be obtained as any of the species. The flowers remind one of a rose or blush-coloured amabilis, but the leaves are slightly marked like those of Schilleriana, reminding one of that species.

Besides those I have named there are many more species and varieties that should be found in a complete collection. Some of them are of great beauty, but not plentiful enough for general cultivation. P. amethystina, an elegant small growing species; P. casta, a scarce plant, and supposed natural hybrid; P. Corningiana, a beautiful species, after sumatrana; P. intermedia, and its varieties Brymeriana and Portei, are well known natural hybrids between P. rosea and P. australis; P. leucorrhoda, another beautiful Phalænopsis after P. amabilis and P.

Schilleriana; P. Mariæ, a scarce and charming species; P. Veitchiana, another supposed hybrid between P. rosea and P. Schilleriana, scarce.

The above does not include all the introductions, but affords sufficient variety of colour and form to show that a Phalænopsis-house may be even more interesting than any other department of Orchid culture. *J. Douglas.*

CLEVELY, ALLERTON, LIVERPOOL.

SOME time since, in wet and boisterous weather, I wended my way to the gardens of T. Sutton Timmis, Esq. (gardener Mr. Cromwell), and was well rewarded for my pains, not by that which I saw in the outdoor portion of the garden, and for which, perhaps, this is scarcely the proper season, but by the contents of the glasshouses, which are many.

A fine feature in the garden is a block of plant and fruit houses, which are approached from the dwelling by a vestibule, having in the middle a large specimen of Camellia alba plena, which is itself encircled by a table upon which other plants are arranged. To the right hand of the vestibule is a large house containing at the present time Camellias, and in the centre a fine group of late flowering Chrysanthemums. To the left of the vestibule is a house in which Camellias are chiefly grown, the roof of the spacious building being covered with a variety of climbing plants, very vigorous and clean. Some plants of Lapageria alba were still carrying sprays of flowers. On the side stages were the flowering plants, and those with ornamental foliage, whilst the centre bed is solely planted with the best varieties of Camellias obtainable, all of which are in good condition, and well furnished with flower-buds.

Re-entering the corridor, I remarked a fine display of Chrysanthemums, whose blossoms must have numbered several thousands, chiefly of Japanese and incurved varieties. Other flowering plants were present, viz., Salvias, Roman Hyacinths, Primulas, and many other subjects too numerous to be mentioned here.

Located in pairs, at equal distances, and approached from the corridor, are the plant and fruit houses; the stove and intermediate-houses being those nearest to the dwelling. In these grow Orchids, Ferns, and a mixed collection of flowering plants, and others with fine foliage. The idea often entertained that Orchids will not succeed in company with other plants is at once dissipated on seeing this collection, and any person having doubts on that subject should visit Clevely, where they will find the Orchids will compare very favourably with those grown in houses specially set apart for their cultivation.

In the stove I noticed some extraordinary masses of Cœlogyne cristata, as also the Chatsworth and Trentham varieties of the same. Cattleyas Trianæ, C. Mossiæ, C. Mendelli, and C. Skinneri, were all showing well for bloom, and were in excellent condition, as was also the case with C. superba, which is too often met with in a pitiable condition. A nice plant of C. gigas Sanderiana was in flower, together with a specially fine form of Oncidium Papilio and its var. Krameri likewise.

Phalænopsis, although not numerous, are of large size (some leaves of P. Schilleriana measuring 14 by 5 inches), as is also the case with Odontoglossum Roezlii, so seldom met with in first-rate condition. Arranged on the centre bed are some grand specimens of Crotons which are well known at most of the leading exhibitions. Within these was standing a very large specimen of Anthurium Scherzerianum, Veitch variety, 5 feet in diameter. It was grown from a small plant with two leaves, and naturally is a great favourite with Mr. Cromwell. Specimen Ixoras, notably I. Westii, were scrupulously clean, showing signs of clever cultivation; whilst suspended from the roof were various Nepenthes well pitchered. Amongst Orchids in the intermediate-house I observed some fine specimens of Lælia anceps, showing several hundred flower-spikes, amongst them being L. anceps grandiflora—one of the finest masses in the country, with nearly seventy spikes. This plant was illustrated in these pages on January 28, 1888.

Cymbidium eburneum, with eight spikes, also Miltonia candida grandiflora (true) with several spikes. Suspended from the roof for the winter season were fine plants of Odontoglossum vexillarium, together with O. Insleayi and its variety, O. I. splendens, which latter was in flower. A fine plant of Oncidium tigrinum, just out of bloom, had borne sixty-seven flowers. Other Orchids of interest, and in a healthy condition, were Odontoglossum citrosmum album, a plant in 10-inch basket; Cattleya citrina on blocks, for several years in this country, and still improving, which is rather unusual; and Epidendrum prismatocarpum.

Some beautiful Ferns were remarked viz., a pair of Gleichenia dichotoma, each over 9 feet in diameter; and G. Mendeli, 6 feet in diameter; grand specimens of Microlepia hirta cristata, Nephrolepis rufescens tripinnatifida, and the beautiful Davallia tenuifolia var. Veitchiana, and generally found difficult of cultivation, though growing here like a weed. It is reputed to be the finest plant in this country.

An early and a late vinery were visited. Some excellent bunches of Black Alicante and Lady Downe's Seedling still remain in the latter, whilst in the former were some gigantic specimens of Dendrobium nobile and D. fimbriatum maturing their pseudobulbs. Then a Muscat and a Peach-house were entered; and finally, a house for cool Odontoglossums, in which was a rockery well clothed with Ferns in variety, Selagiuellas, and numbers of Begonias of the Rex type. This wall formed the basement over which a stage about 2 feet 6 inches from the glass was erected, and which contained the other Odontoglossums; and, judging from the vigour of the growths, a forest of spikes will be the result in due course. Suspended from the roof were alternately well-flowered plants of Sophronitis grandiflora and of Odontoglossum Rossii majus, which furnished a very pleasing picture.

By means of the corridor, before mentioned, the potting sheds and the nine spacious houses and their appurtenances can be visited without once passing into the open air, thus doing away with the potting of plants in the houses themselves.

In addition to this group of glasshouses is a range partitioned off for the growing of Melons, Tomatos, and Cucumbers. In the first-named division were resting some large plants of Dipladenias, Allamandas, Clerodendrons, and Stephanotis, together with a number of Dendrobiums, amongst which I observed a large specimen of the old, though now neglected D. pulchellum, whilst in the latter was observed a very fine crop of Cucumbers.

In the kitchen-garden a Peach case has been so constructed that every alternate light is made to slide over its neighbour, thus when required it can be so opened that its occupants are as nearly as possible in the open air. I may observe in conclusion that about twelve months ago the stables against which one part of the corridor leans was completely destroyed by fire, but happily the flames did not break through into the houses, otherwise many valuable plants would have been lost. *F. Ashton.*

THE APIARY.

HOW TO TREAT SWARMS.

OF course the above heading does not apply to the present time, but so much of success depends on how swarms are treated, that it is a good thing to refer to it beforehand.

There are three ways of treating swarms, all of which have their supporters. First, giving swarms full sheets of worked-out comb; second, giving them full sheets of foundation; third, giving them only narrow strips of foundation. These are all good in their way but tend to different results, and so the object of the bee-keeper must guide his selection.

Comb honey will also meet with a sale, and if comb honey is required in any quantity, the third method is by far the best. When preparing for swarms, put narrow strips of foundation in the frames, and get the boxes of sections ready at the same time. When the swarm issues, put it into a hive thus prepared, and put the sections on at once. The bees will, according to their instinct, store in the sections, but will put a little honey in the frames, and will breed below and store above. It is also a good thing to put the swarm on the old stand, as that will so weaken the old stock that it will in all probability not swarm again. If the stock from which the swarm issued was supered, the sections had better be removed from it, and placed on the swarm. This is beneficial in two ways, for the super is sure to be deserted after the issue of the swarm, and the bees will more readily take to a super already commenced. This is the whole theory of getting comb-honey, and has been repeatedly tried and not found wanting. If long hives are used and extracted honey is the object, the treatment would be somewhat different. Full sheets of foundation or comb might then be given and added to as required, the queen being confined to a particular part of the hive by means of excluder zinc. Of course extracted honey may be obtained by tiering up over the swarm in the same way as comb honey, but in that case give the swarm only narrow strips as before. Though I am in favour of giving all reasonable help to bees, I am also of opinion that too much help may be given them. Do not pauperise them by giving them too much help, but treat them as able-bodied paupers, and give them something to do. Even bees will turn lazy sometimes, and so it is a good thing to compel them to prepare for winter, by occasionally robbing them. This comes hoping that bee-keepers will have some compensation in 1889 for the woes of 1888. *Bee.*

PLANTS AND THEIR CULTURE.

PREPARATION OF SOILS.—The fitful changes in the weather at this season will necessitate careful attention being given to plants, for at no other time of the year is it more necessary to keep growth at the lowest point, and plants as nearly at rest as may be. An early opportunity should be taken to thoroughly cleanse the glass of plant-houses, so as to allow the inmates to get all the light possible, and this is doubly necessary in districts which are liable to fogs. The season for the potting of plants will soon commence, and the present is a favourable time to make preparation for this work, by having all materials required ready to hand, so that no time may be lost on beginning the operations. If putting a stock of loam under cover has been overlooked, no time should be lost in getting in as much of this material as will fulfil requirements. All frozen masses should be thrown aside, and where practicable, both light and heavy loams should be stored to meet the varied requirements of plants. Peat may be prepared in quantity ready for use by pulling it to pieces by hand, throwing out as the work proceeds all sour, black, soft peat. Other materials constantly wanted are decayed leaf-mould from Beech or Oak, some wood charcoal, coarse silver-sand, or any clean sharp sand free from loam or clay. If the sand is not clean, it may be made so by washing.

Euphorbia jacquiniæflora.—This well-known winter flower should be grown in quantities if there is a great demand for cut flowers in winter, as it seldom fails to be appreciated. It must be given stove treatment, and, during the early stages of its growth the warmest end of the stove is the best place for it. It is a good plan to commence the increase of stock this month if cuttings of the plant can be taken from plants which bloomed early. The cuttings should be 3 or 4 inches long, and allowed to lay for a couple of hours to thoroughly dry the milky juice exuded from the wound; this should be washed off before inserting them in the soil. Any sized pot may be used, but 48's are a useful size for striking the cuttings. Give plenty of drainage, and use a compost consisting of peat, loam, coarse sand and charcoal, all being put through a ½-inch-meshed sieve. After making the soil firm and watering it gently, place the pots in a bottom-heat of about 80°. When rooted stop

the points of the shoots, and grow on till the final shift into 24's, growing them as near to the glass as possible. If long-flowering racemes be not in request, the shoots may be stopped at several times during growth; and when repotting it will be found that a handful of bone-dust mixed with the compost greatly assists them. A thickness of ¼-inch bones placed over the crocks answers as well. After potting, keep the plants in a close, moist house, carefully shaded in bright weather, until fresh roots are emitted.

Torenias.—Seeds of this plant should be sown early; and if sown now the plants raised will afford a succession of flowers throughout the summer months. It is an excellent subject for a basket or hanging vase, and grows best when potted in a light but rich soil, consisting, say, of equal parts peat and loam, with a small addition of leaf-mould and coarse sand. Torenias grow well from cuttings, which strike quickly on a bottom-heat of 80°. Short jointed cuttings make the best plants, and these, with liberal treatment, soon form effective objects, when placed on the edge of stages or on a shelf where there is abundance of light, and allowed to fall over the sides of the pots. Torenias fulfil a useful purpose in forming a pretty blind to the pots behind them. In repotting them a small portion of decayed manure should be added to the other ingredients, and stove treatment given until established. They require a long rest in the late autumn and winter months, but many old plants should not be kept, young ones producing the best flowers. *G. Wythes, Sion House, Brentford.*

THE FLOWER GARDEN.

WORK TO BE DONE: PROSPECTIVE.—A large proportion of the interest and pleasure derived from our work as gardeners is the summing-up in our minds the measure of success that we hope to attain in any particular department, as, for instance, in regard to this particular branch—the flower garden—whether we will have a larger proportion of foliage, or flowering, or of hardy or tender plants, ard the arrangements of the same, *i.e.*, whether massed for colour effect, or mixed in various ways. Style, or plan of arrangement of plants in the coming summer is, therefore, the one point to be decided, and the providing (propagation) of the necessary plants follows as a matter of course. I have, perhaps, more occasion than many flower gardeners to be particular about taking stock of plants, and of the numbers required, because for several reasons I am prevented taking other than just sufficient cuttings in the autumn as will give us a moderate stock of cuttings early in the New Year.

Pelargoniums.—As these require about the longest time of any bedding plants from the taking of the cuttings to being ready for planting out, our stock is now being overhauled for cuttings, which are inserted in threes round the side of a 60 pot. They are well watered at once to solidify the soil and sand around the cuttings, and are then placed in any dry, warm position, such as on shelves over hot-water pipes in vineries and Pine stoves, a dry atmosphere being at this season the one essential to successful striking. Pelargoniums did so badly last season, and in fact in any season are short-lived in good flowering condition, that we have nearly discarded them. About the only flowering varieties we now use are—Scarlets: Henri Jacoby, Bonfire, and Vesuvius; Pinks: Master Christine and Amaranth. Rose-coloured: Nora and Waltham Seedling. The only foliage varieties we now use are Lady Plymouth, May Queen, Manglesi varietgata, and Sophie Dumaresque.

Summer Flowering Chrysanthemums.—Last autumn no flowering plants of any description in our flower garden attracted so much attention as did these, and apart from their effectiveness and novelty, their long-lasting in good flower should be sufficient to ensure their becoming generally popular. We have already put in our stock of cuttings, but there is yet ample time to secure good plants, and I would strongly advise all desiring a greater variety of flower and increased gaiety during the months of September and October to give this section of Chrysanthemum a trial. The best varieties we grew last year were Madame C. Desgranges, G. Wermig, Madame Jolivart, Precocité, Lyon, Alexander Dufour, Simon Delaux, and St. Mary.

Fuchsias.—We are wont to say "anything for a change," but at the same time we mean such change to be for the best, and in respect of Fuchsias for use in the summer flower garden, there is not a doubt but that if the change from, say, Pelargoniums to Fuchsias was more general the change would be in the right direction. Having used them for some years, both in masses and singly as standards, I am able to vouch for their effectiveness, and for the admiration they receive, because, as is frequently observed, they are seldom used as bedding plants. They might not do so well northwards as here in the South; still, my opinion is that wherever Pelargoniums thrive there also will Fuchsias. Plants one and two years old never fail to fill out their allotted space quite as early as do Pelargoniums, and they then flower continuously, rain or fine, till severe frost cuts them down. Spring-struck plants grow too luxuriantly to flower well the first season, hence our preference for old plants, the smallest of which are now being potted, they having, up to the present, been heeled-in closely together in a frost-proof cellar, where the strongest plants will remain for a month or so longer, and those now potted will only be grown on very slowly, that the growth made may be of a sturdy, short-jointed description. *W. Wildsmith, Heckfield, Winchfield, Hants.*

FRUITS UNDER GLASS.

WORK FOR THE WEEK: VINES.—The last week has been very unsuited for any kind of forcing, for not a ray of sunshine has shone out to help us, only suffocating fogs, which have almost turned day into into night. It seems beside the mark in such weather to advise all forcing to be carried on with the utmost care, and in damping down the houses to be cautious to keep the water from wetting the pipes, and thereby raise a cloud of steam in any of the houses. Keep a steady temperature by day, with a buoyant moist atmosphere or else long-jointed wood, yellow and decaying leaves, will be the result.

The Early House.—The directions as to temperature so carefully given in December can still be followed, taking advantage of any mild sunny days to admit air to strengthen and give colour to the foliage, and to keep the shoots from being drawn, especially in the case of forcing-houses of the old-fashioned heavy-raftered, flat-roofed kind with small squares of glass. Vines in this kind of house require very careful management in forcing in dull foggy weather, and more especially whilst in bloom or setting. I must confess that I think it a mistake to force Vines to come into use before the beginning of May, as well-ripened late Grapes can be kept so easily till then.

The Second House.—The Vines here will now require stopping and looking over to prevent the shoots touching the glass, being very careful in tying not to break the shoots by pulling them down too much at once, but merely fastening the matting by a slip bow to the wire, which may be easily undone at any time, and the shoot pulled lower down several times, till it can be brought to its proper place. The temperature may range from 55° at night to 70° by day, and 80° with sun-heat.

The Third House, containing Muscats and Black Hamburgh Vines, on which the buds are swelling, may be syringed in the morning, and again in the afternoon. Disbud the bunches when they become plainly visible, and keep a temperature of 50° by night and 60° by day. *W. Bennett, Rangemore, Staffordshire.*

THE HARDY FRUIT GARDEN.

SEASONABLE HINTS.—Trees not in a satisfactory state as regards their crop of fruit, but growing yearly gross shoots instead, may still be root-pruned or transplanted. I prefer to do all of this kind of work as soon as the leaves begin to change to a yellow tint; but sometimes important work is unavoidably delayed from various reasons. It is better, however, not to be very severe in pruning the roots of trees at this season of the year, especially if the trees are large, and I would recommend that only half of each be pruned now, and the other be left till November. In carrying out the work a trench 2 feet deep should be dug out at a distance of 5 feet from the bole of the tree, and carefully remove from among the roots all the old soil, taking as much care as possible not to damage the young ones, every strong root should be completely severed, as to miss one of these may spoil the effect of the whole work. Bring all the roots as near to the surface as is desirable, and fill up the hole with a sweet loamy compost. If the weather is likely to be severe protect the roots from frost with a little straw manure. No kind of fruit tree, especially those of the Pear, should be condemned as unworthy before its roots have been put into a perfect condition, as it is healthy root-action alone that can enable the tree to produce fruit of good quality.

Pruning and Nailing.—All trees, with the exception of the Peach, Nectarine, and Fig, should be finished off as fast as possible, but do not prune when the branches are in a frozen state. Plums and sweet Cherries here are trained in the fan form—a style I prefer, as bare spaces in a tree are more quickly made good, which is an advantage, frequent loss of branches being common with the Cherry. It is advisable when pruning to reserve here and there young shoots, and especially on the lower part of the tree, for the purpose of filling up such gaps as may occur. Every tie should be examined thoroughly, and removed if the fastenings are likely to pinch the bark, and too much care cannot be taken when driving in the nails, to avoid touching the shoots with the hammer, gumming being a general result from such injury. A sound dressing of bone-meal pricked in carefully among the roots of these trees and a little new soil will help them amazingly. Trees which were during summer infested with blackfly, &c., should have a good washing with soapsuds as soon as the nailing is completed. This is a wash I have great faith in, when applied in winter.

Figs, &c.—If severe frosts set in these will need some small amount of protection in very cold districts. Spruce boughs or Fern fronds placed in front of the trees answer its purpose well. Scions for grafting should be taken from the trees of Apples, Pears, &c., and heeled-in till the proper time arrives for doing the work. Take advantage of frosty mornings to wheel manure to quarters where it is wanted. *H. Markham, Mereworth Castle, Kent.*

THE KITCHEN GARDEN.

SELECTION OF SEEDS.—There are now many novelties offered, and I do not say they should not be tried, but I recommend that no one should depend on any of them for the main supplies, good tried sorts being preferred. Some novelties are simply selections of standard varieties, others are worthless for general cultivation. One standard late Pea of great excellence has been unprocurable for years—I refer to Lynn's Black-eyed Marrow, than which there was no better late Pea. The past season has been most unfavourable for the proper harvesting of most kinds of seeds, and I would, therefore, advise that all seeds be ordered as early as possible, and their germinating powers tested prior to sowing them in the open. The under-noted varieties may be relied on as being good and serviceable in most soils:—*Broad Beans:* Johnston's Wonderful, Windsor Improved, Dwarf Fan, very prolific; Beck's Gem, good in colour. *Kidney Beans:* Osborn's Forcing, Ne Plus Ultra, and Negro Longpod. *Runners:* Champion and Painted Lady. *Beet:* Dell's Crimson, Nutting's Dwarf Red, Dickson's Superb Short-top Black, and Dark Red Egyptian, for early use. *Broccoli:* Backhouse's Winter White, Osborn's, Snow's, Veitch's Self-protecting, Leamington, Veitch's Model, Wilcove, Lauder's Goshen, and Methven June. *Brussells Sprouts:* Aigburth, Dalkeith, Rosebery, and Scrymger's Giant. *Cabbage:* Ellam's Early, Stuart & Mein's No. 1, Reliance, Little Pixie, and Enfield Market. *Cauliflower:* Veitch's Early Forcing, Early London, Erfurt, Asiatic, Eclipse, and Autumn Giant. *Carrot:* French Horn, Early Nantes, James' Scarlet Intermediate. *Celery:* Tait's Superlative, Groves' White and Red, Sandringham, Leicester Red, Manchester Large. *Leeks:* Musselburgh, Ayton Castle, and The Lyon, not so hardy as the others. *Lettuce:* All the Year Round, Neapolitan, Tom Thumb, Paris White, and Green Cos. *Onions:* James' Keeping, Brown Globe, Bedfordshire Champion, Danver's Yellow, and White Spanish. *Peas:* American Wonder, Veitch's Selected Extra Ready, Emerald Gem, Duke of Albany, British Queen, Ne Plus Ultra, Paragon, Prodigy, and Champion of England. *Parsnips:* Student and Hollow Crowned. *Savoy:* Early Ulm, Dwarf Green Curled. *Turnips:* Extra Early Milan, Veitch's Red Globe, and Strap Leaf. *Tomatos:* Criterion, Orangefield Dwarf, Trophy, Carter's Green Gage, and Golden Gem. *W. M. Baillie, Luton Hoo, Beds.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, JAN. 14—Chambre Syndicale of Ghent.

TUESDAY, JAN. 15—Royal Horticultural Society: Fruit, Floral, and Scientific Committees, at Westminster.

WEDNESDAY, JAN. 16—Gardeners' Royal Benevolent Institution: Election and General Meeting.

THURSDAY, JAN. 17—Linnean Society.

SALES.

TUESDAY, JAN. 15—10,000 Lilium auratum and other Bulbs from Japan, at Stevens' Rooms. Nursery Stock and Plants in Pots, from Sample, at Protheroe & Morris' Rooms.

WEDNESDAY, JAN. 16—Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms. Lilies and Plants, at Protheroe & Morris' Rooms.

THURSDAY, JAN. 17—A Collection of Orchids in Flower and Bud, at Stevens' Rooms.

FRIDAY, JAN. 18—Imported Orchids, Disas, and Cypripediums, at Protheroe & Morris' Rooms.

SATURDAY, JAN. 19—Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms. Plants, Bulbs, &c., at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—36°.8.

Winter Chrysanthemums and Conference.

NOT very many years ago the proposal to hold a midwinter Chrysanthemum exhibition would have been scouted as too ridiculous to be entertained. The National Chrysanthemum Society, however, as a progressive institution, holds that the thing can be, and further that it shall be done. We fully sympathise with the desire of the promoters to extend the Chrysanthemum season and make it overlap the display of Camellias, Cyclamens, and Primulas. Far better, to our fancy, to have Chrysanthemums in January than in June; not that we have any objection to the early varieties—far from it, but there is such a wealth of floral beauty to choose from in June and July, that we would fain reserve the Chrysanthemums till a later season. This, however, is a matter of taste. But we apprehend no one would object to prolong the Chrysanthemum feast, and lighten up the gloom of midwinter with the warm glow of these gorgeous Composites. Technically, no doubt the Society to some extent succeeded; and no doubt it will succeed better another time; it got together a show of Chrysanthemums on the 9th and 10th inst., but the display was made with old and mostly well-known sorts, which are blooming later than usual this season, and which, as might be expected, are blooming in a condition that recals the state of the Chrysanthemum thirty years ago, rather than what it should be to-day. We fear no great progress can be expected on these lines. To obtain good late Chrysanthemums the same rigid process of selection and gradual evolution must be employed as in other cases. The latest variety must be selected and bred from, and then, in due time, we shall get true late Chrysanthemums rather than Chrysanthemums which are late in the same sense as one who has been up all night and goes to bed in the morning is late. That this ideal is not difficult of attainment the history of the Chrysanthemum shows. Look at the early Chrysanthemums as shown in the left-hand of fig. 8, repeated from an earlier volume, and compare them with the incurved form in the middle period of its existence—and both, as also fig. 7, with the varieties now to be had, and gather confidence that to the florist availing himself of Nature's indications almost anything is possible within certain limitations.

The "sporting" of the Chrysanthemum is one of the peculiarities that always attracts attention, and many are the varieties which owe their origin to this source. The paper of Mr. DAVIS on this subject, read at the Conference (see p. 40) is full of interesting and valuable information on the subject. The difference in colour is so great that it is not a matter for surprise that it should attract attention, and yet, in many instances the difference is very slight indeed—perhaps none, so far as structure is concerned. The cupboards and show-glasses of the flower—if we may be permitted to use such a metaphor—are the same, their contents in all essentials are the same, but there is a little more cochineal or turmeric in the one than in the other. The analogy is, however, not perfect, for while cochineal and turmeric are two different things, the variations in the tints of Chrysanthemums are solely due to varying amounts and degrees in intensity of the same colouring matter. In some cases no doubt there is a slight difference in the texture of the flower, and a corresponding difference in colour; but, generally speaking, the structural difference is very slight indeed, that is, so far as colour is concerned. When we come to habit and foliage that is another matter; the foliage particularly is very variable, and when different varieties are crossed and re-crossed, it is not very surprising that sometimes the heretofore mixed elements separate, just as a mixture deposits its sediment when allowed to remain quiescent, leaving the powder at the bottom and the liquid at the top.

The misfortune is, that we do not know why this happens. That these sports are mostly due to the more or less perfect separation of heretofore mingled components, is indubitable, but we are entirely ignorant why this happens at particular times and on particular shoots—indeed, why it happens at all. These are matters for the National Chrysanthemum Society to investigate, and it is very likely to gain its reward, amongst other things, by the development of true late-flowering Chrysanthemums. The subject of the distribution of colour in sports and hybrids has, at various times, been brought before the Scientific Committee of the Royal Horticultural Society by the Rev. GEORGE HENSLOW, with reference particularly to greenhouse Rhododendrons, and we believe that gentleman has in hand a paper on that subject which probably throws light on the variations of colour generally.



FIG. 7.—"THE DRAGON."

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We may remind our readers that the annual meeting of this Society will be held on Wednesday next at 3 P.M., and that the "friendly dinner" of the committee and members will be held at Simpson's at 6 P.M., the Rev. S. REYNOLDS HOLE, Dean of Rochester, in the chair. We are specially requested to announce that applications for tickets for the dinner cannot be entertained after Monday morning next, January 14. Applications should be sent before that date to the Secretary, E. R. CUTLER, Esq., 50, Parliament Street, S.W.

CYPRIPEDIUM.—Messrs. JAMES VEITCH & SONS have issued Part IV. of their most useful *Manual of Orchidaceous Plants*, which is devoted to the genus Cypripedium, and which, therefore, is of special interest at this time. It is illustrated with maps and numerous woodcuts, and gives a full account of the most important hybrids in this genus. We shall take an early opportunity of further alluding to this publication, indispensable as it is to lovers of these plants.

"BOTANICAL MAGAZINE." — The January number of this publication contains figures of the following plants, with botanical descriptions:—

Browneа macrophylla, Hort., t. 7033.—A magnificent tropical tree, producing heads of pale red flowers as much as 3 feet round from the base of the trunk. It is a native of New Grenada, whence it was introduced by LINDEN. The plant was originally figured in our columns in 1873, from the garden of the late Mr. CRAWFORD, of Lakeville, near Cork.

Olearia insignis, Hook. f., t. 7034.—A very striking New Zealand Composite shrub, densely covered with

white tomentum and with stalked oblong leaves and flower-heads raised on long erect stalks. Each flower-head measures about an inch across, with white rays and yellow centre. Hort. Kew.

Rosa incarnata, Miller, t. 7035.—A Rose, native of several parts of France, long ago cultivated here, but which has almost passed out of our gardens. It is a spineless Rose, covered with red glandular spots, with broad stipules, elliptical, pinnate, broad, reddish-crimson flowers and oblong hips. It belongs to the Gallicanæ group of Crépin, and is near to R. Gallica itself. Mr. Baker points out a resemblance to Baroness Rothschild, but the points of difference between the two seem to us greatly to outweigh the points of resemblance. The specimen figured was obtained from the garden of Canon Ellacombe.

Streptocarpus parviflora, E. Meyer, t. 7036. — A woolly-leaved species with erect, many-flowered panicles of curved tubular pale lilac flowers, with a regularly five-lobed limb. Native of the Cape of Good Hope. Hort. Kew.

Macodes javanica, Blume, t. 7037.—A terrestrial Orchid, with ovate ribbed leaves, green on the upper surface, with numerous fine transverse white lines on the upper surface, and cream-coloured or pink blotches on the lower. The spike is erect, and bears a number of small, red, starry flowers. Hort, Kew.

"Kew Bulletin."—The January number of this periodical contains a valuable article on the Coca, Erythroxylon Coca, whose leaves are spoken of by many travellers for their valuable property of allaying the effects of fatigue after prolonged exertion, and which contain the alkaloid cocaine now used as a local anæsthetic. The experiments made by the late Sir Robert Christison may be alluded to as confirmatory of the statements here repeated. Other articles refer to beetles destructive to Rice crops in Burmah, to fibre procured from Honckenya ficifolia, a Tiliaceous plant from West Africa, to the Yam Bean, Pachyrhizus tuberosus, to Puya edulis, a starch-yielding Bromeliad, reported to have saved the lives during periods of famine of many people (especially Indians); and other plants. It will be seen that the *Bulletin* is mainly confined to economic botany, and to the work of Kew as the head-centre of Colonial botany. It is to be wished that some addition could be made to it, so as to have a record of matters relating to the current work of the garden and of interest to home gardeners and botanists. A resumption of the publication of authentic lists and synonyms of certain orders and genera is also much to be desired.



Fig. 8.—Stages in the development of the Chrysanthemum. (see p. 48.)

The National Chrysanthemum Society.—A meeting of the committee took place at Anderton's Hotel, Fleet Street, E.C., on the 7th inst., Mr. E. C. Jukes, in the absence of the President and Vice-President, in the chair. The minutes of the last meeting, having been signed, the Hon. Sec., Mr. W. Holmes, read a letter from the President, Mr. E. Sanderson, stating that having served the Society under its various designations for a term of forty years, and being now seventy-one years of age and subject to bodily infirmities, he thought he could fairly claim to have earned retirement from the cares of office, and he therefore placed his resignation of the office of President of the Society in the hands of the members. A resolution was unanimously passed expressing the regret with which the committee had learned his determination to resign, and requesting him to reconsider it. If the President persists then the Secretary is instructed to call a meeting of the committee to consider the matter previous to the annual general meeting on the 31st inst., such meeting of the committee to take place on January 14. A hearty vote of thanks was passed to Mr. Thomas Bevan for providing and arranging the flowers and fruit placed upon the tables on the occasion of the annual dinner. The Hon. Sec. reported, in reference to the mid-winter show, that the prospects of it were not so good as he could have desired, the Chrysanthemums having suffered from the frost in October, and the show was affected in consequence. He had done whatever laid in his power to secure as effective a display as possible, and some leading nurserymen had promised to supply collections of miscellaneous plants. The Conference would take place between the hours of 5 and 7, in the side gallery, where the Floral Committee is accustomed to meet. Eleven new members were elected, includ-

ing two Fellows, bringing the number up to 641. The Street (Somerset) Chrysanthemum Society was admitted to affiliation. A letter was read from Messrs. H. DEVERILL & Co., seedsmen, Banbury, offering a number of special prizes at the exhibition of the Society in November next, which were accepted. The Hon. Secretary announced that he had received applications from York, Hull, and Brighton that a provincial show of the Society should be held in these towns, and suggested the appointment of a sub-committee to consider the applications and report at a future meeting. This was agreed to, the sub-committee to consist of Messrs. R. BALLANTINE, W. HOLMES, T. BEVAN, R. DEAN, L. CASTLE, and G. GORDON. The Hon. Secretary reported that matters in connection with the recent provincial show at Sheffield were being cleared up in a satisfactory manner, and he believed that a financial gain would ensue to the Society. It was resolved that the great show at the Royal Aquarium should be held on Tuesday, November 11, and Wednesday, the 12th, the show being put forward one day earlier in the week to meet the request of suburban and provincial societies who have their fixtures on the Thursday and Friday. A hearty vote of thanks to the Chairman closed the proceedings.

NEW ROSES.—The French papers announce the launch of 73 new Roses, *i.e.*, 27 hybrid perpetual, 31 Teas or hybrid Teas, 5 Polyantha, 3 Noisette, 2 Bourbon, 2 hybrid Polyantha, 1 Centifolia, 1 Provins, 1 Moss. In the evolutionary competition how many will be found among the survivors as illustrations of the fittest? Not many, we fear.

ROMAN HYACINTHS NOT FLOWERING.—Some correspondents send us specimens of bulbs which occasion great disappointment by not flowering, and suggesting some oversight on the part of the gardener. To remove this impression, which in this case we believe to be unfounded, we may say that the bulbs are perfectly healthy, but they have produced leaves only, and no trace of a flower, even in the germ, is to be seen. This is not of itself a sign of disease or bad management, though it may be of imperfect maturation of the bulb, which has gone on growing and producing leaves, instead of receiving a check and turning its energies to the production of flowers. This may be a result of some local conditions of climate, soil, or moisture unknown to us. At any rate, there is nothing very unusual in such occurrences. Bulbs and tubers, as of terrestrial Orchids, may go on for years and never produce flowers, till on a sudden some change of condition occurs, and flowers are freely produced. This information, we fear, is not very consolatory to the purchaser, but it may at least relieve the grower and the salesman from any imputation of carelessness or dishonesty. The foundations of the flower are laid, or are not laid, long before the bulbs come into the hands of the dealer, and nothing that the gardener can do can then cause the bulbs to produce flower.

HYACINTH DISEASES.—In a communication published in the *Archives Néerlandaises*, t. xxii, M. WAKKER, attached to the Botanical Department of the University of Utrecht, gives a detailed account of certain diseases more or less familiar to Hyacinth growers. The first disease mentioned is that known as the "yellows" (la jaune), a disease caused by the presence of bacteria in the bulbs. M. WAKKER describes the progress of the disease and the appearance of the parasitical organisms. It seems that some varieties are much more subject to the disease than others. This admits of isolation being practiced—a circumstance of obvious importance, and which also tends to prevent the impregnation of the ovules with pollen from an unhealthy stock. M. WAKKER also shows that the disease may be checked by the prompt removal of the affected leaves, a proceeding which, if it enfeebles, at least saves the bulbs. The affected leaves should be burnt or buried in a deep foss, and covered with quicklime. The "yellows" has only recently been recognised as a morbid condition, but the "black rot," or canker, has been known for many years, and is the consequence of the attacks of a fungus which developes little hard black knobs (sclerotia) on the tissues of the bulb, which sclerotia under favourable circumstances ultimately produce a fungus allied to the common cluster-cup (Peziza). (See Mr. SMITH's paper in the *Gardeners' Chronicle*, Sept. 29, 1888, 361, ic.) M. WAKKER describes the spawn threads of the Peziza, but has not seen them bear conidia, at least he does not figure them. A third form of disease is described as the "white canker" of bulbs, a disease causing putrescence of the bulbs, and a disagreeable odour in consequence—a mark by which it may be distinguished from other diseases. This is closely allied to, if not another phase of, "gumming," a disease described by Mr. W. G. SMITH in these columns in 1885, vol. xxiv., but of which the exciting cause is not yet known. Another disease is the "ring disease," caused by root-worms, Tylenchus devastatrix. Lastly, M. WAKKER describes an insect, Thrips, Hæmorrhoidalis, which attacks the leaves of Amaryllids (Hippeastrum), for which the application of Pyrethrum or Persian Insect Powder, is recommended. Tobacco-water is of no service, and fumigations offer no certainty that the eggs are killed, and hence they require to be frequently repeated. We congratulate our Dutch friends on being able to avail themselves of the services of so competent a naturalist.

DASYLIRION LEAVES.—Professor PIROTTA of Rome describes the structure of the leaves of this plant, in which he shows among other things the presence of very numerous and thick woody bundles, and abundance of small stomata. The first supply the rigidity for which these plants are so remarkable, the latter provide for the exhalation of moisture.

FLORAL DECORATIONS.—The last number of the *American Florist* gives a series of illustrations of floral designs, illustrating at once how to do it and how not to do it. Some of the designs are exceedingly pretty and appropriate, but what shall we say of a tablecloth entirely covered with Pansy flowers?—a huge bell similarly covered, or a floral butterfly? For the dead journalist a desk and instand, all made of flowers, are prepared as a funeral ornament. *Chacun à son goût*, but not too much of it!

"THE ROSARIAN'S YEAR-BOOK."—This interesting publication has once more been issued. It contains articles on judging by Messrs. MAWLEY, GEORGE PAUL, Rev. A. CHEALES, J. BURRELL, and the Editor (Rev. H. H. D'OMBRAIN), besides other articles to which we shall hereafter call attention. Messrs. BEMROSE & SONS, Old Bailey, E.C., are the publishers.

NOTTINGHAMSHIRE HORTICULTURAL AND BOTANICAL SOCIETY.—The next monthly meeting will be held at the Arboretum Rooms, Nottingham, on Wednesday, January 16, at 7.30 P.M., on which occasion Mr. J. H. WALKER, the gardener at Hardwick House, Nottingham, will read a paper on "The Rose: its History, its Culture, its Habits." The annual dinner of the Society will be held at the Arboretum Rooms on Wednesday, January 30, at 6 o'clock.

"SEMPERVIRENS."—The editor, whose name was omitted in our last issue, is Mr. H. WITTE.

PRIMULAS AND CYCLAMENS AT READING.—Any one seeking chromatic contrasts (the alliteration may be excused) should avail himself of a nice brown foggy day, such as even Reading can show on occasion, and betake himself to the nurseries of Messrs. SUTTON & SONS. There, amid the gloom of the surroundings, flash out to the delighted eye of the spectator house after house of Chinese Primulas and Cyclamens—nice symmetrical little plants, as like in size as two Peas, and with flowers as clear and bright in their several colours as though fogs were unheard of. Among the Cyclamens, Vulcan appropriately shone forth with a deep maroon colour. It is very desirable to keep so fine a variety true; flirtations and crosses cannot be allowed, and so the operators were busy gently squeezing the pollen out upon their thumb-nail, and then lightly dipping the stigma into the powder, and so securing close fertilisation, provided always the stigma have not previously been treated by some other pollen, and provided it be in fit condition for the operation. But Mr. JAMES MARTIN, who has charge of these matters, tells us that there is less danger of mixing the breeds at this season, as the pollen is more cohesive than in drier weather, and there are fewer insects and less draughts to convey the pollen. When a cross is desired the procedures are effected by means of a small-sized camel's-hair brush—one being used for each flower operated on, so that there may be no admixture. It does not seem to be necessary to adopt the precaution of removing the stamens from the flower to be operated on, from which we infer that in these particular cases the pollen and the stigma of the same flower are not in working order at the same time. It is not every one who can grow Cyclamens as they are grown here, into little models of symmetry and free-flowering condition. On one small plant there were nearly sixty expanded flowers, besides numerous buds, and some 150 leaves. All this is the work of about nine months. The seed is sown; then in spring leaves and tubers grow on without a check through the summer, and in early or late autumn leaf production ceases and that of flowers begins. After flowering the tubers are well "rested" on a shelf close under the glass; the "resting" being, as Mr. MARTIN well says, maturation, with its attendant chemical changes and food-storage, in preparation for another start. During growth careful attention to the adjustment of humidity, light, and temperature, freedom from draught, the use of rain-water, and perfect cleanliness, are the main principles upon which successful cultivation is based. Of the Primulas we shall have more to say on another occasion.

FORESTRY.—Professor BOULGER will deliver a course of ten lectures on this subject on Friday evenings at 8 P.M., commencing on January 11, at the City of London College, White Street, Moorfields, with special reference to the examinations of the Surveyors' Institution. Practical demonstrations in the country will be given during the spring. Text-books recommended:—Hough's *Elements of Forestry*—Crosby Lockwood. Brown's *Forester*—Blackwood & Son. Bagneris' *Elements of Sylviculture* (translated by Fernandez and Smythies)—W. Rider & Sons. Syllabus: Climate and Trees—Land suitable for Arboriculture—The Draining and other preparation of the Land—Nurseries and their Management—Planting Operations—Thinning and Maintenance Felling and Barking—Timber Measurement—Exploitation and Management of Coppice—The Distinctive Characters of the various British Timber Trees. Fee for the course 10*s.* 6*d.*

SULPHATE OF COPPER AS A REMEDY FOR FUNGUS MOULDS.—The value of sulphate of copper for the destruction of fungus moulds is so great when properly applied, but may be so injurious to the plant if carelessly employed, that we think we may be doing our readers a service by calling attention to the method of preparing the mixture as described in the *Revue Horticole*, December, 1888. "One method of preparing this remedy is by dissolving 6 kilogrammes of sulphate of copper in about 88 litres of water, using for the purpose a wooden or stone basin. Another way is by placing in a separate vessel 6 kilogrammes of quicklime, and pouring upon it, little by little, and very slowly, 12 litres of water. It forms a milky liquid, which should be stirred with a stick, care being taken to break up any lumps which may be formed. The lime in mixing with the water gives off much heat. When this milky stuff is quite cool, it may be gently mixed in the solution of sulphate of copper, care being taken that the mixture is well stirred. Thus a rather thin liquid is obtained, which, if the copper employed is pure, should be of a beautiful sky-blue colour. In the formation of this preparation of sulphate of copper and lime, there is formed a sulphate of lime (gypsum),

and a hydrated oxide of copper, in such proportions as are not dangerous to plants, but which kill the microscopic fungi on the Potato (Peronospora infestans). Finally, the plants must not be watered with the water-can, or the solution will reach the roots and kill the plants. It is only necessary to spray the foliage with the solution."

Roots of Leguminosæ.—Leguminosæ, such as Peas, Beans, Clovers, Lucerne, &c., have long been known to contain a large proportion of nitrogen; nevertheless, they are not specially benefited by nitrogenous manures—they do not absorb nitrogen directly from the atmosphere, yet they leave the soil after their removal richer in nitrogen than it was before. These paradoxes are now beyond question, and puzzle the physiologists and chemists to account for. The explanation seems to be that arable land is capable of fixing atmospheric nitrogen by the agency of the bacteria it contains. These bacteria are moreover stated to exist in the small tubercles which are so common in the roots of Leguminosæ. Other organisms of a similar character effect the conversion of insoluble nitrites into soluble nitrates in the soil, and thus render its riches available. M. Bréal has been experimenting on this subject, and shows that a soil which, owing to the deficiency in nitrogen, is unsuitable for the growth of the Leguminosæ, may be rendered suitable for them (other things being equal) by the introduction of the bacteria, although this soil will remain sterile for plants other than Leguminosæ. The tubercles themselves are highly nitrogenous. Leguminous plants grown for experimental purposes in water do not produce the tubercles, but if bacteria be introduced by simply introducing one of the crushed tubercles of some other leguminous plant grown in the ordinary way, then these tubercles are produced. It should be stated that some observers doubt the existence of bacteria in these tubercles, attributing the appearances to other organisms. Others, again, assert that a fungoid organism occupies the tubercle. But the contradictions are less than they appear to be, and most observers are substantially agreed as to the results, whatever difference of opinion there may be as to how they are brought about.

Egyptian Roses.—At the meeting of the Royal Society of Belgium, on Nov' 10, 1888, M. Crépin read a paper on the remains of Roses discovered in the cemetery of Arsinoe, Fayoum, Egypt. Nine flowers were examined by M. Crépin, all more or less imperfect, but all belonging to one species. So far as the imperfect nature of the material permitted M. Crépin to form an opinion, these fragments were most nearly allied to a Rose cultivated in Abyssinia in the vicinity of religious buildings, and described by Achille Richard under the name of Rosa sancta. Rosa sancta, it appears, is very similar to R. centifolia or R. gallica. M. Crépin considers that Rosa sancta was not an aboriginal native of Abyssinia, but a cultivated form introduced at a very remote period. So far as M. Crépin knows there is no form of R. gallica now known which corresponds exactly with the Rosa sancta. As to the Roses found in the Egyptian tombs, M. Crépin thinks they may have been derived from plants cultivated in Lower Egypt, perhaps near the place where their remains were discovered. The Egyptians are known to have grown Roses, and even to have supplied them to Rome. No Rose grows wild in Egypt, and the Rose found in the tombs was, in M. Crépin's opinion, no more wild than the Abysinnian Rosa sancta, but was probably derived from Italy, Greece, or Asia Minor, where R. gallica grows wild. The only native Rose in this part of Africa is one that grows on the mountains of Abysinnia, R. abysinnica, and which is held to be a variety of Rosa moschata. Dr. Schweinfurth adds, in a note to M. Crépin, that the tombs from which the Roses were obtained are referable to dates between the second and the fifth century after Christ. They are the same tombs in which were found the encaustic portraits which have lately been the object of so much attention. The Roses were threaded on wire as in a garland, and were discovered by M. Flinders Petrie.

Potatos.—The annual report of the Connecticut Agricultural Experimental Station, just issued among much interesting matter gives the chemical composition of seven varieties of Potatos, which have been grown by Mr. T. E. Platt of Newtown, and analysed at his request. The gentleman makes a specialty of growing Potatos, and of testing the value of new varieties.

Chemical Composition of Potatos in 100 Parts.

Variety and characters.	Specific gravity.	Water.	Starch.	Ash.	Nitrogen.	Other matters.
Home Comfort, first quality	1·099	75·58	19·39	1·09	0·24	3·94
White Flower, manured with sulphate ammonia	1·091	76·77	18·38	0·93	0·38	3·92
White Flower, manured with muriate ammonia	1·085	77·32	17·99	0·98	0·35	3·61
Early Telephone, first quality	1·087	78·08	17·17	0·96	0·39	3·79
Rosy Morn, first quality	1·082	79·25	16·53	0·85	0·39	3·37
Queen of the Valley, second quality	1·072	79·86	15·69	0·84	0·39	3·61
White Star, second quality	1·076	80·99	14·50	1·13	0·32	1·38

The following percentage statement gives a better idea of the relative quantities of the different forms of nitrogenous matters in these Potatos than the foregoing table of analyses presents:—

Percentage Results.

Variety.	Per Cent. of the Total Nitrogen present in		
	Albuminoids.	Amides.	Other Forms.
Home Comfort	71·2	17·6	11·2
White Flower (with sulhpate)	55·5	27·4	17·1
White Flower (with muriate)	54·5	23·8	21·7
Early Telephone	53·5	23·3	23·2
Rosy Morn	54·0	21·6	24·4
Queen of the Valley	59·2	23·5	17·3
White Star	51·9	23·3	18·8

According to Professor Pohl the percentages of dry substance and of starch vary considerably with their specific gravity. The higher the specific gravity the less water and the more starch will the Potatos contain. Professor Märcker also found that the quality of Potatos was greatly influenced by the manurial treatment they had received. In an experiment on Potatos grown on a loamy marl—soil from which a crop of Barley and Clover had been previously taken—four plots were treated as follows:—

No. 1.—Without manure.
No. 2.—Phosphatic manure and 100 lb. nitrate of soda per acre.
No. 3.— ,, ,, and 200 lb. ,, ,, ,,
No. 4.— ,, ,, and 300 lb. ,, ,, ,,

On lifting the crop the following was found to be their chemical composition:—

	No. 1.	No. 2.	No. 3.	No. 4.
Dry matter	21·50	23·50	22·50	20·90.
Starch	77·51	77·07	73·95	63·64

It is thus seen that the most highly manured Potatos, which gave the heaviest crop, contained by far the largest amount of water, and gave the smallest percentage of starch. A medium crop of these tubers is, therefore, to be preferred for high quality.

Horticultural Instruction.—The course in horticulture of the Michigan State Agricultural College includes four general topics:—Pomology, vegetable gardening, floriculture, and seed-growing. The instruction is given both by lectures and by practical operations in the field. Of the two methods of instruction, it is intended that the field-work shall be the more important. The juniors are given instruction by the Professor, so far as possible, in sections or squads, in budding, grafting, pruning, tilling, harvesting, marketing and storing fruits and vegetables. All vegetables which are suited to the climate are grown in the vegetable garden, and all desirable small fruits in the fruit garden. Apple, Pear, Plum, and Cherry orchards, and two vineyards, are invaluable aids to the observing students. Students who desire to follow fruit growing and vegetable gardening can secure here the necessary practical training. The class-room lectures also cover the practical points of the subjects, and enable the student to enter at once upon his field-work. The lectures also treat of the principles of plant-growth and their relations to cultivation, of the classification and nomenclature of fruits and vegetables, of hybridisation and cross-fertilisation, and of plant diseases. Instruction is given in the care of hedges, ornamental trees and flowers, and upon the chracters and values of native wild fruits. A few lectures are also given upon the history and literature of horticulture when time permits. A large horticultural laboratory is to be completed by the opening of the spring term, 1889. This will make possible the teaching of the higher phases of horticulture. Landscape gardening is treated as a fine art, and its study is introduced by a discussion of the principles of art in general. Unity, harmony, and variety are discussed at length, and abundant illustrations are drawn from the views and plants upon the college premises. The principles of the art of ornamental gardening once understood, they are applied to the ornamentation of parks, cemeteries, and large estates, after which practice the student is able to discrimate the features which can be judiciously applied to the embellishment of highways, school grounds, and country homes. In practical rural embellishment the subject finds its greatest expansion. Finally, the student is given instruction in rural architecture, in the making of walks and drives, in sodding, grading, &c.

Genera of Ferns.—The differences of opinion as to which genus a particular Fern should be placed in exceed, probably, the corresponding diversity in any other class of plants. The common Lady Fern, for instance, has been placed by different observers in Asplenium, Polypodium, Aspidium, Cystopteris, and Athyrium. These discrepancies arise partly from differences of opinion as to the relative importance of certain of the marks of distinction, partly from the natural variability of the plant. It is, therefore, desirable that, if possible, some other means of discrimination be adopted, of a more absolute character, and less open to variations in personal assessment. Such a character, it is supposed, may be found in the anatomy of the leaf-stalk, and the disposition of the vascular bundles. This has been already studied in this country by Dr. Ogilvie and Professor Church, whose memoirs will be found in the *Annals of Natural History for* 1859-1860 (Ogilvie), and in the *Journal* of the Linnean Society, vol. vii., 1864 (Church), and the subject has lately been taken up by M. Colomb, who characterises the genus Lastræa by the presence of two groups (steles) of fibrous bundles in the leaf-stalk, in the shape of a sea-horse (hippocampus), that is to say, curled round at the two extremities. In the genus so constituted, he places Lastrea filix-fœmina (including rhœtica), L. oreopteris, L. thelypteris, L. phegopteris, and L. dryopteris. The two first (filix-fœmina and oreopteris) have each the fibrous bundles elongated, and possess also an oblique or vertical rootstock, with leaves arranged closely in five rows. In filix-fœmina, the leaves are fully bipinnately divided, while in oreopteris they are merely once completely divided (pinnate). The three other species have all of them a short thick vascular column and a horizontally creeping rootstock. Of these L. thelypteris has an indusium, while the other two are destitute of this cover, but may be distinguished one from the other by the oval lanceolate fronds in L. phegopteris, and the

triangular ones in L. dryopteris. So treated the genus Lastræa would include species referred by various others to Asplenium, Polystichum, Hemestheum, and Polypodium. The only true French Polypody (the same remark would apply to Britain) is thus P. vulgare. It remains to be seen whether M. COLOMB will be any more fortunate than his predecessors in getting students to adopt his classification.

CALIFORNIA.—After many unsuccessful trials after my landing in this country in 1887 (says a correspondent) I entered the service of the University, and have been appointed Superintendent Botanist of the Agricultural Experiment Station at Jackson, Amador County, in the foothills of the Sierra. My area comprises 34 acres in the most wonderful location, on the gently sloping hills now covered with Quercus agriifolia, Douglasii, lobata, Ceanothus crassifolius, Arctostaphylos Andersoniana, Æsculus californica, after the grand forests of Pinus Lambertiana, ponderosa, Sabineana, Libocedrus decurrens, Tsuga Douglasii have all been cut down. The people up here cannot forget the days of old and their hydraulic mining, and they are consequently slow in utilising their beautiful soil for Vines, Olives, Peaches, &c., in the thermal belts at 1500—2000 feet elevation! The mild winters seem to turn all the native sons of the Golden West lazy, and newcomers, the "tender feet" from the East, or the boys from the Old Countries, seem to get easily ahead of them. It is a great pity, though, that even situations like mine seem to be dependent upon the changes in the administration of the civil service. I have done very little scientific work indeed. It takes a long time for a foreigner to make his way; but I am thoroughly convinced that I have chosen the right country, and I took my oath of naturalisation with full faith. My samples of work have secured me the position I fill, and I trust I am on the right track.

FOREIGN CORRESPONDENCE.

GRAND CASCADE AT WILHELMSHÖHE.

I WAS very pleased on seeing in the last Supplement of the *Gardeners' Chronicle* a representation of the Grand Cascade at Wilhelmshöhe. Let me add a few details.

Landgraf Charles constructed the Grand Cascade about 170 years ago, the work being completed in 1717. He had intended to make another Versailles, but on a grander style. Waterworks were proposed to be constructed from the top of the mountain right down to the place where Wilhelmshöhe Castle now is situated; but the upper one-third is the only portion finished—the remaining two-thirds were never begun, as the plan of the whole work was soon seen to be too grand and fantastic. The total length of the water-steps of the Cascade is nearly 800 feet, the height of the Hercules being 36 feet. *C. Wissenbach, Friedhofs' Inspector, Cassel.*

PHALÆNOPSIS AMABILIS GRANDIFLORA

is flowering here. I grow this plant in a temperate-house as I have no warmer one. The house is kept at 55°—60° Fahrenheit during winter, and my Phalænopsis, hung up in the warmest corner of the house, is in good health. In the same house I grow about a hundred different Orchids, for the greater part such as will grow well in an intermediate temperature, and also of a few of the warmer and a few of the cooler kinds. Angræcum Ellisi is showing bloom; Saccolabium guttatum is a picture of health; Lycaste Skinneri, two years established, is flowering with five flowers on one pseudobulb; Dendrobium nobile, D. Wardianum, and D. crassinode are laden with flower-buds. My plants of Cattleya Trianæ, C. Gaskelliana, and others, will make a fine show, as will Oncidium Cavendishi and O. sarcodes; Cattleya citrina is showing splendid flower-sheets. All these and other Orchids are grown in one and the same house. Of course, great care and attention are needed to have them in good order, but I treat my plants with love, taking care of all their wants and requirements, which is the secret of success. *C. Wissenbach Friedhofs' Inspector, Cassel.*

CULTURAL MEMORANDA.

PAVONIA WIOTTI (GŒTHEA MULTIFLORA).

AMONG a collection of stove plants this stands out and makes a very attractive object. In habit it is erect and of rather slow growth. The epicalyx is composed of a number of linear bracts of a bright red colour, and which are very conspicuous for a long time prior to the flowers expanding. Cuttings rooted during the spring, and grown on through the summer produce neat specimens for flowering the following winter. It belongs to the Mallow order, and what suits an Hibiscus, as regards soil, agrees with this. It is a native of Brazil, and was figured in the *Bot. Mag.*, t. 6427.

SCUTELLARIA MOCINIANA.

It is impossible for a plant of this description to be too widely known, as it is very useful both for cutting from and for decorative purposes, and it can be had in flower at almost any time of the year by simply propagating it at various times during the year, and having them in different stages of growth. The flowers are closely packed together at the ends of the branches; the corolla is of a bright red, and the inside of the lip yellow. When they are required for cutting from, the old plants should be saved and pruned in, growing them in a light position, so as to keep them from becoming drawn. At this season the stove or warm greenhouse is its home, but in the summer it may be accommodated in a cool frame, keeping it somewhat close and applying shading during the brightest part of the day giving an occasional syringing. Plants with three or four leads in 48's made up into groups are very effective.

CENTROPOGON LUCYANUS.

This is a very floriferous winter flowering plant, and succeeds either in pots or as a basket plant, on account of its habit of growth; but where a small space is at command it should be planted out in a similar manner to what some growers plant out Bouvardias in a frame or pit, into a compost of peat, leaf-mould, and loam, with a sprinkling of sand. It is easily propagated, and scarcely ever fails to produce an abundance of flowers. Cuttings rooted in early spring should be duly potted and grown on in a warm quarter until the outside atmosphere becomes warmer, when they may be removed to a pit or frame, where they should be kept on the moist side, attention being paid to carefully shading and syringing the plants, relinquishing both practices as the season becomes advanced. They should be wintered in quarters not too cold, and brought into flower as may be desired by removing them to warmer structures. Even the youngest tyro can scarcely fail to produce satisfactory results with this beautiful flowering plant.

CANDOLLEA TETRANDRA.

Orchids and other plants which are fashionable are apt to push aside many of these hard-wooded favourites of the past, but still I believe they will come into repute again at some later period. The above is a very pretty compact-growing evergreen shrub, from Australia, which is just now commencing to bloom with us; the flowers are yellow, and are borne at the ends of the branches, and with very little assistance as regards training, the shrub developes itself into neat symmetrical plants, either bush shape or pyramidal. They should be potted after flowering into a compost of peat, loam, and sand, made firm by the potting-stick, and in the summer may either be placed out-of-doors altogether in some half-shaded quarter, or left inside, where they can receive plenty of air; some shade and syringing to keep away pests. The flowers are produced singly on short stalks from the axil of each leaf of well-ripened shoots. Cuttings take a year or two before they grow into useful-sized plants.

C. cuneiformis is a species of stronger growth than the preceding, the leaves being broader, and of a lighter and more shining green, and does not flower so freely. *W. Harrow, Botanic Gardens, Cambridge.*

POTTING MASDEVALLIAS.

A space having been cleared and cleansed ready to receive them, the potting of the Masdevallias may be commenced, beginning with the showy species, such as M. Harryana, M. Veitchii, &c., and continuing with the general collection. The work should be done in the house, on a bench or space prepared, unless the potting-shed adjoins, and clean pots, clean crocks, living sphagnum, and good fibry peat should be used for them, all being potted, unless in exceptional cases where the plants may be so well established and thriving as to warrant their being left over until another year. At the same time the foliage of such should be sponged with weak tobacco-water, or other good insecticide, to keep in check the thrips which are so troublesome about them, and especially the chamæroid species. With these, of which M. chimæra may be regarded the type (they require a rather warmer temperature than the Harryanas at present), and including most of the thin-leaved species of like habit, baskets or boats should be given them in place of pots, as so grown, suspended overhead, they do best, and show their flowers to greater advantage. In the case of old specimens of both sections which have got into dense tufts, it is better to break them up, even if the parts of each plant are all potted up together again, a little space being allowed between the pieces to allow of their growing on all sides. *James O'Brien.*

STRELITZIA REGINÆ.

This plant is a very old inhabitant of our greenhouses, and comes from South Africa. It succeeds best in an intermediate-house. In the latter a fine specimen has for some time been flowering in the gardens at Glamis Castle, Forfar, and Mr. Whitton tells me that he finds the scapes when cut most serviceable for decoration. To grow the plant well, a turfy compost of peat and loam, with the addition of some lumpy charcoal and sharp sand, should be employed, and the drainage should be good. A light position should be afforded it. Large specimens of this Strelitzia are adapted for standing in dry conservatories, and all the better if it can be arranged that they should stand not far off from the hot-water pipes, and in such a position the plant may be freely watered without the roots becoming decayed. *F. Ross.*

THE BULB GARDEN.

BESSERA ELEGANS.

WHAT a charming plant this is when seen growing in a mass! Although I have been acquainted with it for some years, and have occasionally seen it growing in various parts of the country, I was never so much struck with its beauty as when I saw a large patch of them in full flower at a London nursery last autumn. This half-hardy bulbous plant is a native of Mexico, and consequently likes abundance of sunheat, and a warm dry situation. The slender flower-stems are about 18 inches high, supporting a large umbel of eight to twelve, and sometimes more, drooping bell-shaped flowers. These on the outside are of a bright vermilion, while the inside is of a rosy-white margined with vermilion, with a line of the same colour running down the centre of each petal. The thin grass-like foliage associates well with the flowers when used for decorating purposes. When cut, and kept in water, the flowers last for a considerable time, the unexpanded buds opening gradually in succession just as freely as if left on the plant. *C. S.*

Florists' Flowers.

THE HOLLYHOCK.

This is now being much more extensively grown in the South of England than it was some years ago. No plants are more easily managed; but I fancy that to do them well they ought to be hardily grown. Probably we would not have heard so much of the Hollyhock fungus had not the plants been coddled for several months in a hothouse. Of course it is necessary to raise the plants in heat in the early spring months, and one cannot begin too early. When it is necessary to make as much as possible out of the stock plants, they ought to be potted up about the end of October, and placed near the glass in a cool greenhouse. When the plants are dug up there is usually a number of growths clustering around the crown of the plant. These will not make much growth during the winter, but many of them will be strong enough to be taken off as cuttings about the second or third week in January. Others will continue to grow on until March, so that a succession is obtained, which will give a long period of autumn bloom. I take the cuttings off with a heel, and most of them form roots and do well.

The earliest cuttings require a forcing-house, and the latest may be propagated in an ordinary hotbed. They may also be propagated by root grafting—that is, a piece of root about as thick as the cutting, and 2 inches or so in length, is taken, and the cutting is spliced to it, and firmly tied with matting.

This process is well known to the trade growers, but it is rather troublesome for amateurs, and as cuttings produce roots readily it is unnecessary. It may be as well to warn intending cultivators of the facility with which the cuttings may be destroyed by damping off. Small pots filled with fine sandy soil may be used, and one cutting should be inserted in the centre of each. The soil should be in a medium state of moisture, rather more moist than dry, because they must not be watered for two weeks at least after planting. The most favourable conditions in January is a forcing-house, with a minimum temperature of 50°—55° Fahr., a bed in which to plunge the cuttings with a bottom-heat of 85°—90° Fahr., and a glass frame or light to cover them close, but the top of it must be moved daily for half an hour to give fresh air and also to wipe the glass dry. This prevents decay of the leaves or stem aboveground, and if no water be applied to the soil in the pots, for two weeks they will be safe underground. As fast as they produce roots they must be removed from the propagating frame to the atmosphere of the house, and in less than ten days afterwards they may be placed in an airy greenhouse; they must also be repotted as soon as they are well rooted. It may seem to some amateurs that this is a deal too much trouble to take with a hardy plant, but it must be remembered that the best varieties are scarce, and, as a consequence, valuable. These spring-struck cuttings also give stronger spikes, as a rule, than plants propagated from eyes or cuttings in summer or autumn; they also flower rather later. I would urge the importance of getting the plants out of the heat and into a cool airy house as soon as possible. Those who are not acquainted with the disease will find it, if the plants are attacked, in the form of small brown spots on the under sides of the leaves. In a warm temperature the disease spreads rapidly, and the leaves become yellow and drop off. It may be checked by picking off the diseased leaves and dipping the plants overhead in a mixture of soft-soapy water and flowers of sulphur. *J. Douglas.*

Chrysanthemum Garnet.

This, although not a new variety, is, when well grown, excellent for flowering at a late period of the year. In the large conservatory at Overstone Park, Northamptonshire, I observed a striking group of about a dozen fine bushy specimens on Christmas Day, which were in the freshest possible condition, and carrying hundreds of good flowers. Out of the many late varieties grown by Mr. Fyfe, this one stands far ahead of all others. It is always very shy in producing shoots fit for cuttings, and this is no doubt the chief reason why it is not more extensively cultivated. *Edwin Beckett.*



Fig. 9.—Japanese chrysanthemum as first introduced. (see p. 48.)

PLANTS IN FLOWER AT KEW.

Aloes.—Few people grow these plants, although at this time of year it would be difficult to find any plant that would compare with them for attractiveness. In large warm conservatories such species as the following would be most ornamental. They are flowering in the Succulent-house at Kew. Most of them are tall, with naked stems, and a large heads of fleshy toothed leaves, the inflorescence springing from the middle of the heads. A. cæsia: flower-spike over 1½ foot high, 2½ inches through; flowers very numerous, 1 inch long, red, with darker tips. A. platylepis: spikes 1½ foot long, branched at the base, and densely clothed with red and green flowers. A. chloroleuca: flower-spike a foot long, branched, 4 inches through at the base; the flowers pale yellow, tipped with emerald-green. A. pluridens: flower-spike 1 foot or more long, unbranched, 4 inches through; the flowers 1½ inch long, and

coloured orange and red. A. Lynchii is an interesting hybrid, of dwarf habit, with a tall, branching, graceful inflorescence, bearing numerous yellow and red flowers. A. myriostigma, A. glauca, and A. ciliaris are also in flower. These are true Cape Aloes, of course, and not the American Aloes, which are Agaves.

Senecio Ghiesbreghtii.

This is a noble plant when grown as at Kew where some of the examples are 10 feet high, branched, each branch clothed with large oblong dark green leaves, some of the blades being 15 inches by 9 inches. The flowers are in enormous terminal heads, 18 inches across, and of a deep clear yellow colour. There are hundreds, almost thousands, of flowers (so-called) in each head, and they make a glorious show. Smaller plants, 2 feet high, in 8-inch pots, are equally attractive, each bearing a great head of flowers. This species is sometimes used as a summer bedding plant, on account of its foliage, but it is infinitely more useful as a winter-flowering plant for the greenhouse.

Astrapæa Wallichii.

A large specimen of this plant, 10 feet high and nearly as much through, may be seen in flower in the Palm-house. It is one of the noblest of the Sterculiads—probably the best of them for garden purposes, as it grows red flowers freely under ordinary pot treatment. The leaves are a foot broad and long, cordate, toothed at the edge, petiole 9 inches long. Peduncles drooping, a foot long, bearing a dense cluster of sessile flowers. The largest clusters are 5 inches through, and are made up of about fifty flowers, which are 1 inch long, and bright scarlet, the stamens being prominent and yellow. This plant flowered in January of last year. The species is a native of Madagascar, where it attains a height of 30 feet. The genus Astrapæa is placed under Dombeya in the *Genera Plantarum*.

Streptocarpus, *sp. n.*

Since the introduction, in 1884, of S. Dunnii, hitherto the most interesting and by far the largest of all known species, several new species have been obtained by Kew from Natal and the Cape, and these promise to equal S. Dunnii in size of leaf, and also of floral interest. That under notice was obtained from Natal in the summer of last year. In habit it is very similar to S. Dunnii, having only one leaf, which is 12 inches across and 18 inches long, deep green above, vinous-purple beneath. The flower-scapes spring from the base of the midrib of the leaf, the tallest being 24 inches high, erect, unbranched for about 16 inches, then branching, and bearing about sixty buds and flowers. The recent fogs have interfered with the opening of the flowers; they are 1¼ inch long, the tube narrow, the limb five-lobed, spreading, somewhat flattened, colour purplish-lilac, with a large blotch of white on the three lower segments. A second plant, which appears to be the same species as that here noticed, has leaves almost twice as large.

Ecadenia eminens

is a distinct and most interesting plant on account of the character of its flower. The four sepals are free, lanceolate; the four petals are linear, two of them half an inch long, the other two 4 inches long, broadened towards the apex, and coloured pale yellow. The flowers are in dense terminal racemes, and when fully developed they have an attractive appearance. The leaves are trifoliate, large, and shining green. The Kew plant is 18 inches high, and bears two inflorescences. The genus belongs to Capparideæ, and contains only two species, both from Tropical Africa. E. eminens was introduced by Mr. W. Bull in 1881.

Agapanthus brevifolius.

This handsome Amaryllid is now finely in flower in an unheated frame, where Cape bulbs are planted Evidently cool treatment, such as suits Sparaxis, &c., is more agreeable to this plant than a warm greenhouse. At all events the plants in the cold frame at Kew are growing freely, the flower-scape is strong, and the flowers perfect, whilst when in pots in a house along with Cape bulbs which require a little artificial heat in winter, they were not so satisfactory. The scape is 9 inches long; the flowers are 1 inch long and nearly as broad, their colour is bright yellow, and they last about three weeks. The genus is monotypic, and is related to Sternbergia. It is a native of the eastern provinces of Cape Colony, where it is found as high as 5000 feet on the Sneewbergen. *W.*

Orchids.

The following are the most interesting:—Angræcum eburneum, A. sesquipedale, Saccolabium bellinum, Catasetum barbatum var., Lycaste Barringtoniæ Cœlogyne Massangeana, Lælia anceps, and the variety alba, Dendrochilum uncatum. There is a good display of Dendrobium Wardianum and D. aureum; D. nobile, D. crassinode being also in bloom. Odontoglossum Harryanum is represented by a nine-flowered spike. For the time of year and considering the injurious effects of fog the Orchid-houses here are fairly gay with flowers. *W. W.*

PLANT PORTRAITS.

Anemone alpina var. sulphurea, *Garden*, January 5.

Bouvardia President Cleveland, *Revue de l'Horticulture Belge*, January.

Oncidium Jonesianum, *Revue de l'Horticulture Belge*, January.—A well-known Orchid, with pendulous thick quill-like leaves, and racemes of oblong flowers; the sepals and petals fawn-coloured, with purplish-brown bars, and a broad white lip.

Scutellaria alpina, *Revue Horticole*, January 1.—Perrenial flowers in terminal heads, bilabiate, with a long tube; upper lip hooded, violet, lower whitish.

HOME CORRESPONDENCE.

SOBRALIA XANTHOLEUCA.—A simple record of the flowering of the plant, which was figured in the last issue of the *Gardeners' Chronicle*, during the past two seasons may prove of interest to growers of Orchids. In 1887 the number of flowers produced on the plant was fifty-six, the first flower opening on July 12, and the last on September 15, five being the greatest number which were open at one time. In 1888 there were sixty-eight flowers handsomely developed, the first flower opening on July 5 and the last on September 18, nine being the greatest number open at any one time, the plant at no time between those periods being without a flower or two expanded. The plant is in full health and vigour, several of the growths being well over 3 feet in height, and the roots so closely packed that a 20-inch pan was burst asunder by them two years ago, and now a pan of 2 feet in diameter is likely shortly to be broken in the same way. The specimen remains always in the Cattleya-house, and it is never allowed to become dry at the root even in winter, as growth is slowly taking place. Will it not compare favourably with other specimens? *G. Palmer, Drinkstone Park.*

THE EFFECTS OF FOG ON PLANTS AND FLOWERS.—With this note I send some bloom-buds and wood buds of Camellia alba plena to show what damage the fog in December last caused in our district—the northern part of London. Before these fogs came we had cut some six dozen of good flowers from the plant, but not one since; nor are we likely to do so again this season, for although the tree was nicely set with buds and half expanded flowers at the time the fog set in, all of these turned rusty, and fell off together with the buds. This tree and several others are planted out in a good border in a large span-roofed greenhouse, where the temperature ranges from 40°—50°. A plant next to it—a red variety well set with bud—has so far passed through the ordeal without loss of buds or flowers. Amongst Orchids the Calanthes show no ill effects, but are bright and pretty. I find C. Veitchii does much the best here, and C. Veitchii rosea much less so. A plant of Saccolabium giganteum with two spikes of flowers on it suffered injury at the ends of the trusses where the flowers were not fully open, all of them turning to a brown colour, and had to be cut off to avoid disfiguring still more what would have been two good spikes of this beautiful sweet-scented Orchid. Azalea indica, white and coloured—a few of which were gently forced—have withstood the fog well. *W. Davey, Cedar House, Stamford Hill, N.*

PETASITES FRAGRANS.—This, the hardy winter Heliotrope, is an excellent plant for the wild garden, or for naturalising in semi-wild places. It scarcely comes up to the standard of what is called showy in garden parlance; nevertheless, where a fairly large colony of it is established its racemose scapes of purplish white flower-heads are not inconspicuous, especially as they come at a time when hardy flowers are not too plentiful. But the great recommendation of the plant is the fragrance of its flowers, which is, I think, even more powerful than that of the Heliotrope. Owing to the mildness of the early winter, it has flowered earlier than usual, and on December 1 last a large patch of it was in fine flower at Pendell Court, but which, owing to hard frost later in the month, was checked for a time; however, on the return of mild weather it will soon pick up. On Christmas Day the air for some considerable distance from the spot where it stood was quite redolent of scent, and being near to the public highway, this phenomena seemed to puzzle many passers-by. The plant is also sometimes called Tussilago fragrans. *F. Ross.*

ANTHRACITE COAL.—I notice in the last volume of the *Gardeners' Chronicle*, your correspondent, Thos. Christy, on p. 766, highly recommends this fuel for horticultural purposes, and invites some of the large consumers to give their experience of its saving over other fuel. As I am a rather large consumer of this fuel perhaps it may not be out of place for me to give my experience, which is as follows, I will give one week's comparisons. It takes 7 tons of coke, at 16*s.* per ton, which amounts to £5 12*s.* 2*d.*, or 6 tons of the ordinary steam coal, at 15*s.* 6*d.* per ton, which amounts to £4 13*s.*, or 4 tons of diamond anthracite, at 17*s.* 8*d.* per ton, which amounts to £3 10*s.* 8*d.*; so, that by using anthracite I save £2 1*s.* 6*d.* per week over coke, or £1 2*s.* 4*d.* per week over steam coal. Of course the prices vary very much in different parts of the country but I am sure if anyone gives it a fair trial, he will be more than satisfied with the results. I may add that there are several spurious kinds of anthracite offered to the public under the name of horticultural anthracite, and which only end in the disappointment and disaster to to the purchasers, and I would advise anyone who has not as yet given the best quality of anthracite coal a trial, to avail himself of the offer of Mr. Pascoe, Swansea, to supply coal (from his own colliery), which is very important, as you can always depend upon having the same uniform good quality, and who offers to send to any gardener or nurseryman a sample bag, free of cost and carriage, for trial before ordering the coal in great quantity. *F. L. Jennings, The Gardens, Roselands, Woolston.*

SOME VARIETIES OF APPLES AND PLUMS FOR YORKSHIRE.—The season is near at hand when farmers and amateurs think of planting a few fruit trees in the place of shy bearing and worthless kinds. The farmer is too often persuaded to plant Apple trees of any sort because they are at hand in the market, and fine trees they often are, and being without leaves, they are answerable to any name the seller chooses to give them. In a few years the discovery is made that the trees are not that which they were alleged to be, and the buyer's hopes of having fine fruit of good quality end in disappointment. This has happened in many instances to persons residing near me, and to whom I have given advice frequently. Apples, to produce well here, should be specially selected for the North country. The bad seasons of late years have proved to me that no one can be wrong in planting for cooking purposes, Lord Suffield, Small's Admirable, Bramley's Seedling, and, to satisfy the Yorkshire farmer, he must have the good old Yorkshire Green, to make sauce for his pork and geese. I find the latter sort to be a good bearer, and always in favour in the kitchen. For the farmer's dessert I would recommend Kerry Pippin, Margil, and Claygate Pearmain: the above would give him a long season's supply. Bramley's Seedling is as yet not well known hereabouts, but is a sterling variety; its flowers

are hardy, and the fruit swell in a cold summer better than many other sorts, as was proved here last season, which was the worst I have known in forty years. The Plums I would recommend for the north are Denyer's Victoria, which farmers very generally plant for its free bearing. Unfortunately it will often bear too many, and the crop is thereby spoiled for want of being thinned. Kirk's Plum is good either for dessert or preserving; the next is the Jefferson. These three varieties would supply the farmer's wants for all purposes. *W. Culverwell, Thorpe Perrow, North Yorkshire.*

A NEW YEAR'S DAY OPEN-AIR BOUQUET IN THE WEST OF SCOTLAND.—It may interest the readers of the *Gardeners' Chronicle* to be told of the bouquet which in the west of Scotland the last day of December and the first of January have afforded to the writer. In the front of my house in Kilmarnock, Ayrshire, 7 miles from the sea, three species of Rose are in bloom—a semi-double Bourbon (Gloire de Rosamenes), the China Monthly (R. indica), the Cramoisie Superieure variety of the dark crimson Chinese Rose (R. sempervirens), while a few days ago a Tea Rose (Madame Ducher) was still in bloom. The Chinese Jasmine (Jasminum nudiflorum) is also in full flower. In addition to these yesterday's (December 31) post brought from my friend Mr. Campbell, Ledaig (on the coast 6 miles north of Oban) blooms of the yellow Cytisus racemosus, the crimson Schizostylis coccinea, the blue Hydrangea hortensis, the bluish-purple Veronica Andersoni, the beautiful spring flower, Aubrietia purpurea, and the dark purple Christmas Rose—all of them gathered in the open air. On New Year's Day I was in Arran where my bouquet had added to it blooms of the beautiful Fuchia (F. microphylla), the smallest of all the species, and of the lovely scarlet and yellow tube-shaped Desfontainea spinosa, the last gathered from a standard plant 8 feet in height; it was the last flower of the season, and was as well coloured and fully developed as a bloom in summer. I may add that in many places on the coast, especially at Tighnabruiach, in the Kyles of Bute, the Strawberry tree (Arbutus unedo) is laden with its beautiful crimson fruit. Surely the climate of Scotland is not so inhospitable as some suppose, since it can furnish at the New Year such a bouquet gathered in the open air. *David Landsborough.*

PRIMROSES IN WINTER.—Those of your readers who are fond of Primroses might like to hear of a simple way to have them on the table all winter. When any large quantity are grown there are always buds. When those showing colour are picked, even in hard frost, and put in a deep plate, the bottom of which has been previously covered with tall green moss, they come out well, and even when the stalks are very short, as they are when picked off a bunch, the moss supports them so as to keep the flowers out of the water. The moss we use is commonly called Fir-tree moss (being like a miniature tree). There is now on the table a china plate more than a foot across, full of Primroses of all colours, the buds of some of which were picked after 14° of frost. The combination of green and bright colour is very pretty. *George F. Wilson.*

TO DESTROY ANTS IN PLANT-HOUSES.—Although that industrious insect, the ant, is an object of great interest to all observers, it has been found a nuisance when established in considerable numbers in stove or greenhouse. Whether it distributes and promotes the development of white scale and aphis (for its own ends) or not is open to question, but there can be no doubt that many of its habits are most objectionable to the horticulturist, and inimical to the well-being of his plants. In my own collection this pest has been a perfect Soudanese dervish to deal with, but at length I have found a means of clearing him off without the drawbacks in the way of smell, &c., that usually accompany many highly vaunted insecticides. Having lately been engaged in an analytical inquiry respecting the composition of various "sheep dips," I bethought me that I would try their effect on the enemy that mistook my Orchids for their own hunting grounds, but considering that I was dealing with an arsenical compound it behoved one to be cautious lest it might be washed on to the leaves of the plants or into the soil of the pots. After many trials and failures to make the small wretches fall in with my own views of their duty towards me, I found that an admixture of Tomlinson & Hayward's "sheep dip powder" with treacle in the proportion of 1 oz. of the former to half a pound of the latter, laid on pieces of slate or glass in their runs on the stages and ledges, effected a remarkably speedy thinning of the columns of these active insects, and in a few days the survivors had abandoned their usual employment for the more ghastly task of carrying off the dead bodies of the majority of their comrades to the place selected by themselves for their deposit, viz., a flight of steps leading up to the conservatory. *G. M. Lowe, M.D., Lincoln.*

LUCULIA GRATISSIMA.—This charming greenhouse winter-blooming plant is a fine object in a large greenhouse at Castle Ashby, where it is planted out in a border, and trained up a column. The plant is of large size, and it is completely covered with large trusses of flowers. Mr. Birch, on taking charge of the gardens at Ashby Gardens many years ago, found it in the same position it now occupies, and knowing its decorative value, wisely paid special attention to it, and he is now well repaid for his trouble. *E. Beckett.*

CHRISTMAS ROSES AND SLUGS.—A correspondents asks how the flowers of Hellebores may be defended from the ravages of slugs? If he will get some strips of zinc 5 inches deep, and long enough to make a ring according to the size of his plants, and then tie the ends together with wire, after cleaning the plants well, and make sure that there are no slugs inside the space intended to be fenced round, put the fence of zinc round the plant, pushing it into the ground to the depth of 1 inch, he will effectually keep the slugs out. *A. Sindrey, Pentwyn.*

CONIFERS AND OTHER EVERGREENS AND SNOW.—Many kinds of Conifers, notably those with partially horizontally arranged branches and dense foliage, get seriously injured by loss of their branches when heavy falls of snow occur, and upright growing species, as Irish Yew, Thuias of all kinds, excepting T. borealis, which seldom is injured by snow—a fact due to the elasticity of its wood, chiefly; Lawson's Cupressus, and the Cypress and Juniper family in general, are rent asunder and made to lie about in very ungraceful fashion. The former may have the snow eased off their branches by gently lifting them with a wooden fork, made 6 inches wide, which for convenience in reaching as high as needful, should be fastened on to a long wooden handle, and the fork covered with soft rag to prevent damage to the bark—this latter matter being of great moment in frosty weather when the bark and needles of Conifers are readily injured. The latter may be made safe at no considerable cost if a supply of stout silk twist be at hand: that is better than stiff, sticky tar twine, and is less obnoxious to the foliage. Tied somewhat tightly on the outside of the trees at intervals of from 18 to 20 inches from the ground to the top, the branches thus protected will very well defy weights of snow, and little mischief will arise. A couple of men, aided by high steps or ladders, can get many specimens thus protected in one day, and when the winter is over, and the string removed, the trees soon return to their original form. Shrubs of all kinds, and especially Portugal Laurels, Laurustinus, Euonymuses, Rhododendrons, Kalmias, Andromedas—indeed, any of evergreen character, and standing out singly and unprotected—would be well secured from harm if bound with ties of hemp in a similar fashion. In some cases, perhaps, ties of stouter material, or hoops of wood or wire, may be employed permanently, but few trees or shrubs are the better for leading-strings, and usually thrive best when left to themselves. *A. D.*

THE WEATHER IN DECEMBER IN PERTHSHIRE.—As an indication of the abnormal nature of the weather in December, in Perthshire, I witnessed on the 20th, while accompanying Mr. Fairgrieve on a tour of inspection of fruit trees, in the magnificent gardens of the Duchess Dowager of Athole, at Dunkeld, a standard Gooseberry tree bearing a number of fully developed blossoms, and had the sun been shining at the time, we should not have been the least surprised to have found them being visited by the bees. Pyrus japonica, Mahonias, Wallflowers, &c., are coming into flower here, and the Snowdrop and Crocus are peeping through the ground. Some of the perpetual Roses have not yet done flowering; I culled a nosegay of richly tinted and highly perfumed blooms of the variety General Jacqueminot, from the open ground, four days ago. This Rose, by the way, growing on its own roots, is a remarkably free flowerer, and is excellent for massing. We had better not halloo, however, as we are not yet out of the wood, or I might rather say we are not yet into it. One swallow is no certain proof that summer has arrived, any more than an instance like the above is sufficient guarantee that "Gloomy winter's noo awa'." *W. Harper, Tullabelton.*

CHRYSANTHEMUM JERSEY NUGGET.—An opinion seems to have gained currency that Jersey Nugget and Temple of Solomon are one and the same variety; such, however, is not the case, as they are distinct both in colour and also in the form of the flowers. Jersey Nugget is a fine full regularly recurved Japanese variety; but Temple of Solomon, as I have always seen it and also grown it, is an ordinary reflexed variety, with the petals in the centre of the bloom very erect when the bloom is fully grown. Another distinction (and one that makes Jersey Nugget a decided gain) is that it is a grand late variety, for when subjected to similar treatment it is quite five weeks later than Temple of Solomon, keeping in good condition well into the New Year. *Herbert Parker, La Hougue Boëte, St. Johns, Jersey.*

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

JANUARY 9 AND 10.—The mid-winter exhibition of the Chrysanthemum tends to emphasise the fact that the flower is not to be seen to advantage at this time of year, and although some of the blooms were bright and fresh, especially those from Mr. Kipling, the general result was depressing. Primulas and Cyclamens were largely shown, and in fine form too; and creditable miscellaneous collections of stove plants, such as Dracænas, Palms, &c., were contributed by Messrs. J. Laing & Son, Forest Hill, London, S.E., and by Mr. B. S. Williams, Victoria and Paradise Nursery, Upper Holloway, London, N.; Mr. W. Holmes, Frampton Park Nursery, contributing a collection in which were some fine Palms.

Mr. J. Kipling, The Gardens, Knebworth, Stevenage, contributed to several classes, and was the strongest exhibitor, being placed 1st for twenty-four blooms, any varieties; and again for twelve do., and also in the classes for twenty-four and for twelve Japanese blooms, having in each case fresh and well-coloured blooms of fair size for the time of year. Taking the whole of his stands, he had good blooms of W. G. Drover, Belle Paule, Astorg, Countess of Lytton, Boule de Neige, Golden Gem, Progne, Virginale, La Centaure, Thunberg, and Etoile de Midi. Mr. R. F. Jameson, Hessle, Hull, had a good stand in the class for twenty-four, any varieties, where he followed Mr. Kipley, with Mr. H. Cannell, Mrs. H. Cannell, Ferdinand Feral, and Ed. Audiguier, as his chief; Mr. M. Sullivan, gr. to D. B. Chapman, Esq., Downshire House, Roehampton, following with Mad. Cabrol and Gloriosum; and the same exhibitor was 2nd to Mr. Kipling in the class for twenty-four Japanese, showing Gloriosum very well.

Mr. Horsefield, Heytesbury Gardens, Wilts, had large but rather rough flowers in this class.

Mr. R. Phillips, Meopham, Kent, was 2nd for twelve Japanese; Messrs. H. Cannell & Sons 3rd; and extra prizes were awarded to Mr. R. Miller, Southdown Nursery, Shoreham, and Mr. Brown, gr. to Mrs. Waterlow, Great Doods, Reigate. Messrs. Cannell had Mrs. F. Thompson like W. G. Grover, but lighter, a large and evidently late flower. Mr. Brown also scored the chief honours in the large class for a collection with medium-sized blooms of Ethel, Beauté des Jardins, Belle Paule, Golden Gem, Pelican, Rêve d'Or, &c.; Mr. F. Taylor, gr. to Sir J. Lubbock, Bart., M.P., Farnham, Kent, coming as a good 2nd, with popular varieties.

The Primulas shown by Messrs. H. Cannell & Sons, Swanley, Kent, were a decided feature of the show, and contained many novelties, the best of which are mentioned in the report of the committee meeting below. The plants were all vigorous, and bearing large flowers of distinct colouring.

Mr. Newell, gr. to Sir E. Saunders, Fair Lawn, Wimbledon Common, and Mr. A. Carter, Ewell, were the prizetakers for Primulas.

Cyclamens were good. Mr. J. May, Gordon Nursery, Twickenham, and Mr. J. Odell, Hillingdon, being respectively 1st and 2nd in one of the classes with strang plants, bearing numerous bright flowers. Other prizes for Cyclamens were taken by Messrs. R. Phillips, D. White, A. Carter, and R. Clarke.

FLORAL COMMITTEE.

The only Chrysanthemum staged for the consideration of this body was a yellow reflexed variety named Jersey Nuggett, raised by Mr. H. Elliott, Springfield Nursery, Jersey. It is of a pure golden colour, and when exhibited some time ago, it was thought to be identical with Temple of Solomon, but the committee is now assured of its distinctness, and awarded it a Commendation as a late variety. It is believed to be a seedling either from grandiflorum or Soleil Levant, probably the former. Messrs. H. Cannell & Sons had a group of new seedling Primulas, of excellent quality generally, and to three of these First-class Certificates of Merit were awarded, viz., Emperor Improved, rich deep carmine; Salmon, a plain-leaved variety, with dark leafstalks, very large, and of a strikingly distinct colour; Eclipse, vermilion-crimson, with a small circular eye, which is yellow, and affords a good contrast, plain-leaved, with dark leaf-stalks; and Beauty, delicate pink, with white footstalks and plain leaf, a very pleasing variety. Other fine varieties were paniculata rosea, Purple Emperor, Alba perfecta, Bridesmaid, marginata elegans, Loveliness, and Beauty of Kent, striped. Mr. Odell, Hillingdon, exhibited several seedling Cyclamen, and it was decided to Highly Commend the strain. A Certificate of Commendation was also awarded to Mr. Clarke, Twickenham, for his strain of Cyclamen. A crisp-leaved blush-flowered single Primula sinensis, named Miss Inez, came from Mr. J. Knight, The Gardens, The Oaks, Epsom, and a vote of thanks was awarded.

SCOTTISH HORTICULTURAL ASSOCIATION.

THE ordinary monthly meeting of this Association was held on Tuesday, the 8th inst., at 5, St. Andrew Square, Edinburgh, Mr. Alexander Milne (Messrs. J. Dickson & Sons) presiding. Mr. Colin J. Mackenzie, Warriston Nursery, read a paper on "Decorative Palms," in which he described some specimens which were found most serviceable wherever plant-grouping for effect was aimed at. In the course of his remarks, he observed that there was in the Royal Botanic Garden a collection of Palms of rare beauty, and the like of which could not be seen in Scotland. It was matter for congratulation that the Botanic Garden was to remain as at present, and not be handed over to the custody of the University authorities.

Mr. Mark King, Bonnington, made a communication on "Natural Seed Sowing." Alluding to the dispersion of seeds he said that attention had lately been drawn to Spanish plants growing on the banks of the Water of Leith between Currie and Colinton, due to the introduction of their seeds with Esparto-grass, now extensively used in the manufacture of paper. Australian plants had been gathered on the banks of the Tweed, their seeds having been brought from the Antipodes adhering to the wool employed in the manufacture of cloth in Border towns. The Secretary (Mr. Robertson Munro) submitted the views of Mr. John Arthur, Carlisle, on the "Culture of the Tuberose." Treating of the question of cultivating Tuberoses in "bottom heat," Mr. Arthur did not wish to assert that they could not be grown by this means, but he held that when Tuberoses were reared in that way the quality of the flowers was much inferior to those which were allowed to get well established before forcing was attempted. Besides, the percentage of flowering bulbs was far greater when grown by the latter method. Indeed, experience had proved that "bottom heat" was unnecessary, and that all who had an ordinary greenhouse might not only grow Tuberoses, but find in them a capital substitute for such choice flowers as Stephanotis and Gardenias, which were only within the reach of those who could command a stove temperature all the year round. Among the exhibits on the table was a beautiful collection of Chrysanthemums of various colours sent by Messrs. R. B. Laird & Sons, West Coates Nursery.

ROYAL HORTICULTURAL OF ABERDEEN.

THE annual dinner of this Society was held in the Douglas Hotel, Aberdeen, on Friday December 28, and was attended by a large and representative company numbering in all 120. The chair was occupied by Mr. James Murray Garder, Chairman of the Directors.

The Chairman gave the toast of the evening—"Success to the Royal Horticultural Society." Having made a complimentary reference to the public parks of Aberdeen, he spoke of the progress which horticulture had made in consequence of the application of science. He had been struck to observe that while, during the last twenty years, the population of this country had increased only seven millions, the imports of the products of foreign market gardens had increased from two and a quarter to more than six millions of money every year. He did not think that was a result to be applauded, because he would fain have seen that the demand for the products of the garden and the orchard and the forest had been made from our own soil, and by our own countrymen. It was not because the soil of this country was incapable of producing the food required for its inhabitants. The real reason was that the inhabitants of this country had not directed their attention to that industry as they ought to have done. He looked upon it as a very serious question for our country that the labour power was being congested in our towns, and not spread abroad over the face of the country. If that were done it would conduce to the health of the population, and to much that was good. In one of the market gardens adjoining Paris, extending to 2 7-10ths of an acre, there was a capital outlay of about £1100 to provide glass and other appliances, including a steam engine for watering. From that little plot of ground there was now raised annually about 250,000 lb. weight of vegetables. The gross income had been about £800, and the profit, after deducting £100 a-year for rent and taxes, had been between £200 and £300. That little plot of ground had been worked by eight people and a horse. In one case where Mushrooms were cultivated in our own country, the result had been as follows:—From one acre there had been grown, taking Mushrooms at an average price of 1*s.* per pound, £1450 worth in one year. The working expenses were nearly £500, and the profit was over £950. From one-sixteenth of an acre near Leeds upwards of 3000 lb. weight of Mushrooms were produced at the rate of £1600 to an acre. But what did we require in order to rival such things as these?—Soil? Climate? Well, those who knew practically what market gardening was, knew that soil was a thing that could be made, and that whatever was the primitive character of the soil, the skill and the art of man could make it grow to such an extent that from that very little plot in Paris that raised all that enormous weight of stuff, the owner was able to sell 250 cubic yards of loam per annum. Taking the case of climate, these market gardeners had made fools of climate. They built walls to reflect the heat and light of the sun, planted hedges and trees, took care of the exposure, and did everything to concentrate the heat; and more than that they had sent hot air-pipes through the soil itself, raising its temperature, and producing moisture by means of watering, and raising the productive power of the soil 100 times. Old Parson Gordon of Rothiemay (near Aberdeen), had written, in 1687:—"The fields next the gates of the city (Aberdeen) are fruitful of Corns, such as Oats, Bere, and Wheat, and abound with pastures; but anywhere after you pass a mile without the town is barren-like, the hills craigy, the plains full of marshes and mosses, the fields are covered with heathes or peeble stones, the corn fields mixed with these but few." But what was the result now? If they told him that the soil and climate had to do with it he did not see how that could be, or how it was that a man like his friend Mr. Cocker (Sunnyside Nursery) could grow such Roses as he did? Regarding arboriculture he said this had not been such a profitable industry as market gardening, and consequently during the last twenty years the area in nurseries had scarcely increased at all, and at the present moment there were only about 12,000 acres in cultivation. In Germany they had 30 per cent. of the area of that great empire in wood; they had a Forestry Department of the State; they had trees cultivated in rotation as if they were crops; they had a vast army of scientific men trained in efficient colleges devoted to that purpose alone. If they went to France they would find the same thing on a smaller scale. He should also have mentioned Austria, where 30 per cent. of the country was under wood. In this country we had not 4 per cent. under wood, and he was perfectly satisfied that if Government were to take the question up—and take the machine they had, they would do a great deal more good than by constantly talking of more men and more votes. So long ago as 1457 the landowners were ordered to plant trees and to sow broom. Sixty years later Parliament had to record, in 1503, that the wood of Scotland was entirely destroyed, and a fine of £5 was imposed on any one who dared to cut a tree. Thirty years later apparently this deterrent or coercive measure had not the desired effect, and a more specific order was issued to landowners who possessed a certain size of estate, to plant no less than three acres yearly, while the penalty for the third offence for cutting a tree was death. In 1661 the last legislation on the subject took place. A larger area was required to be planted by landowners, and, as an inducement for them to do so, the land so planted was free from taxation for nineteen years. From that day to this there was not another Act of Parliament on the subject. Our own colonies had got before us in this matter. The destruction of forests in Victoria and New Zealand had awakened the attention of the colonial Legislature, and Acts for the encouragement of planting was passed, bonuses being given; Schools of Forestry were established, the further cutting of timber had been stopped, and, in place of cutting, planting went on. Another aspect of this question was this—that if they could create a profitable industry they would provide healthy employment to an enormous number of working men going at that moment in the towns with their hands in their pockets. Our social system had come to this, that unless new outlets were found for the surplus labour of the country, there would be serious danger to the commonwealth.

ANCIENT SOCIETY OF YORK FLORISTS.

THE annual meeting of the Ancient Society of York Florists was held on Tuesday, January 8, at the "White Swan," Goodramgate. Mr. G. Cowper presided, and there was a good attendance of members.

Mr. J. Lazenby, the Secretary, in his annual report stated that the past year had been marked by continued prosperity. The roll of members showed an increase of forty, and an increase of £10. Notwithstanding the augmentation of prize money there remained a balance at the bank of £124 in favour of the Treasurer. The report was unanimously adopted.

On the motion of Mr. George Hudson, it was agreed that five minor shows be held during the year, and that the sum of £40 be given in prizes at these exhibitions. It was also resolved that a Chrysanthemum show be held on November 20, 21, and 22, at which £100 will be offered as prize money.

The appointment of a new committee, consisting chiefly of the old members, gave rise to a spirited discussion.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending Jan. 7, is furnished from the Meteorological Office:—

"The *weather* has been somewhat unsettled, with occasional falls of rain in the extreme west of Ireland and north of Scotland, but in all other parts of the kingdom the conditions have been dry and quiet. Much fog has, however, been experienced over England, as well as at some of the Irish and Scotch stations.

"The *temperature* has been above the mean in the north and east of Scotland, but below it in all other places. Over southern, central, and eastern England the deficit has been as great as 7° to 9°. The highest of the maxima (which were recorded on irregular dates) varied from 41° in the 'Midland Counties' to 51° in 'Scotland, N.,' and 'Ireland, S.,' to 52° in the 'Channel Islands.' During the latter part of the period the daily maxima over south-eastern and central England were generally below 32°; at Oxford on the 5th the thermometer did not rise above 24°. The absolute minima were registered either on the 6th or 7th in most parts of England, and on irregular dates over Ireland and Scotland. In 'England, E.,' and the 'Midland Counties' the thermometer fell to 14°, in 'England, W.,' to 17°, in 'England, S.,' and 'Scotland, E.,' to 19°, while in other districts the minima varied from

21° over the inland parts of Ireland to 26° in 'Scotland, N.,' and to 28° in the 'Channel Islands.'

"The *rainfall* has been less than the mean in all districts. Over the greater part of England no rain fell, but in some cases measureable amounts of water were deposited in the gauges by fog.

"*Bright Sunshine* has been very little prevalent except at Jersey; at Stonyhurst, Blackpool, and in London it was altogether absent. The percentage of the possible amount of duration ranged from 9 in 'England, N.W.,' to 28 in 'Scotland, E.,' and to 69 in the 'Channel Islands.'"

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree — a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
		ACCUMULATED.			
	Above or below the Mean for the week ending Jan. 7.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1889.	Below 42° difference from Mean since Jan. 1, 1889.
Principal Wheat producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	3 above	11	21	+ 6	— 12
1. SCOTLAND, E. ...	1 above	4	39	0	— 2
2. ENGLAND, N.E. ...	3 below	0	50	— 7	+ 21
3. ENGLAND, E. ...	9 below	0	92	— 10	+ 62
4. MIDLAND COS. ...	9 below	0	92	— 12	+ 63
5. ENGLAND, S. ...	7 below	0	65	— 13	+ 47
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	1 below	4	33	— 5	+ 6
7. ENGLAND, N.W....	4 below	0	45	— 11	+ 22
8. ENGLAND, S.W....	5 below	0	39	— 20	+ 29
9. IRELAND, N. ...	3 below	3	36	— 12	+ 17
10. IRELAND, S. ...	3 below	5	34	— 18	+ 23
— CHANNEL ISLANDS	2 below	21	10	— 6	+ 5

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 1, 1889.	Total Fall since Jan. 1, 1889.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1889.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	6 less	4	0.2	16	16
1. SCOTLAND, E. ...	6 less	1	0.1	28	28
2. ENGLAND, N.E. ...	5 less	1	0.1	13	13
3. ENGLAND, E. ...	5 less	0	0.0	17	17
4. MIDLAND COS. ...	6 less	0	0.0	13	13
5 ENGLAND, S. ...	6 less	1	0.0	18	18
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	9 less	2	0.1	12	12
7. ENGLAND, N.W....	8 less	1	0.0	9	9
8. ENGLAND, S.W....	10 less	1	0.0	23	23
9. IRELAND, N. ...	5 less	3	0.3	19	19
10. IRELAND, S. ...	2 less	2	0.7	25	25
— CHANNEL ISLANDS	9 less	1	0.0	69	69

MARKETS.

COVENT GARDEN, January 10.

As frequently happens at the commencement of the year, our market is quite glutted with heavy supplies of Grapes, meeting with small demand, and prices are very much depressed. Trade generally dull. Heavy supplies of Apples to hand, as also vegetables. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve...	2 0–	4 6	Grapes, per lb. ...	0 6–	2 6
— Canada and Nova Scotia, per barrel	5 0–	12 0	Lemons, per case ...	12 0–	21 0
Cobs, 100 lb. ...	100 0–	110 0	Pine-apples, Eng., lb.	1 6–	2 0
			— St. Michael. each	2 0–	8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	5 0–	...	Mustard and Cress, punnet	0 4–	...
— French, bundle	0 8–	...	Onions, per bunch ...	0 5–	...
Beans, Jersey and French, per lb. ...	1 6–	...	Parsley, per bunch...	0 8–	...
Beet, red, per dozen	1 0–	2 0	Peas, French, per lb.	1 0–	...
Carrots, per bunch...	0 6–	...	Potatos, per cwt. ...	4 0–	5 0
Cauliflowers, each ...	0 3–	...	— kidney, per cwt.	4 0–	5 0
Celery, per bundle ...	1 6–	2 0	— new French, lb.	0 6–	...
Cucumbers, each ...	1 0–	...	Rhubarb, bundle ...	0 6–	...
Endive, per dozen ...	3 0–	...	Seakale, punnet ...	2 6–	...
Green Mint, bunch...	1 0–	...	Shallots, per lb. ...	0 6–	...
Herbs, per bunch ...	0 6–	...	Spinach, per bushel...	4 0–	...
Leeks, per bunch ...	0 4–	...	Tomatos, per lb. ...	2 0–	...
Lettuce, per dozen...	1 6–	...	Turnips, per bunch, new	0 5–	...
Mushrooms, punnet	1 6–	...			

POTATOS.—Beauty of Hebron, 80*s.* to 100*s.*; Imperators, 70*s.* to 90*s.*; Dunbar Regents, 110*s.*; do. Magnums, 120*s.*; and York Magnums, 100*s.* per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0–	18 0	Ferns, in var., doz.	4 0–	18 0
Arum Lilies, p. doz.	9 0–	15 0	Foliage plants, various, each	2 0–	10 0
Azaleas, dozen ...	24 0–	42 0	Ficus elastica, each .	1 6–	7 0
Chrysanthems., doz.	4 0–	9 0	Hyacinths, dozen ...	9 0–	12 0
Cyperus, per dozen .	4 0–	12 0	— Rom.. doz. pots	9 0–	10 0
Dracæna terminalis, per dozen	30 0–	60 0	Lily-of-Val., doz. pts.	18 0–	30 0
— viridis, per doz.	12 0–	24 0	Marguerites, doz. ...	6 0–	12 0
Erica hyemalis, doz.	12 0–	24 0	Palms in var., each	2 6–	21 0
— caffra, dozen ...	6 0–	12 0	Pelargoniums, scarlet, per dozen ...	6 0–	9 0
— gracilis, dozen...	8 0–	12 0	Poinsettias, dozen ...	9 0–	15 0
Euonymus, in var., per dozen	6 0–	18 0	Primulas, per dozen	4 0–	6 0
Evergreens, in var., per dozen	6 0–	24 0	Solanums, dozen ...	9 0–	15 0
Epiphyllums, doz....	18 0–	30 0	Tulips, dozen pots ...	6 0–	9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutillons, 12 bun....	3 0–	6 0	Mignonette, 12 bun.	2 0–	4 0
Arum Lilies, 12 blooms	4 0–	8 0	Narcis., paper-white, (French), 12 bun...	3 0–	6 0
Azaleas, 12 sprays ...	0 9–	1 0	— double. 12 bun...	1 6–	3 0
Bouvardias, per bun.	0 9–	1 6	Pelargoniums, 12 spr.	1 0–	1 6
Camellias, 12 blms.	3 0–	6 0	— scarlet, 12 spr....	0 6–	1 0
Carnations, 12 blms.	2 0–	3 0	Poinsettias, doz. ...	4 0–	9 0
Christmas Roses, 12 blooms	0 6–	1 6	Primulas, dbl., 12 sp.	1 0–	1 6
Chrysanthemums, 12 blooms	0 6–	3 0	Roses, Tea, per doz.	2 0–	6 0
— dozen bunches...	4 0–	12 0	— coloured, dozen.	2 0–	4 0
Eucharis, per dozen	3 0–	6 0	— red, per dozen ...	1 0–	2 0
Gardenias, 12 blooms	12 0–	18 0	— Safrano, dozen...	2 0–	3 0
Heliotropes, 12 spr.	0 6–	1 0	Stephanotis, 12 spr.	12 0–	15 0
Hyacinths, Roman, 12 sprays	1 0–	1 6	Tuberoses, 12 blms....	1 6–	3 0
Lapageria, 12 blooms	1 6–	3 0	Tulips, 12 blooms ...	1 0–	1 6
Lilac, white Fr., bun.	3 0–	7 0	Violets, 12 bunches...	1 0–	1 6
Lily-of-Val., 12 spr.	0 9–	1 6	— dark, Fr., bunch	1 6–	3 0
Marguerites, 12 bun.	3 0–	6 0	— Parme, Fr., bun.	6 0–	7 6
			Wallflowers, 12 bun.	6 0–	9 0

SEEDS.

LONDON: *Jan.* 9.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that much more disposition to purchase Clover seeds has lately been shown. The important fact that the English crop this season is a total loss has apparently been driven home to the minds of the trade, and as a consequence foreign samples are inquired for with eagerness. Values all round keep exceedingly firm. Meantime good samples of red are still obtainable on moderate terms. Alsike, white, and Trefoil are unchanged. There is more inquiry for winter Vetches, Kœnigsberg Tares being this year out of the market. Peas, Haricots, and Linseed are without alteration.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending January 5 :—Wheat, 30*s.* 4*d.*; Barley, 26*s.* 9*d.*; Oats, 16*s.* 6*d.* For the corresponding week in 1888 : — Wheat, 31*s.* 5*d.*; Barley, 29*s.* 5*d.*; Oats, 16*s.* 1*d.*

FRUIT AND VEGETABLES.

STRATFORD: *Jan.* 8.—There has been a fair supply of produce at this market during the past week, and a good trade was done at the undermentioned quotations :—Cabbages, 2*s.* to 3*s.* per tally; Savoys, 2*s.* to 3*s.* do.; Greens, 1*s.* to 1*s.* 9*d.* per dozen bunches; Carrots, household, 24*s.* to 34*s.* per ton; do, cattle feeding, 20*s.* to 22*s.* do.; Mangels, 16*s.* to 20*s.* do.; Swedes, 16*s.* to 18*s.* do.; Onions, English 90*s.* to 110*s.* do.; do. Dutch, 3*s.* 6*d.* to 4*s.* per bag.; do. German, 80*s.* to 105*s.* per ton; Apples, English, 1*s.* to 4*s.* per flat; do, American, 6*s.* to 10*s.* per barrel; Watercress, 6*d.* per dozen; Celery, 6*d.* to 1*s.* per roll; Turnips, 2*s.* 6*d.* to 3*s.* 6*d.* per bunches; Carrots, 2*s.* to 3*s.* do.

POTATOS.

BOROUGH AND SPITALFIELDS: *Jan.* 8. — With moderate supplies arriving the prices are firm, although the trade is not brisk.—Regents, Scotch, 80*s.* to 125*s.*; English, 65*s.* to 95*s.*; Hebrons, 70*s.* to 110*s.*; Magnum Bonums, 60*s.* to 120*s.* per ton.

SPITALFIELDS: *Jan.* 9.—Quotations :—Magnums, 55*s.* to 80*s.*; Regents, 70*s.* to 100*s.*; Hebrons, 70*s.* to 90*s.*; Champions, 55*s.* to 65*s.*; Imperators, 70*s.* to 90*s.* per ton.

STRATFORD: *Jan.* 8. — Quotations : — English Magnums, light land, 65*s.* to 80*s.*; do., dark land, 65*s.* to 70*s.*; Hebrons, 60*s.* to 70*s.*; Scotch Regents 85*s.* to 105*s.*; do., Magnums, 70*s.* to 110*s.* per ton.

Imports :—The imports into London last week consited of 603 bales from Hamburgh, 6 from Ghent, and 2 cases from Cologne.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week :—Clover, prime old, 120*s.* to 145*s.*; do., good second, 80*s.* to 110*s.*; do., inferior, 40*s.* to 75*s.*; do., new, 90*s.* to 110*s.*; do., inferior, 30*s.* to 84*s.* Hay, prime meadow, 115*s.* to 130*s.*; do., inferior, 40*s.* to 70*s.*; do., new, 80*s.* to 95*s.*; do., inferior, 30*s.* to 75*s.*; straw, old, 40*s.* to 49*s.*; new, 28*s.* to 42*s.* per load.

ENQUIRIES.

"*He that questioneth much shall learn much.*"—BACON.

CELERIAC.—Can any reader tell me why Celeriac is not more extensively grown in England than is now the case? Also the best method of cultivating this vegetable for market, the best kind of soil, and when to plant? I find that in the Centre Row, Covent Garden, good roots have been selling at from 4*d.* to 6*d.* each. *Farmer Turnip-top.*

NOTICES TO CORRESPONDENTS.

BEES, &c.: *Greenhorn.* Buy *Beekeeping*, by A. Rushbridge (E. W. Allen, 4, Ave Maria Lane, London, E.C.) Apply to the British Beekeeper's Association, Hon. Secretary, Rev. H. R. Peel, Thornton Hall, Stony Stratford; Assistant Secretary, Mr. J. Huckle, Kings Langley, Herts.

CORRECTIONS. — In article "Orchids at Messrs. Veitch's," p. 19, first paragraph, after the wor "varieties," read "of Cypripediums."—In "Some Select Hardy Plants" (Montbretias), p. 22, owing to a printer's error, the word "winter" was inserted instead of "autumn;" and, further, "Etoile de Fer" should be "Etoile de Feu."

HYDRANGEAS MADE BLUE: *H. H. S.* If there is no oxide of iron in the soil naturally, a small quantity —say one-twentieth—of oxide (rust) of iron may be added to it, and by experimenting the proper quantity may be discovered. The plant from the cutting stage onward must be grown in soil of this description, or the attempt to get a blue shade will fail.

MOTH ON APPLE TREES: *F. V. H.* The Winter Moth —the females of which are wingless—may be caught in great numbers by means of bands of rough brown paper thickly smeared with cart-grease placed round the stems at 2 or 3 feet from the ground—or less with bushes. This should be done in October so as to catch the earliest insects about. Now it is almost too late to do so. When the bark is rough a band of clay should be well rubbed into it, in the place where the paper band will be fastened. If the trees are old, the dressing of treacle, resin, &c., that you have given will do no harm. For a way to use paraffin (petroleum is probably meant) see answer this week to Sir C. S.

NAMES OF FRUIT: *W. H. Tillett.* Somewhat bruised, but we consider the names to be as follows:—1. Minshull Crab; 2, Pine-apple Russet; 3, Not known.—*James J. Foster.* Probably Hacon's Incomparable, but fruit nearly rotten.

NAMES OF PLANTS: *G. Nottage.* The Cœlogyne from Burmah is C. fuscescens var. brunnea.

ORCHID MAP: *H. C.* An uncoloured map was published as a supplement to our issue for May 9

1885. Coloured maps of the geographical distribution of certain species of Orchids are published with each number of Veitch's *Manual of Orchidaceous Plants*, now appearing at uncertain intervals.

ORCHID NOMENCLATURE: *G. M.* Aganisia cyanea, Reich. f., in *Nov. Act. Acad. Nat. Car.*, XXXV. (1869), pt. 2, p. 13, t. 4, is = Acacallis cyanea, Lindl., *Folia Arch.* (1853), the article is unpaged (say p. 1). Acacallis is kept distinct by Bentham and Hooker. Aganisia cœrulea, Reichb. f., in *Gard. Chron.*, n. s., XXV. (1886), p. 720, is the same, but the name "cœrulea" originated through a mistake, because Reichb. f., begins by saying it is the Aganisia cœrulea of Lindley, and although there is no such name, but A. cyanea. The title quoted is merely the name of a paper in the work above cited. Aganisia Oliveriana, Reichb. f., is described in *Gard. Chron.*, n. s., ix. (1878), p. 558.

PEAR TREES: *J. Joyce.* The fruit being of poor quality you may head down the trees if in the open border, leaving a few branches of 1 foot in length; or if on walls, cut the main branches back to within 6 inches of the stem. That operation may be carried out at the end of February; and the scions, or rather the shoots from which these will be made, should be removed from the trees towards the end of this month, and be firmly bedded in soil for the greater part of their length, taking care that the place they are put in is cold, and screened from direct sunlight. Grafting may be done early in March, using any of the usual methods of doing such operations.

PETROLEUM: *Sir C. S.* As a winter dressing for trees, the proportion is one wineglass of the oil to 1 gallon of warm water; and for using on plants having leaves, the same quantity of oil to 3 gallons of water. The oil unites better with the water if a small quantity of soft-soap be previously incorporated with it, and whilst using the solution it must be constantly kept in motion by charging the syringe from the bottom of the vessel and discharging it violently on the surface. A petroleum emulsion is kept for sale by some nurserymen and horticultural sundriesmen, which is safe and convenient in the using.

PINE: *H. M.* The Pine sent seems to be P. silvestris, not austriaca, and the appearances presented are those caused by moist corrosive vapours. We do not think frost has anything to do with them.

POTATOS: *K. J. W.* The quantity of sets required per acre is 24 bushels; less, if varieties with strong growing tops are chosen. Unless you can make your heavy soil lighter by the admixture of coal and wood ashes, road scrapings, and strawy manure, the growers on early light land will get their produce to market before you. It is better fitted for mid-season and late varieties than for early ones—at least, at present. Select as kidneys Rivers' Royal Ashleaf as an experiment as to earliness on your soil; then, as main crop, Magnum Bonum and International; and as rounds, Sutton's Early Regent, Schoolmaster, and Reading Hero. The second named kidney is the cheaper to buy as seed, and one of the best keepers.

RAIN GAUGE, THERMOMETER, ENTRY BOOK, &c.: *D. D.* Apply to any respectable ironmonger for these instruments; and to a stationer for a book properly ruled in which the entries for each day may be made.

STOCKS: *G. P.* Do not use the Bullace seedlings; the growth is too slow for trees intended to be planted out, and only fitted for miniature trees in pots. The scion would grow with much more rapidity than the stock; the sap-vessels at the point of union would thereby get eventually disorganised, and ill-health set in. Get "Brompton" or "Mussel" stocks. Budding in the late summer is the usual method with the Apricot, Plum, and Peach.

"THE BRUSHMAKER:" *R. J. W.* This periodical is published at the office, 2, Whitefriars Street, Fleet Street, London, E.C.

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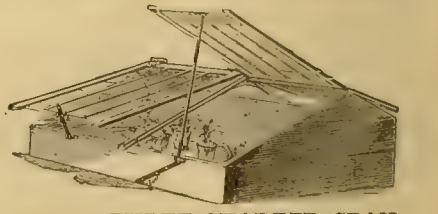
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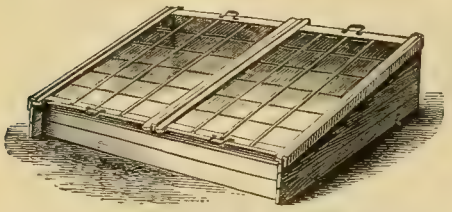
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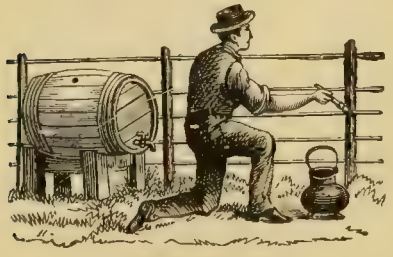


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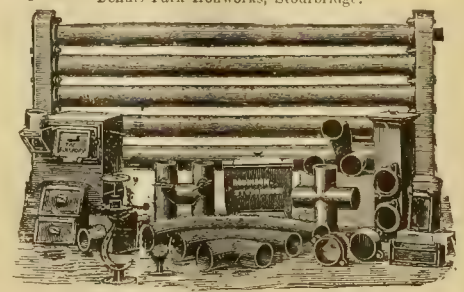


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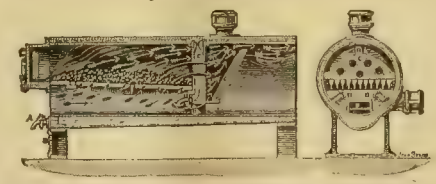
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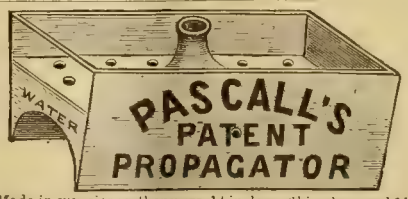
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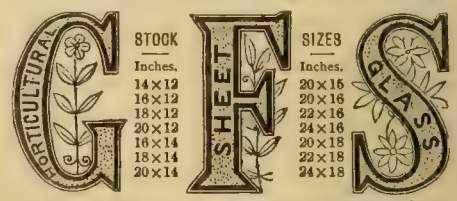
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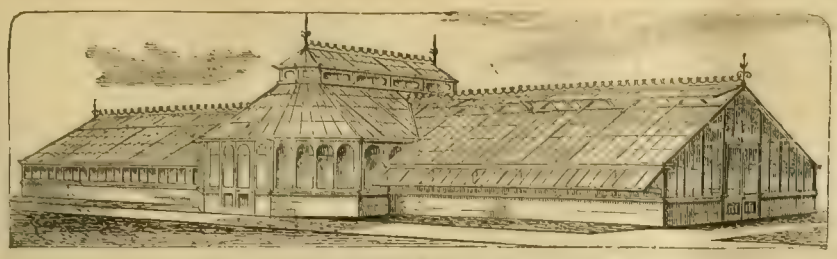
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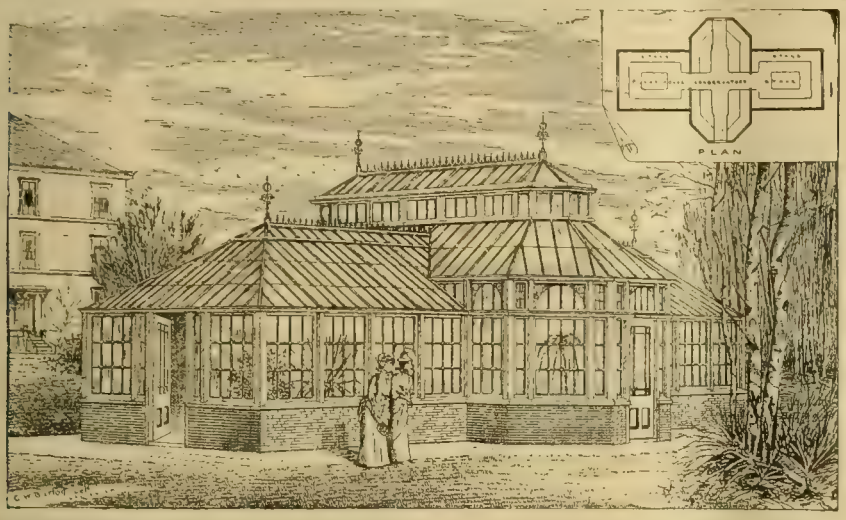
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THE GARDENERS' CHRONICLE,
Vol. IV., Third Series, JULY to DEC., 1888.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

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OLD CRIMSON CLOVE (True).—Fine healthy, strong young plants, well rooted, 12s. per 100.
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FOR SALE, CAMELLIA, fine all round plant, clean, and in vigorous health; flowering buds thinned down to 230; height 10 feet, diameter 7 feet; every point set with bud; colour deep crimson. Price and to view
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Extra strong roots for immediate forcing.
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To the Trade.
JAMES CARTER, DUNNETT AND BEALE beg to intimate that their WHOLESALE CATALOGUE of SEEDS and SUNDRIES has now been Posted to all Customers. If not received another copy will be sent on application to
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Barr's Spring Catalogue, Now Ready, of
THE BEST HERBACEOUS PLANTS, for Borders, Rockwork, and Cutting, contains a select List of HIGH-CLASS AND EASILY cultivated plants only.
Free on application.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

ENGLISH YEWS, 3, 4, 5, and 6 feet.
BOX, Green, 3, 4, 5, and 6 feet.
,, Variegated, 3, 4, 5, and 6 feet.
PINUS AUSTRIACA, 3, 4, 5, and 6 feet.
All well furnished, and finely rooted. Many thousands.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

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LAPAGERIAS.—ALBA, in 20-inch pot, on trellis, 3 feet 6 inches by 3 feet 3; SUPERBA, in 19-inch pot; ROSEA, in 16-inch pot. Price £25.
FORSHAW, 9, Cannon Street, Preston.

AUSTIN ROBERTS will be pleased to RECEIVE and DISPOSE OF any quantity of Choice Cut FLOWERS and FERNS, at best Market Prices. Prompt returns and weekly settlements. Boxes, &c., supplied. Good references.
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MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, London, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied.
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PRICE AND CO. will be pleased to RECEIVE and DISPOSE of any quantity of Choice CUT FLOWERS at best Market Prices. 60, Castle Street, Long Acre, W.C., and Flower Market, Covent Garden, W.C. Reference: London and County Bank. TELEGRAPHIC ADDRESS—ADIANTUM, LONDON.

NOTICE. — SQUELCH AND BARNHAM having dissolved Partnership, the Business will be carried on as heretofore by Henry Squelch, on the Premises lately occupied by the Firm. All debts due and payable will be received and discharged by Henry Squelch; all outstanding Empties belong to Henry Squelch.

HENRY SQUELCH (late Squelch & Barnham) RECEIVES CONSIGNMENTS of good Black Grapes, Muscats, Cucumbers, Tomatos, and Beans; also all kinds of choice Hothouse Flowers. H. Squelch's trade being especially for First-class Hothouse Produce, and he having a connection amongst the best Houses in London and Country, is able to command highest Market Prices. Account Sales furnished daily, and accounts settled weekly, or as desired.
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North Row, Covent Garden Market, W.C.

J. W. BARNHAM (late of Squelch & Barnham) RECEIVES ON COMMISSION, his personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Barkets and labels found.
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TO MUSHROOM SPAWN MAKERS.—Please state lowest price and size of Bricks for quantities to
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WANTED, Maidenhair Fern, Bouvardia, Orchids, Eucharis, Roses, Camellias, and any other choice Cut Flowers. Best Market Prices returned weekly.
Address S. HILL, Jun., 21, Charlotte Street, Fitzroy Square, W.; and Stand 364, Covent Garden Flower Market, W.C.

SUTTON'S AMATEUR'S GUIDE for 1889.—Now ready: price 1s., post-free. Beautifully Illustrated with Coloured Plates of Sutton's Gloxinias, Sutton's Primulas, Sutton's Tomatos, and a Photograph of a House of Sutton's Hero of Lockinge Melon (grown from Sutton's Seed by Mr. J. H. Goodacre, The Gardens, Elvaston Castle). The book contains also the most complete List, with accurate descriptions of the best Vegetables, Potatos, and Flowers, including many Novelties of proved merit.
SUTTON AND SONS, Royal Seed Establishment, Reading.

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CATALOGUES free on application.
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TO LARGE PLANTERS of THORN QUICKS.—1 to 1½ foot, 9s. per 1000, £10 per 100,000; 1½ to 2 feet, 11s. per 1000, £50 per 100,000; 2 to 2½ feet, 13s. per 1000; 2 to 3 feet, 15s. per 1000; 3 to 4 feet, 18s. per 1000.
GARLIES MITCHELL, Nurseryman, Stranraer.

TO THE TRADE.
HELLEBORUS NIGER, good healthy imported Plants, at very low prices per 100 and 1000.
LILY OF THE VALLEY.—Fine Berlin forcing Buds, cheap to clear out.
HOOPER AND CO. (Limited), Covent Garden, London, W.C.

SEEDS.—RICHARD SMITH & CO., Worcester, beg to draw attention to the Low Prices of individual articles (Peas especially), and the liberality of the Collections at Fixed Prices as set forth in their Illustrated SEED LIST, which will be sent Free on application. All Seeds, &c., are of the *best possible* quality.

Garden and Flower Seeds, Spring Bulbs, &c.
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Haarlem, Holland.
WHOLESALE CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

BOX.—BOX.—BOX.—For Sale, a quantity of Dwarf Box Edging, in excellent condition for planting. For price, &c., apply to the
GARDENER,
The Grange, Stourbridge, Worcester.

SEAKALE for Forcing.—Superior, selected, large Crowns, 80s. per 1000; under 500, 9s. per 100. A remittance with all orders.—ALFRED ATWOOD, Grower, 14, Lavender Terrace, Battersea, S.W.

1,100,000 GARDEN POTS, 3½ in. diam., in stock, ready for immediate delivery; carriage and breakage free on £10 orders; half carriage on £5. Acknowledged by the trade to be the best pots manufactured. Largest Stock and Largest Manufacturers in United Kingdom.
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THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

PASTUPLANTA, the best Artificial Manure. It enriches the soil with the fertilisers drawn from it by plants; no unpleasant smell; admirably adapted for all pot plants. In bags: 112 lb., 19s.; 56 lb., 11s. 3d.; 28 lb., 6s. 9d.; 14 lb., 4s.; 7 lb., 2s. 3d. In tins, 1s. each. Sole Manufacturers, PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

NICOTINE SOAP.—An effectual eradicator of all insect pests affecting plants, without injury to foliage. Jars, 1s. 6d., 3s., 5s. 6d.; Tins 15s. 6d., 25s., 95s.
All Seedsmen and Florists.

MATS.—Large, Selected, New Archangel, for Covering. Best quality. Prices very moderate.
Delivered Carriage Free.
DICKSONS (*Limited*) The Royal Seed Warehouse, CHESTER.

SALES BY AUCTION.

Monday, January 21.
SPECIAL SALE OF LILIES.
Important to the Trade and Large Buyers.
5000 LILIUM AURATUM, including about 500 exceptionally large Bulbs, some of the finest imported this season.
Also about 9000 various LILIES,
including large quantities of Lilium speciosum rubrum and album, and L. longiflorum.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY, January 21, at half-past 12 o'Clock precisely.
Catalogues are now ready, and will be forwarded on application.

Tuesday Next.
ESTABLISHED ORCHIDS AND ORCHIDS IN FLOWER.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, January 22, at half-past 12 o'Clock, a quantity of various ORCHIDS, received direct for unreserved Sale; also about 200 lots of established, unflowered, and imported Odontoglossum Alexandræ, from Messrs. Shuttleworth, Carder, & Co.; an importation of Cypripedium insigne, Cœlogyne Gardneriana, Dendrobium binoculare, Established Orchids, including several rare species; and a quantity of Orchids in Flower from various collections.
On view morning of Sale and Catalogues had.

Wednesday Next.
LILIUM AURATUM, splendid Bulbs, just received from Japan; English-grown LILIES, Japanese IRIS, LILY OF THE VALLEY, SPIRÆAS, AZALEAS and CAMELLIAS from Belgium, STOVE and GREENHOUSE PLANTS, various hardy BULBS, ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, January 23, at half-past 12 o'Clock precisely.
On view morning of Sale, and Catalogues had.

Wednesday Next.
10,000 LILIUM AURATUM and other LILIES, just received from Japan in splendid condition.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION on WEDNESDAY NEXT, January 23.
On view morning of Sale, and Catalogues had.

The Barvins Park Collection of Established Orchids.
UNRESERVED SALE of this extensive COLLECTION, by order of the Proprietor, who is leaving the neighbourhood and selling the Estate.
EIGHT DAYS' SALE.
Important to the Trade and Large Buyers.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on

JANUARY	25	FEBRUARY	6
FEBRUARY	1	,,	15
,,	4	,,	19
,,	5	,,	20

at half-past 12 o'Clock precisely, the whole of the above extensive COLLECTION of ESTABLISHED ORCHIDS, without the least reserve. The Collection comprises about
20,000 ODONTOGLOSSUM ALEXANDRÆ, in various sizes, all unflowered, principally selected from Messrs. Shuttleworth, Carder & Co.'s importations of the broad-petalled Pacho varieties.
5000 ODONTOGLOSSUM ROSSII MAJUS, a number of them being very large masses in pans; also O. INSLEAYI, O. CITROSMUM, 1000 O. PESCATOREI, 300 O. HARRYANUM, O. VEXILLARIUM, O. GRANDE, and others; 700 LÆLIA ANCEPS, many of them immense plants, L. A. ALBA; 600 EPIDENDRUM VITELLINUM MAJUS, mostly in spike; 200 CŒLOGYNE CRISTATA, together with a large quantity of CATTLEYAS MOSSIÆ, MENDELII, GIGAS, and other varieties; ONCIDIUMS, &c.
The Auctioneers desire to call special attention to this Sale. The plants are clean and well grown, and Gentlemen desirous of adding to their Collections, or Florists, for growing for Cut Flowers, will find the Sale an exceptional opportuntity for obtaining these favourite varieties of Orchids in large quantities at Auction Prices.
The Plants will be on view the mornings of Sale. Catalogues of the first portion will shortly be published, and copies will be forwarded, free by post, on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Samp e Sale.—January 29.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SALE by SAMPLE will take place at their Rooms as above, for which they will be glad to RECEIVE NOTICE of ENTRIES as EARLY AS POSSIBLE.

Eltham.
Expiration of Lease. Further CLEARANCE SALE.
Preliminary Notice.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Nursery, Eltham, Kent, on THURSDAY, February 7, and two following days, a further portion of the unusually well-grown NURSERY STOCK.—Further particulars will appear.

Wednesday Next.—(Sale No. 7852.)
5000 Grand Bulbs of LILIUM AURATUM, and 1000 L. KRAMERI, received from Japan in the finest possible condition; 5000 Pearl and Other TUBEROSES from America; 1000 Tuberous-rooted BEGONIAS, from Ghent, 500 Choice named Dwarf ROSES, Pyramid, Dwarf-trained and Standard FRUIT TREES, in variety, to name; Home-grown LILIUMS, in variety, also 10,000 LILY OF THE VALLEY, Crowns and Clumps; 1000 HYACINTHUS CANDICANS, 800 HEMEROCALLIS, 300 LILIUM LONGIELORUM, and other Roots from Holland; BORDER PLANTS, DUTCH BULBS, for present planting.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent, W.C., on WEDNESDAY NEXT, January 23, at half-past 12 o'Clock precisely,
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7853.)
The Remaining Portion of the COLLECTION of ORCHIDS formed by C. Hamerton, Esq., of Stockwell Green.

MR. J. C. STEVENS has received instructions from C. Hamerton, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 24, at half-past 12 o'Clock precisely, the remaining portion of his Collection of ORCHIDS, consisting of well grown plants of Phalænopsis Schilleriana and P. amabilis, Cypripedium Spicerianum and others, Cymbidiums, Odontoglossums, Oncidiums, &c.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7853.)
ODONTOGLOSSUM VEXILLARIUM LEOPOLDI, from Mr. F. Sander.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 24, a plant with one flower of ODONTOGLOSSUM VEXILLARIUM LEOPOLDI, imported by Mr. Pynaert van Geert, and one of the most beautiful Orchids ever introduced.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7853.)
RARE ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, January 24, the following Rare and Choice ORCHIDS:—Dendrobium nobile Sanderianum, D. Leechianum, Odontoglossum Hunnewellianum, Oncidium splendidum, Lælia acuminata alba, extrememely rare; Cypripedium species, new?, C. Elliottianum, C. cardinale, C. Leeanum superbum, C. vexillarium, C. Godseffianum, C. Io, Sobralia leucoxantha, S. xantholeuca, &c.
On view morning of Sale, and Catalogues had.

FOR SALE, an Old-established NURSERY and SEEDSMAN'S BUSINESS, situate in the main Uxbridge and Northfield Roads, Ealing, W., consisting of six Greenhouses, fitted with Hot-water Piping; two Boilers. Large Stock. Ready-money trade. Good opening for energetic man. Plenty of Jobbing if looked after. Rent very low, and all let off. Price to an immediate purchaser, £300, or offer. Present Lease about eight years to run.
For further particulars apply to S. C., 1, Minton Villas, Uxbridge Road, Ealing Dean, W.
N.B.—If NOT SOLD before JANUARY 25, the BUSINESS WILL BE OFFERED FOR SALE BY AUCTION.

Important to Seedsmen.

FOR SALE, one of the oldest SEED BUSINESSES in the North of England (established nearly a century). Situate in leading thoroughfare, adjacent to the Markets and principal Railway Stations. Now doing an extensive trade.
The above will be Sold Cheap to an immediate Purchaser, as the present owner is retiring from business.
Apply, SEEDS, Messrs. Okell & Crosfield, Solicitors, 62, King Street, Manchester.

Seed Business.

FOR IMMEDIATE DISPOSAL (owing to the death of Proprietor), an Old-established Retail SEED BUSINESS, in London, with high-class connection, including Leases of Premises, Stock, Fixtures, &c.
Apply by letter in first instance to N. SHERWOOD, Esq., 152, Houndsditch, E.C.

To Market Gardeners, Florists, Nurserymen, &c.
HAMPTON-ON-THAMES.

FOR SALE, choice FREEHOLD LAND, in Acre Plots, suitable for above. Rich Garden Soil with gravel and sand sub-soil. The land is considered by the Trade the finest near London for Grapes and all other Market Products.
Apply, SECRETARY, Estates Investment and Villa Farm Company, Estate Office, Tangley Park, Hampton-on-Thames.

FOR DISPOSAL, a Small NURSERY, S.W. District. Seven Houses and three Pits, all heated; Sheds, Stable, and Six-roomed Cottage. Long lease. Small Stock, at valuation. Rent, £55.
For further particulars apply to J. B., 4, Bedford Gardens, Campden Hill, Kensington, W.

To Seedsmen.

FOR SALE, the BUSINESS of a WHOLESALE SEEDSMAN in St. Albans. Lease about fourteen years. Rent £80. Commodious Premises. Stock, Fixtures, and Book Debts (£592) at valuation. Price for Lease and Goodwill, £100.
Apply to Mr. F. C. GOODCHILD, 25, Old Jewry, E.C., Trustee in Bankruptcy.

South of England.

LARGE GARDEN, 20 Acres, with Twenty Greenhouses and Vineries. £7000 has been spent on the property. Seven years' lease. Two Cottages inclusive. £150 a year. ELDRIDGE, Portsmouth.

TO LET, NURSERY GROUNDS and GREENHOUSES, &c., or PARTNERSHIP. Option of PURCHASE.
J. B., 41, Wellington Street, Strand, W.C.

TO BE LET, 1 to 10 Acres of GRASS LAND, suitable for Nurserymen and others, on Lease, for 7, 14, or 21 years. Rent from £8 to £12 per Acre, with the option of Purchase of the Freehold within the first seven years. No Tithe or Land-tax. Near the main road, Enfield Highway, about 9 miles from London.
Apply, H. MOORE, 59, Bishopsgate Street Within, E.C.

TO LET on LEASE, as a going concern, a compact NURSERY; 10,000 feet of glass, well heated, Coach-house, Stables, Plunging Ground, together with Shop and Dwelling House all adjoining, whole or part of Stock. Goodwill Low.—Apply, AZALEA, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

SEEDS.

THE LIVERPOOL HORTICULTURAL CO.
(JOHN COWAN), Limited,
SUPPLY
VEGETABLE
AND
FLOWER SEEDS
of the best quality at moderate prices. Free by Rail or Parcel-post.
Descriptive Priced LIST on application.

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

STACHYS TUBERIFERA
(The Chinese Artichoke).
Price to the Trade on application to
JAMES CARTER, DUNNETT AND BEALE, 237 and 238, High Holborn, London, W.C.

To the Trade.

ONION SEED.—"Home Grown Seed." The past season's crop having been a failure, F. GEE is happy to say he has fine stocks of SUPERIOR BEDFORDSHIRE GROWN yearling Seed, "of his own growing," which he can highly recommend, and may be relied upon, whereas foreign Seed, which is being sold by many at a much cheaper rate, cannot be depended upon. The following kinds can be supplied for Cash:—
GEE'S IMPROVED BEDFORDSHIRE CHAMPION, very select Stock, fine, large, globular Onion, has grown 16 to 20 tons per acre, 7*s.* 6*d.* per lb,
,, ,, WHITE SPANISH and NUNEHAM PARK, very fine Stocks, 7*s.* 6*d.* per lb.
Carriage or post free.
Special Terms for large quantities. Catalogues on application. Cheques and Post-office Orders made payable to
FREDERICK GEE, Seed Grower and Merchant, Riverford House, Biggleswade, Bedfordshire.

SEED POTATOS.—Gentlemen's Gardeners and others requiring a thorough change of Seed, will do well to send for estimate, stating sorts and quantities required, and save 25 per cent.

COOKING POTATOS.—A few tons of very choice Cooking Potatos for sale, cheap, by sack or ton. Sample gratis.
BRINKWORTH AND SONS, Growers, Reading.

20,000 GOOSEBERRIES.—Best Marked sorts. All nice clean, healthy, and well-rooted plants of the following varieties:—Warrington Red, Whitesmiths' Crown Bob, &c., at 12*s.* 6*d.* per 100, £10 per 1000, For Cash with Order; Sample Dozen, 2*s.* 6*d.* Packing free.—JOSHUA GREENACRE, Nurseryman, Seedsman, and Florist, Stone Hills Nurseries, Dereham Road, Norwich.

The Real White Elephant, or
IMPROVED WHITE ELEPHANT POTATO.
This is a sport from Daniels' White Elephant Potato, but has the great advantage of having a pure white skin. It is one of the heaviest croppers grown. Cooks splendidly.
PINK PERFECTION.
The handsomest coloured round yet raised. A sure prize-taker.
SEED POTATOS.
All the best of the old and new varieties in commerce. Over 300 varieties to select from, at moderate prices. Send for Descriptive CATALOGUE, containing lists for various purposes and other useful information. The most complete in the Trade.
JOHN WATKINS, Potato Grower, Pomona Farm, Withington, Hereford.

To the Trade.

POTATOS for SEED.
MYATT'S PROLIFIC EARLY ASHLEAF KIDNEY, splendid stuff; a large quantity to offer at 90*s.* per ton, on rails; 5*s.* per cwt. do. Also
BEAUTY OF HEBRON, at 90*s.* per ton; 5*s.* per cwt.
WHITE ELEPHANT, at 80*s.* per ton; 4*s.* 6*d.* per cwt.
EARLY ROSE, very fine, at 80*s.* per ton; 4*s.* 6*d.* per cwt.
SCHOOLMASTER (Turner's True), at 90*s.* per ton; 5*s.* per cwt.
SUTTON'S EARLY REGENT (True), at 90*s.* per ton; 5*s.* per cwt., on rails, for cash.
Sacks to hold 1 cwt., 6*d.* each; do., 2 cwt., striped, at 9*d.* each; do., 2 cwt. 4 lb. sacks, at 1*s.* each.
Many other kinds can be supplied. Special price CATALOGUE on application. Cheques and Post-office Orders made payable to
FREDERICK GEE, Seed Grower and Merchant, Riverford House, Biggleswade, Bedfordshire.

CARTERS' VADE MECUM for 1889 is Now Ready, and has been posted to Messrs. CARTER'S Customers. Price ONE SHILLING (post-free) to unknown Correspondents. It contains 7 elegant Coloured Illustrations, and will be found a most thorough Book of Reference by all who desire to cultivate successfully the choicest Vegetables and the prettiest Flowers.
JAMES CARTER AND CO., The Queen's Seedsmen by Royal Warrant, 237 and 238, HIGH HOLBORN, W.C.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12*s.* to 24*s.* per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2*s.* 6*d.* each; Beauty of Worcester, a magnificent purple, excellent for bedding, recently sent out by us, reduced price 2*s.* 6*d.* each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ROBERT NEAL, The Nurseries, Trinity Road, Wandsworth, begs to offer, in extra quality, the following:—
SEAKALE, for Forcing, 8*s.* per 100, 75*s.* per 1000.
,, for Planting, 5*s.* per 100, 40*s.* per 1000.
RHUBARB, for Forcing, 50*s.* per 100.
RASPBERRIES (Fastolf), 6*s.* per 100, 50*s.* per 1000.
VICTORIA PLUMS, Standards, 75*s.* per 100.
DAMSON (Farleigh), Standards, 75*s.* per 100.
PEACHES, Dwarf-trained, 18*s.* to 24*s.* per dozen.
ELDERS, Golden, 2 to 4 feet, extra fine, 20*s.* to 30*s.* per 100.
WILLOWS, Weeping, 8 to 14 feet, 6*s.* to 12*s.* per dozen.

STRAWBERRY PLANTS, in small pots. Splendid stuff of all best kinds, and true to name. Price List on application.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey.

LILIUMS.—WILLIAM DENMAN offers fine Consignments of auratums, lancifolium, album, and rubrum, Kraetzeri, Harrisi, &c. Also many thousands Spiræa japonica, Hydrangea paniculata grandiflora. Price per 100 or 1000 on application.—7, Catherine Street, Covent Garden, W.C.

TREES and SHRUBS for the Sea Coast. CATALOGUE free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PÆONY ARBOREA — P. SINENSIS.—The unique and very best selected collection in the world—300 varieties of P. arborea; 350 of P. sinensis, including new, rare and very rare varieties; also Japanese and Chinese sorts. Special Collections well selected for Amateurs. Ask for the Descriptive CATALOGUE of Prices, printed in English, to L. PAILLET, Nurseryman, Chatenay (Seine), near Paris, France. Established 1827.
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From the "GARDENERS' CHRONICLE," *September 1st.*

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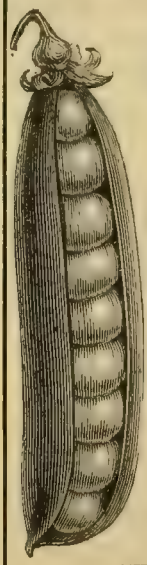
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THE

Gardeners' Chronicle.

SATURDAY, JANUARY 19, 1889.

EARLY ENGLISH GARDENING.

LAND TENURE.

AMID the numerous and interesting phases of early English gardening, there is perhaps none more important than the subject of archaic land tenure. Although, as we have already pointed out, gardening only existed in a most primitive state until the dying years of the sixteenth century, there are various conditions and circumstances which led up to the ultimate consummation of a great factor in the social life of Englishmen. Land-tenure is a point in question. In the earlier stages of civilisation the energy of mankind had a distinctly centripetal force, a conservation of utility for a given area. The welfare of a small community, such as a village, was in the first place, sought after, rather than the advantage of the greatest number; and, in the second, one country observed the same principle in regard to another. It is to this cause that we owe certain highly interesting but now unworkable and, for the most part, obsolete rules and regulations in respect to land tenure.

The right of pre-emption in the village communities of India and Germany, for example, strikingly illustrates the jealousy with which strangers were regarded. In the former place the land was not individual but common property, and therefore one man could not, without the consent of the others, sell to a stranger whom they probably would not choose to admit into their society (Sir G. Campbell's *Modern India*, p. 94). In Germany the same principle held good with even greater vigour. Von Maurer (*Dorfverfassung*, i., 316 and 320) shows that a villager's homestead, his cattle, his fruit, grain, or all village produce, before being offered to strangers, had first to be offered to individual communists or to the commune itself. The same authority points out that traces of the old law are found in France, and even now in

Germany. According to the Customary of Bayonne, the communists (*voisins*) had a right of pre-emption over strangers ("*le voisin et habitant de la dite ville est preferé à l'estranger acheteur*"). And Hallam also speaks of the "*retrait lignayer* of the French law, which gave to the relations of the vendor a pre-emption upon the sale of any fief, and a right of subsequent redemption" (*Middle Ages*, chap. ii., part 1). A still more valuable fact is that pointed out by Professor Stubbs, to the effect that a survival of the right is still to be found in England, for the right of the markmen to determine whether a new settler should be admitted to the towsnhip exists in the form of admitting a tenant at the Court-baron and Customary Court of every manor.

THE EVOLUTION OF ALLOTMENT GARDENS.

The foregoing facts have a direct bearing upon our subject of early English horticulture, inasmuch as they relate to institutions of which allotment gardens are the direct outcome. The only difference appears to be in the different commodities grown: the vegetable produce of to-day was represented in remote ages by agricultural plants, such as corn, and also a few herbs, with, no doubt, an occasional fruit tree or two. The motives—viz., individual improvement and benefit—were the same.

Sir Henry Maine has, in his *Village Communities*, thrown much light upon archaic customs and laws. He makes some interesting references to the peculiar custom of Burgh, of Lauder, which has been described as the most archaic in form and the most complete in detail that is to be found. There are, it seems, 105 separate portions of land called Burgess Acres in the burgh of Lauder, and these vary from $1\frac{1}{2}$—$3\frac{1}{2}$ acres. To each such acre there is a separate progress of writs, and these "Acres are the private and absolute property of individuals." No one has hitherto been admitted a burgess of the burgh who has not been an owner of one of these Burgess Acres. But the curious circumstances about these allotments are the rules under which they were cultivated. The conditions are—compliance with a system of cultivation prescribed by the Town Council, and payment of a small assessment generally just sufficient to reimburse the burgh for expenses laid out in making drains, roads, &c., to enhance the value of the land for cultivation. These allotments have been called "hill parts," and the average worth is £1 per annum. There are several other points in connection with the land tenure, to which we should like to have alluded if space permitted. Like all social communities, observes Mr. Gomme (*Antiquary*, iv., 102), "the primitive village gave way during the progress of its people towards nationality and empire. It gave way in England, and we had feudal lords and manorial tenants. It gave way in Ireland, and the people are now thinking traditionally of times when they, as well as their lords, had rights in the village lands. It has given way everywhere, and rightly so, under the laws which political economy has enunciated in the shape of the highest culture being required on lands absolutely owned by capitalists and tilled by farmers. But in one portion of the history of the development of communal land-holding into personal land-holding we have evidence that the outcry against the new laws of absolute ownership resulted in a compromise with periodical redistribution." The *New Statistical Account of Scotland* affords us one or two remarkable examples as to "how private land-holding has come about, how allotments of land from the village community—first yearly—soon became extended over a number of years until, in the progress of time, the original allotment became private property, and the communities who had granted this away had dwindled down into manorial courts and parish vestries."

In addition to the authorities which we have enumerated, the appearance of Mr. Frederic Seebohm's work on the *English Village Community*, in 1883, threw a considerable amount of new light on the subject of archaic land tenure in England. Whilst Professor Freeman contends that all Roman Britain and most of Celtic Britain was swept away by the invading Teuton, and Mr Coote argues that the later Teutonic customs were the work of the Romans, Mr. Seebohm goes to the very root of the subject,—*i.e.*, to the development of land tenure—for certain inferences. He looks, for example, upon the open field system in England as the result of a servile tenure, and not as a free holding of a free villager. But even in modern times there have been numerous examples of tenure by lot. "If tenants hold land within modern times so thoroughly in common as to divide them periodically by lot, surely there is freedom enough here—there is no lord to impose his imperious will, no setting-out of close boundaries by a lawyer's means, but a meeting of villagers in the lands they call their own, and an equal division, according to their tenements, of the plots which once must have belonged to a typical village community" (*Antiquary*, viii., 206).

In Somersetshire there are two large pieces of common land called East and West Dolemoors, which are divided into single acres, each bearing a peculiar and different mark cut in the turf; one of these is a horn; others are, four oxen and a mare, two oxen and a mare, a poleaxe, a cross, a dung-fork, an oven, a duck's nest, a hand-reel, and a hare's tail. About midsummer of every year these lots are "raffled," and each particular portion is taken over by one individual for the ensuing year. Archæological research affords several examples of this singular phase of allotment gardening.

And so it will be seen from the foregoing brief and imperfect glance at a wide and by no means homogenous subject that gardening, in a certain sense, existed in times of which history has no record. Rather, perhaps, we should say, that at that time the slender root had taken a firm hold, to expand into a gigantic industry only after centuries had come and gone. The link between the small tenant of pre-historic England and the cottage-gardener of to-day is substantially continuous. As we have just said, the principle is entirely the same, even if the conditions under which that principle be carried out are as completely altered as is possible in the nature of things. *W. Roberts.*

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM PITCHERIANUM,* *n. hyb., Angl.* See fig. 10, p. 73.

WHATEVER may be the reader's opinion about Cypripedic hybrids in general, this, at all events, is a surprisingly gorgeous flower, not only excellent in colour, but also in its uncommon size. I had it from Mr. F. Sander, who states that it is a cross between Cypripedium Harrisianum superbum and C. Spicerianum, and that it was raised by Norman C. Cookson, Esq. The leaves have the shape of those of Cypripedium Harrisianum, but they appear to be shorter as a rule, light green on both sides, and above there are those dark green broken hieroglyphic markings which are usual in the venustum group. The peduncle is strong and stiff, slightly hairy, indian-purple in colour. The spathaceous ancipitous acute bract with some dark lines and numerous dark spots, are half the length of the reddish ovary. The perigone itself does full honour to the parents: it is equal in size to that of the biggest Cypripedium Spicerianum. The upper rounded apiculate sepal is differently coloured on the inside and on the outside, although the mid-line is indian-purple on both sides. Inside it has white borders and a white zone descending from the apex toward the inside of the median line, the heritage of Cypripedium Spicerianum. There are some green nerves passing from the base towards the middle, and which are partly covered by dense indian-purple spots and lines. A large area on each side is suffused with a kind of purple. The outside is very easily described. It has three transverse zones; an apicular white one, a median purple—the widest of the three, and a basilar green one. This is quite novel. The lower sepals are of course, connate, as they are elliptical acute; shorter than the lip, light green. The oblong, blunt, ciliate petals are divided by an indian-purple mid-line into an upper light purple-brown portion, only greenish at the very base, and an inferior light green portion. Numerous lines, consisting of indian-purple spots, extend from the middle to the base. The lip itself has a very blunt sac, and its anterior, prominent part is not very deep blunt horned (angled), apiculate in the middle, reddish-brown with a yellowish inferior part. The staminode has two blunt, divaricate shanks, with an obliterate apiculus in the sinus, a green gibbosity in front in the centre, with a few green, radiating lines, and the sides suffused with brownish-purple.

This very valuable novelty is dedicated to one of the most zealous Cypripedists of both hemispheres, Mr. Pitcher, Shorthill, New Jersey, U.S.A.

We may compare two recently named plants (*Gardeners' Chronicle*, October 13, 1888, p. 407). They are said to be descendants of Cypripedium Harrisianum and Spicerianum. Cypripedium Savageanum, is stated to have the dorsal sepal of the flower in form much as in Cypripedium Harrisianum. We do not recognise the second Seegerianum ×, as not the least description is given. "The opposite cross resulted in C. Seegerianum, in which, in the resemblance to the parents, the features are the opposite to C. Savageanum." Such a statement is of no use at all. *H. G. Rchb. f.* [Our illustration, fig. 10, is from the pencil of Mr. Weathers. ED.]

SCHOMBURGKIA LEPIDISSIMA, *n. sp.**

This comes very near to the stately Schomburgkia chionodora var. Kimballiana, which I received from Messrs. Kimball and Mr. Godseff. It is an importation of Mr. F. Sander, and has just flowered in Mr. Charles Dorman's celebrated collection at the Firs, Lawrie Park, Sydenham, under the management of Mr. White, who communicates the following good remarks:—"The bulbs are very strong, about 16 inches in length, and 6 inches in circumference at the base, with two broad green leaves on the top of each bulb. The bulbs are yellowish; in fact, the plant is exactly the same as Schomburgkia tibicinis. The flower-stem is 3 feet 6 inches long. The main stem has eight flowers, while two branchlets have three and four flowers. The flowers appear to me to be the same as those of Læliopsis domingensis."

The marks of distinction from S. chionodora Kimballiana and the type itself are the broad-based, not unguiculate petals, the nearly entire lip, much more wavy in front, the less distinct keels. The

* Cypripedium Pitcherianum, of W. A. Manda, is referred in Veitch's recently published monograph, to C. Argus. ED.

* *Schomburgkia lepidissima*, n. sp. — Aff. Schomburgkiæ tibicinis, florum tela bene teneriori, sepalis tepalisque obtusis minute undulatis oblongo-triangulis; sepalis obtuse acutis; labello ambitu oblongo, levissime trilobo, lobis lateralibus angulatis non conspicuis, lobo antico oblongo retusiusculo nunc emarginato, denticulato, undulato, carinis parallelibus quinis obscuris. Bletia lepidissima Rchb. f. Imp. exc. Sander. Col. in torto celeberrimo Dormaniana exc. W. White. *H. G. Rchb. f.*

flowers are smaller, and the colours are distinct. Our plant has the curious pedicels rosy, and the ovaries green. The sepals and petals are rosy-purple, ligulate, blunt-acute. The lip is pallid, whitish-rose on the upper part, rose-purple on the anterior wavy part. There are five rather obscure yellowish-white keels on the disc. The side lobes are very obscure, and there are very few sinuses before them. The column is trifid at the top, white, rosy at the back, and covered with numerous dark purple spots under the fovea and around the superior part. It is a very stately plant. It is quite a pleasure to see such a one nowadays. Major Lendy and several other orchidists have these superb Orchids in flower, which had fallen into disgrace for their not flowering. Poor things! how could they do so from miserable tiny scraps? *H. G. Rchb. f.*

Catasetum galeritum (*Rchb. f.*) pachyglossum, *n. var.*

Ah, those Cataseta! Here is one that quite agrees with Catasetum galeritum, except that the anterior lobe of the lip instead of being triangular is nearly square, exceedingly thick, and obtuse-angled, with very thick borders underneath, which leave a groove in the middle. Excepting this it is quite the same as the type in flowers. I learn that the bulb is only 2½ inches high. It was kindly sent to me by Sir Trevor Lawrence, Bart., M.P., President of the Royal Horticultural Society. *H. G. Rchb. f.*



Fig. 10.—cypripedium pitcherianum: hybrid.

HAMPTON COURT GARDENS.

(Continued from p. 738, vol. iv.)

In 1592 Frederick, Duke of Wurtemburg, visited the palace and gardens and he has left a brief description of what he saw there in his diary, which is still preserved. "The place," he says, "comprises ten different large courts and as many separate royal and princely residences, but all connected; together with many beautiful gardens, both for pleasure and ornament—some planted with nothing but Rosemary, others laid out with various other plants, which are trained, intertwined, and trained, in so wonderful a manner and in such extraordinary shapes that the like could not easily be found." He also speaks of the fountain in the fountain court as "splendid, high, and beautiful, with a waterwork by which you can, if you like, make water play upon the ladies and others who are standing by, and give them a thorough wetting."*

Six years after the Duke's visit, Hentzner visited the gardens, and he has given us a passing glance at them in his *Travels*.† Having gone over the Palace buildings and seen all that was to be seen in the Palace, he visits the gardens. "Afterwards," he says, "we were led into the gardens, which were most pleasant; here we saw Rosemary so planted and nailed to the walls as to cover them entirely, which is a method exceeding common in England."

From the end of the sixteenth century, on to the middle of the seventeenth, we learn very little about the gardens from contemporary records. The following few facts relating to the gardens during this period, however, have been gleaned.

The *State Papers* tell us‡ that, in 1604, a grant with survivorship was made to "William Hogan, Anne his wife, and Charles their child," of the Keepership of the Gardens, &c., at Hampton Court. In 1611 we find among the same Papers§ that he planted a quantity of Apricots, Pear, Plum, Cherry, and "sundry other choice fruit trees," in the "Ould orchard." In the same year the gardens were visited by Mandelso. He, however, does not describe them; he merely mentions that they were "*tres beaux et tres bien entretenus.*"

From the accession of Charles I., in 1625, to the time of the Commonwealth there is hardly a single reference to the gardens in the State records. That they were not materially altered during this time is certain, for in a Parliamentary Survey made of the palace and gardens in 1653 we find that they were then in almost the same condition as they were at the end of the sixteenth century. The Pond Garden, the Privy Garden, and the Mount Garden, on the south side of the palace, and the Old Orchard on the north side are all mentioned.

There is, however, a kitchen garden mentioned in this Survey, which does not appear to have been in existence in Queen Elizabeth's time. This kitchen garden was situated to the west of the paddock just by the Old Orchard. From a note written at the end of the Survey, it appears that the palace and gardens were ordered to be sold. An order to this effect was issued in the early days of September, 1653, but very shortly afterwards it appears to have been cancelled, for there is the following entry in the Parliamentary Journal, under date September 26, 1653:—"Order that the house, called Hampton Court, with the outhouses and gardens thereto belonging, and the little park wherein it stands be stayed until Parliament take further notice."

In 1659 another Survey‖ was made, but this does not throw any light on the gardens beyond that given in the survey of 1653.

In 1660 Dr. Robert Morison,¶ "botanical physician and chief herbalist to the King," was appointed "overseer, director, and gardener," at Hampton

* See Pye's *England as Seen by Foreigners*, p. 18.

† P. 295 of Walpole's edition.

‡ *State Papers* (domestic), Feb. 7.

§ *Ibid*, Dec. 17.

‖ See *State Papers* (Domestic), vol. cciii., 41.

¶ This Dr. Morison was the successor of the celebrated Lobel and John Parkinson.

Court, and very shortly afterwards extensive additions were made to the gardens. It was about this time that the famous semicircle or Fountain Garden was laid out on the west side of the palace.* "Upon the happy restitution of the Royal family," says Stephen Switzer, "planting began again to raise its dejected head, and in Charles II.'s reign it was that those preliminary foundations of gardening were laid that have since been raised to such a stupendous height. It is certain that the Prince, whose thoughts and expressions of all things were allowed by all to be just, did plant the large semicircle before the palace at Hampton Court in pursuance of some great design he had formed of gardening."† The accounts of expenses for laying out the Fountain Garden are not preserved, and the only information which the State records give us on the subject are two warrants which were issued by Charles II. The first of these warrants is dated December 10, 1661, and appoints a certain Adrian May‡ to be 'supervisor of the French gardeners employed at Whitehall, St. James', and Hampton Court to examine their bills, &c., and to see that they have due satisfaction."§ The second warrant‖ is dated 1662, and appoints the Lord Treasurer to give immediate order for payment to Sec. Bennett of 21,000*li.* for debts charged on the Privy Purse whilst he was Keeper, and especially for work done in the gardens at Whitehall and Hampton Court. The mention of the French gardeners in the first warrant is very interesting, for they can be no other than the famous designers of Versailles, Le Notre and Perault. Le Notre and Perault, we know, were invited over to England in 1661 by Charles II., to plant the gardens and parks of St. James' and Greenwich, and the above warrant makes it almost certain that they were employed to plant the Fountain Garden of Hampton Court also. The Fountain Garden when completed by them, however, presented a far different appearance to what it does now. In the centre of the semicircle was placed a large 'fountain with sirens, statues, &c., cast in copper by Fanelli."¶ Around this large fountain were placed twelve smaller ones, and the beds were all laid out in the French style—geometrical figures or "figures like lace patterns" set out in Box. In the design completed by Le Notre there were also more gravel walks than there are now. A general idea as to the arrangement of the beds and shrubs and paths in the Fountain Garden, as completed by Le Notre, can be obtained from an old view of Hampton Court Palace, which may be seen in a print preserved in the library of the South Kensington Museum. It will be noticed from this view that, around each of the large grass plots small conical-shaped Yew trees were planted at certain distances from one another. Many of the Yew trees still remain.

The long canal, the great avenues, and the rows of Limes are also Le Notre's work. "The park," writes Evelyn in 1662, "was formerly a flat and naked piece of ground, but it is now planted with sweet rows of Lime trees." The same author also mentions the "canal for water now near completed," and "a cradle-work of Hornbeam in the garden, which is for the perplexed twining of the trees very observable." "There is also," he continues, "a parterre, which they call Paradise, in which is a pretty banquetting-house, set over a cave or cellar." It has been thought that this cradlework of Hornbeam which Evelyn mentions is that part of the Privy Garden now known as Queen Mary's Bower. This, however, is very improbable. Queen Mary's Bower is planted on the eastern terrace of the garden. Now, this terrace, according to all accounts, was not made until William III.'s reign. In that reign, Mr. Law tells us, the Mount Garden was lowered some 10 feet, to afford a view of the Thames from the State apartments, and on either side the soil was heaped up to form the two terraces. It should be remarked also that the trees which compose Queen Mary's Bower are not Hornbeam, but Scotch Elm. It is just possible however, as Mr. Law points out, that Evelyn may refer to something similar, though not identical, which may have been destroyed when the conformation of the gardens was altered.

The gardeners of Hampton Court at this time paid special attention to the cultivation of fruits and vegetables. An entry, dated 1664, in one of the Entry Books of Charles II.,* orders that the keepers of the King's gardens and orchards at Hampton Court "supply daily the best sorts of fruit suitable for the season, and herbs for salads, &c., meet for the table of the King and Queen."

In 1666 a sum of "2000*li.* from moneys remaining of the East India prizes taken in 1665" was paid to the Keeper of the New Gardens, to be spent on the gardens of Hampton Court and Greenwich.† How this money was spent the State records do not inform us.

(To be continued.)

* Until this time (1661) it would appear that there had been only on this side of the Palace a narrow strip of garden next to the building, and fenced off from the Park by a stone balustrade.

† *Iconographia Rustica*, ed. 1718, vol. i., p. 52.

‡ May held this position till 1666.

§ *State Papers*, Charles II., vol. xlv., 32.

‖ *State Papers*, Charles II., Ent. Book 10, p. 32.

¶ Evelyn, Diary, 1662, June 9.

* Charles II. Entry Book, 16, p. 25.

† *Treasury Papers*, Charles II., vol. clxxxvii., No. 14.

Orchid Notes and Gleanings.

Lælia crawshayana.

In my note on p. 726 of the last volume I am afraid I stumbled into an error respecting this plant, in calling it a variety of L. albida. Having occasion to look into the matter again, I have returned to my former opinion, that it is a natural hybrid between L. albida and L. autumnalis. I ought not to have overlooked the acute sepals, clearly derived from the latter; but this arose from trusting to memory alone when writing the note. In size it differs little from albida, and has many of its characters in the lip. A very fine L. autumnalis I had by me looked so very different that I was misled. But I am firmly convinced that L. anceps has no share in its parentage (as was supposed), for in L. Crawshayana the very characteristic bracts of the peduncle and markings of the lip of L. anceps are totally wanting.

Cataseum Œrstedii, *Rchb. f.*

The species of this remarkable genus seems to be again coming to the front, for I have received quite a number to name within the last few months. The other day one was sent by Mr. F. W. Moore, of Glasnevin, and proved to be the above-named speces. It has much the size and general appearance of the well-known C. macrocarpum, better known under its later name of C. tridentatum; but the opening into the sac-shaped lip is different, the side lobes approaching to within a short distance of each other, leaving a narrow opening with nearly parallel sides, while the margin is beautifully ciliate. The colour of the flower is a light green, with numerous dark purple-brown blotches. The spur is bluntly conical, and the antennæ wholly included, one of them being curved round at the foot of the column, and functionless; the other curving forward, so as to come in contact with the insect directly it attempts to enter the lip. Once more we have a very remarkable species, of which the female plant is unknown.

Dendrobium Wattii, *Rchb. f.*

I am glad to see Professor Reichenbach's note on p. 725 of the last volume, because it confirms what I have always suspected with regard to this species. When Dr. Watt's original Munipore plant flowered here I compared it with all the specimens and descriptions of the nigro-hirsutæ group I could find, and failed to identify it with any of them. I therefore indicated it as an undescribed species. More recently the same plant came from Mr. J. O'Brien for determination, and when furnishing the name given in the *Botanical Magazine* I at the same time remarked its close alliance with D. virgineum, Rchb. f., and the complete absence of the very characteristic keels of D. cariniferum of the same author; which, besides other differences, precluded the possibility of its being a variety of the latter. I am, however, strongly inclined to doubt its being a hybrid between D. Jamesianum, Rchb. f., and D. flexuosum, Griff., as now suggested. I may add that I have not seen any specimen of D. virgineum, Rchb. f., and should be much obliged to any one who would send a flowering branch, or even detached flowers for preservation.

Pleurothallis immersa.

I am indebted to Mr. F. W. Moore, of Glasnevin, for a specimen of this very remarkable plant. The base of the raceme is wholly immersed in the leaf for two-thirds of the length of the latter—a character commemorated in the name. The racemes are elongated, many-flowered, the rhachis having a zig-zag arrangement, and the flowers, which are half an inch in length, are of an intense blackish-purple. The leaves are narrowly cuneate-oblong, and about 6 inches long.

Oncidium ornithorhynchum.

This is one of the most graceful and beautiful species of this large genus, and its colour quite distinct from almost every other. The habit is very compact, and the plant under a foot high, the branching panicles just overtopping the leaves. The flowers are under an inch across, and very numerous, the colour lilac-purple, with a deep yellow crest. The column-wings are large, apiculate above, and rounded below; while the rostellum is curiously like the beak of a bird, and stands just over a pair of white processes on the face of the column. A good plant is now flowering in the Kew collection.

Masdevallia pulvinaris, *Rchb. f.*

A good plant of this singular Masdevallia is now flowering in the Kew collection. The leaves are about 9 inches long, and the curiously warty peduncles reach about twice this length. The flowers are inverted, as in others of the small group to which it belongs, the odd sepal being underneath. The two lateral sepals are united, except at their apex; while between them is a large swollen pulvinnus, or cushion, to which the specific name applies. The flowers are nearly an inch long, with dusky markings on a light greenish ground.

Octomeria supra-glauca.

This curious little plant, described by me some time ago, is again flowering in the Kew collection, and has the appearance of being very floriferous. The whole plant is under 3 inches high, the leaves a little over an inch long, and the flowers about two-thirds as long as the leaves. The sepals and petals are very pale, nearly white in colour; the lip yellow, with large maroon-purple blotch. The glaucous appearance of the upper surface of the leaves, owing to the absence of chlorophyll in the upper layer of the cells, is remarkable. The plant is smaller, and the flowers larger, than in the majority of Octomerias.

Platyclinis uncata.

Few Orchids can excel the above-named little plant in its elegant and graceful appearance when well cultivated. A fine clump of it is grown in a pan at Kew, and at the present time is crowded with its pendulous racemes of very delicate, pale green flowers, which surround the plant on all sides. It is comparatively dwarf, and of compact habit, and the flowers are borne on slender peduncles, which are erect until the flowers are reached, and then bend over rather suddenly, and become quite pendulous. The delicately-coloured flowers contrast charmingly with the leaves, and the whole plant has a delicate and fountain-like appearance. It is one of those plants which is most effective when grown in good-sized masses. *R. A. Rolfe, Herbarium, Kew.*

Orchids at Studley House, Hammersmith.

In this collection there is at the present time a fine plant of Odontoglossum radiatum in vigorous health with two spikes (to one bulb), bearing thirty-eight flowers, not yet expanded. When these are fully developed, it is the gardener's intention to exhibit the plant before the Royal Horticultural Society's Floral Committee. O. hebraicum, having twenty-two flowers on a spike, is showy with its pale yellow blossoms, brown spotted and irregularly striped, twice as large as those of typical O. odoratum. The useful Cœlogyne cristata is represented by a fine batch of plants, bearing about 300 spikes of flowers, which will constitute an attractive feature when in full flower. Cypripedium Schlimii is noteworthy, as having been in flower for three months, it keeps flowering up the stem. The pouch of C. venustum pardinum is beautifully marbled. Cypripediums are well cared for here—the collection being unique. Sophronites grandiflora seems to shed quite a ray of warmth by its bright red flowers at this dull season of the year. *B.*

Orchids at Wray Park, Reigate.

In former years this garden was noted for Coleus; but since it has been under Mr. Hoad's management these plants have had to make way for choicer things. The Orchid family is now in the ascendant, and already a well grown nucleus of a collection exists, and there is little doubt that, before long, this will grow into an important collection, as their cultivation is encouraged by Mr. Hoad's employer, G. Simpson, Esq. At the time of my visit (January 4) a splendid group of Calanthes was in flower, the bulk of which consisted of the varieties C. Veitchii, C. vestita, C. v. rubra oculata, C. v. lutea oculata, and some few others less well marked. These plants possessed large flowers, and averaged about fifty to a flower-spike, and not only does Mr. Hoad know how to grow Calanthes, but he also knows how to display them to advantage. The plants stood on a four-stepped stage in the middle of the house, which was furnished with plants of Maidenhair Ferns and Begonia Rex. The Calanthes being placed between these, and the pots disguised by the Ferns, &c., the flower-spikes showed above this ground-work and looked charming. Indeed I do not remember having seen Calanthes in flower better displayed. The next best plants in flower were Odontoglossums, consisting of some fine varieties of O. crispum, O. Cervantesii, with its curious concentric marking; O. C. morada, introduced a few years ago by the Liverpool Horticultural Company—a little gem—the flowers not so large as those of the type, but the markings more defined and restricted to the sepals and petals; and the labellum having a colour which is the ground colour of the former. According to the introducers the colour is pale mauve, and it is of a very delicate shade of mauve. A small plant of O. Insleayi had a raceme of nine fine flowers; the constantly flowering O. Rossi majus was observed in quantity, many being fine varieties. A plant of O. gloriosum aureum, with a heavily branched raceme, was very good; and specimens of maculatum, O. pulchellum roseum, and O. bictonense, were numerous. Of Dendrobiums, there were in flower aureum, which was one of the most conspicuous. It had made fine vigorous bulbs, and was flowering finely; its long bulbed variety, D. phillippinense, had made strong growths last year that were quite 4 feet long. Some good examples of D. nobile were showing well for flower, as were Lycaste Skinneri, Cymbidium Lowianum, Phaius grandiflora, and several Cypripediums. Amongst the latter a nice plant of C. insigne Maulei, growing in a 9-inch pot, had more than three dozen flowers. Oncidium Forbesii grandiflora, Lælia albida, and L. anceps. were in good order. Hanging from the roof in small pans was the small but sweet-scented Oncidium cheirophorum covered profusely with flowers, as was the brilliant Sophronites grandiflora coccinea, little masses of which in 5-inch pans, were very effective. It has often been said by Orchid growers that, where the sphagnum about the plants grows well, so also do the plants. That there is great deal of truth in this goes without saying, and in the case of the Sophronitis, the sphagnum was evidently quite as much at home as the Orchid. *F. R.*

CHISWICK.

The following particulars are extracted from the schedule of the Royal Horticultural Society for 1889, just issued, and tend to explain what are the aims of the Society:—

The Council being desirous of making the Society's Gardens at Chiswick (as far as the funds at its command will allow) a school of scientific and practical horticulture, "ornamental as well as useful," and of increased value and interest to the Fellows, has devoted its careful attention to the present condition of the gardens, and to a scheme for their future better utilisation. It is of opinion that such a garden should be devoted (1) to the cultivation of such fruits, vegetables, and decorative plants and flowers, as it may seem expedient to draw the particular attention of the Fellows to at the moment, and varying from time to time; (2), to the trial of new sorts side by side with established varieties; (3), to such experiments in the culture and treatment of plants as have a gardening as distinguished from a merely scientific value and interest. To these may be added (4) the trial of horticultural appliances and materials. And it is evident that these trials and experiments, and the experience gained, are of comparatively little general interest, value, or use, unless they can be periodically and regularly published for the direct information of the Fellows. With this purpose in view, the Council proposes to at once recommence the publication of the *Journal* of the Society's Transactions.

The cultivation, trial, &c., of fruits must always be of the utmost importance, and happily forms one of the most valuable features of the Gardens at present. There is a good collection of the best varieties of fruits, and it is intended to maintain this and extend it by the trial of such novelties as the raisers may be good enough to bestow on the Society. A list of the varieties of the different fruits already in the Gardens will be published in an early number of the *Journal*, in order to avoid duplicates being sent, and to enable Fellows to send fruit for comparison and verification of name, &c.

The Grapes in the great conservatory and in house No. 12 afford at all seasons ready examples of, and instruction in, successful Grape culture, which might be of service to many of the Fellows. House No. 13 is to be planted with Muscats, and will be similarly useful and instructive. House No. 15 is to be devoted to the high-flavoured but greatly neglected Frontignan Grapes, in the hope of directing attention to these most delicious though somewhat small-berried fruits.

It is proposed that one of the houses should be furnished with fruit trees in pots, as their culture would be extremely interesting to many Fellows, and experiments in treatment are more readily carried on with pot plants.

The different methods or systems of pruning and training fruit trees will be illustrated to the fullest extent, and experiments made in grafting on various kinds of stocks, and the results carefully observed.

A collection of standard and typical varieties of different vegetables will be grown (as far as space permits) for comparison with new varieties, and both to assist the committee in recommending their awards, and for the general information of the Fellows. Besides this general collection, specially exhaustive trials of certain classes of vegetables will be made every few years in rotation, and descriptive reports given. The special classes proposed for 1889 are Broccoli, Cauliflower, Brussels Sprouts, Broad Beans, and Gourds. The production of winter and early salading will also be illustrated as being considered a subject that does not at present receive sufficient attention in many English gardens.

The Floral department will include all plants and flowers of a distinctly decorative garden character, whether for cultivation under glass or out-of-doors. A few classes only can be illustrated each year. For 1889 it is proposed to take Gloxinias, Pelargoniums (show, fancy, and decorative), and Chrysanthemums; the most decorative varieties of Ferns, hardy and exotic, with a view to a Fern Conference in 1890; Dahlias, Cannas, summer Chrysanthemums, hardy herbaceous plants, alpines, Carnations and Pinks, with a view to a Carnation trial in 1890. A very fine collection of herbaceous Pæonies is also in process of being made, and will, it is hoped, in 1890—91 be an object of great interest and instruction. It is also proposed to show the utility of annuals for inexpensive garden decoration by illustrating with a few classes the varied effects of autumn sowing for spring flowering, and spring sowing for autumn blooming.

As opportunity offers, experiments will be conducted with, and trial made of, all sorts of articles and appliances used in the management or work of a garden—*e.g.*, manures (see below), insecticides, mowing-machines, garden tools, systems of glazing, ventilating, heating, &c., and reports will be published thereon.

The condition of the glasshouse is one which the Council deplores, but which the funds at its command give at present no means of remedying; it is hoped, however, that a large influx of new Fellows may before long enable it to make great improvements; indeed, it is evident that without a considerable increase in the Society's income, only a comparatively small part of this programme can be accomplished.

The officials of the Society will give any information, and render every assistance in their power to all Fellows. Any one wishing to study any particular branch of the gardening operations, or to make any special observations of different subjects, should make direct application to Mr. Barron, the Society's Superintendent at Chiswick, or to the Honorary Secretary.

Gifts of fruit trees, plants, seeds, appliances, &c., will at all times be welcomed, and will be duly acknowledged in the Society's *Journal*.

Experimental Trial of Artificial Manures.

A trial of artificial manures having been frequently proposed as likely to prove of great public utility, and it appearing that such a trial might be suitably instituted in the Society's Gardens, the Council has set apart a plot of ground for the purpose in the year 1889, subject to the following conditions and regulations:—

The ground selected is an open situation, the soil is a firm garden loam, quite free from recent manure, and has been under Strawberries for the past three years. It is of equal texture and quality throughout.

For the purpose of the manure trial, it will be divided by a walk down the centre, on one side of which certain selected crops will be grown by the aid of the manures entered for trial, and on the other side, crops of precisely the same kinds will be grown without manure, for comparison of results.

For each manure to be tried, a breadth of 10 feet with a run of 45 feet (including manured and unmanured plots), will be apportioned, and each plot will be treated in precisely the same manner as to crops selected, dates of planting and harvesting, and general cultivation; in fact, every detail will be so ordered as to ensure the most perfect uniformity of treatment and conditions.

The breadth of 10 feet will be lined out for three rows of plants, to consist of one row of one kind of Cabbage, one row of one kind of Red Celery, and one row of one kind of Turnips.

The several manures having been distinctly specified in the terms of entry, will be purchased for the purpose by the Society's agent in the open market, for and at the expense of the Society. The seeds or plants required will also be obtained at the expense of the Society, and the same stocks will be employed throughout.

On the maturation of the several crops, a critical examination will be made, and this will be completed by a register of the total weights of the produce of

each row, distinguishing in respect of weight, &c., the produce of the half row grown with the manure, and the corresponding half row grown without. The results will be made public as soon as possible after the completion of the trials.

The entire management of the trials will be in the hands of the Society, and will be subject to the supervision of the Chiswick Gardens Committee.

In order to cover the expenses attending these trials, every entry of a manure must be accompanied with a payment to the Society of the sum of £10, such payment being requisite to complete the entry.

Every entry must be accompanied with a statement on the authority of a known analytical chemist of the constitution or chemical analysis of the manure to be tried. The mode and manufacture and materials employed need not be stated, but the chemical composition is a matter of importance.

No trial will take place unless there be at least six entries of different manures.

Applications for places in the trial should be made without delay to Mr. A. F. Barron at the Society's Gardens, Chiswick.

No interference of any kind with any detail of these trials will be permitted, except under the advice and sanction of the Chiswick Garden Committee.

POPULAR AFTERNOON MEETINGS AND LECTURES.

The Council is of opinion that it is very desirable to re-establish the Afternoon Meetings of Fellows, for the discussion of subjects bearing upon the special exhibits of each day, as well as on Horticulture generally. In order to have a suitable subject to which to direct the attention of Fellows, and to lead to useful and definite results, a programme will as far as possible be prepared beforehand for each day and some one specially associated with the subject in hand will be invited to open the proceedings.

These popular lectures will therefore be commenced on March 12, when Mr. J. G. Baker, F.R.S., has been asked to read a short paper on Saxifrages, which will then be in flower, and which belong to the herbaceous department of gardening, which is becoming increasingly popular. On March 26, Herr Krelage, of Haarlem, or some other prominent grower, will be asked to speak upon Hyacinths. On April 9, Mr. Burbidge, F.L.S., of Trinity College Botanic Gardens, Dublin, will be invited to open a discussion on Narcissus. On April 23, the Rev. F. D. Horner will read a paper on "The Auricula," and Mr. J. T. D. Llewelyn on "Primula Species." On May 14, Prof. Michael Foster, Sec. R.S., will be asked to draw attention to Irises, which should then be in bloom. On June 11, Mr. Harry J. Veitch, F.L.S., will treat about Orchids. On July 23, Mr. Shirley Hibberd will read a paper on "The Origin of the Florists' Carnation."

The subjects and names mentioned are merely provisional, and are given only as an illustration of what is hoped to be done at all these popular meetings, by means of which attention will be drawn to the work of the Society, and the sympathy and co-operation of the Fellows enlisted. The papers read at these meetings, and the discussion that takes place will, as far as possible, be printed in the Society's *Journal* for the information of Fellows unable to be present.

AGAVE CANDELABRUM.

AT fig. 11 there is given an engraving of a very handsome Agave which flowered this autumn in the garden of Mr. Willmore, of Florence Terrace, Falmouth. Speecimens of the plant, as well as excellent photographs, were forwarded to Kew by Mr. R. V. Sherring, F.L.S., to whom also I am indebted for particulars respecting this species, which probably has flowered for the first time in the open air in this country. Mr. Willmore is able to trace the fact that the plant was originally brought from Tivoli in 1865 by Dr. Tuke, and it has grown vigorously ever since at Falmouth in the open ground, at an elevation of about 150 feet above the level of the sea.

Mr. Baker is of opinion that the species is Agave candelabrum of Todaro. It is figured by the latter author *Hort. Bot. Panorm.* (Palermo), i., 66, t. 15. Doubtless the plant is more or less abundant in Italy.

In his recent monograph of the "Amaryllideæ," p. 181, Mr. Baker has reduced Agave candelabrum to Agave rigida, Mill. This latter is the well-known plant which in several more or less distinct varieties yields the Sisal Hemp of commerce. A. candelabrum may be looked upon as a large and remarkably well-grown A. rigida. The plant here figured had leaves 4—6 feet long, and a flowering-stem about 23 feet in height. The lateral flowering branches were a foot long, with heavy clusters of bright orange flowers. It is a somewhat singular coincidence that at the beginning of the year a photograph of the same species was forwarded to Kew by General Galloway, taken from a handsome specimen which flowered at Government House, Bermuda. The species is, no doubt, capable of bearing a moderate degree of cold, and it might very well be cultivated in this country in place of, or side by side with, the common Agave americana. It is a larger and more majestic plant than the latter, and it appears to be more ornamental in flower. *D. Morris, Assistant-Director, Royal Gardens, Kew.*

FLORISTS' FLOWERS.

THE AMARYLLIS.

THE early days in the new year find us full of work amongst the florists' flowers. On Monday, the 7th, I started to repot a collection of about 1200 plants of Amaryllis. This is rather tedious work, as every bulb has to be examined, in order to see that no decayed portion is left to spread and cause the death of the bulb at a time when life and beauty are expected, and to make sure that no insect pests have made for themselves a home under the scaly covering round the crowns. This is removed, and the part dusted with tobacco-powder. We also require at hand a small portion of powdered lime, newly slaked, to dust on to the portion from which decay has been removed. I find all this makes potting rather tedious work, but it is best to do it thoroughly as you proceed. The Amaryllis grower who cultivates a collection of the very best hybrid varieties will soon find out that some have a vigorous constitution and seldom get out of condition, whilst with others it is a struggle for existence from the first; and here comes in a different course of treatment.

The vigorous varieties require pots of 8 inches diameter, inside measure; and the weaker sorts will seldom require them larger than 5 or 6 inches. Some of the varieties possessing the most chaste and lovely colours, with handsome form, and substance of petal, are amongst the weakly or medium constitutioned varieties; besides requiring smaller pots, these last also do better with a more sandy soil. The flower pots should be washed perfectly clean inside, and when the bulbs are turned out of the pots in which they have lived for twelvemonths the dry soil ought to be shaken from the roots; and all those which are decayed must be removed. There is always a portion of decay at the base of the bulbs, composed mostly of roots, which decay in the course of nature, leaving only a margin of live roots. I plant the bulbs on a base of dry, clean sand, and push a little more of it round the bulbs with the fingers. The potting compost must be worked in amongst the roots; the whole to be pressed in firmly with the fingers. I once inquired of a good grower what was the nature of the potting soil he used, and received for answer, that "He used anything he could get hold of." This off-handed way of treating the plants is not the way to win the highest position at exhibitions. I am careful to mix up good soil, using three barrow-loads of good loam, one of fibrous peat, one of leaf-mould, one of sand, and a good sprinkling of pounded charcoal. This is of a medium degree of moisture, as I do not care to give any water for a month after potting; if water is applied to the roots before they have made considerable growth the probabilities are that many of them will decay. The newly potted plants should be plunged in tan, with a bottom-heat of 85° or 90°, but the minimum temperature of the house need not be more than 50° at first.

THE CHRYSANTHEMUM.

Many persons do not take sufficient pains in propagating their plants or in growing them well in the early months of the year. Now, it is quite plain that unless we lay a good foundation to start with, we have nothing on which to build a good plant. I would not limit to any given week or month the time of putting in the cuttings, but what it is desirable to insist upon is the importance of keeping the plants quite free from greenfly by fumigating them when under glass, and by other means, such as ample ventilation and placing the plants near the glass roof to keep them growing steadily without any check, and when the time comes to place them out-of doors they should be so well inured to the weather by previous exposure that they will not be sensitive to the change.

The plants intended to form specimens should be grown the longest under glass, as a plant grown from a cutting and trained to a single stem, which must be seen distinctly above the surface-soil of the pot, cannot be too large. I have counted on some of our Pompons 1400 flowers open at one time, whereas it is difficult to get forty good blooms on a large-flowered incurved variety trained in the same way. The plan is to get a two-year-old plant of the incurved section, with four or five good shoots starting from the old stem, the lower one 2 or 3 inches from the ground. In all cases let the soil used be of good quality, and the plants must be repotted into larger sizes before the roots become too much matted together; and here arises the question of repotting the plants into their flowering pots at once, or into several in succession. I decidedly approve of small shifts, as it is termed—at least for specimen plants.

The method of procedure is this:—The cuttings are struck in small 60-sized pots, and they need not be potted again until they are fairly well rooted. The next shift would be into a 5-inch pot, then into a 7-inch, from that size into a 9-inch, and lastly into an 11-inch, to flower. The 9-inch pots are the largest we use for pompons. I am alluding now to the production of specimen plants either for conservatory decoration or for exhibition. The repotting of course must be done in a careful manner, so that the plants do not receive the least check. The potting soil must be good. Three parts good loam, one leaf-mould, one decayed manure, some pounded oyster-shells—say, a 9-inch potful to each barrowload of the compost—and the same quantity of bone-dust, or half-inch bones. This compost should be mixed up now and be laid up on a heap in a place where it can be protected from too much wet. Plants intended to be grown for the production of large blooms should be potted from the small cutting pots into 5-inch pots, and the next shift ought to be into the pots in which they are to flower.

THE GLADIOLUS.

January is not a month in which much can be done with these. The corms are stored in a room where frost cannot intrude, but where there is not much dry heat. I remember seeing a collection entirely destroyed during a severe winter. Each variety was placed by itself in a flower-pot, and placed over one of the hot-water boilers in a shed. The heat from the bricks felt warm to the hand at ordinary times, but having to heat excessively owing to the severe frost, it was too much for the poor bulbs, and everyone of them was reduced to a white powder, although the outer covering seemed all right. It is well to have a succession of bloom, and this can be obtained by looking over the bulbs now; and making a selection of the early flowering varieties, taking those bulbs that have started into growth. Prepare some moderately rich sandy soil, and plant each bulb in the centre of a 5-inch pot, with about an inch of soil over their crowns.

The pots may be placed in a greenhouse or plunged over the rims in cocoa-fibre refuse in a cold frame. The corms are not very tender; and will live in the open ground all through the winter. I used to grow large numbers on a large quarter in the kitchen garden and the soil became excessively wet, owing to the plants being freely watered in the autumn; usually a number of bulbs would be left in the ground all the winter, and they would come up quite strongly the following season among the ordinary garden crops. I allude to the seedlings of gandavensis. The importance of raising seedlings from hybridised flowers has often been alluded to. The small one-year old corms of these should be kept in dry sand during the winter, but they wake up early in the spring, and must be planted as soon as the weather permits. The corms are very small—from the size of a Pea to that of a Hazel-nut; but even the small ones will produce a good spike of flowers. The first batch of seedlings I had (about 500) were planted the first week in February, and although sharp frosts set in after they were planted, they took no apparent harm, but flowered well in the autumn, and amongst them was my first certificated variety, John Standish. It was figured in the *Florist and Pomologist*, but did not come to much afterwards. Mr. Standish had the bulb with its offsets, but he lost it in some way. It is interesting to watch the development of the seedlings from the best varieties. *J. Douglas.*



Fig. 11.—Agave candelabrum at Falmouth. (see p. 76.)

NOTES FROM GUNNERSBURY PARK.

It goes without saying that the visitor to Gunnersbury can always find something of considerable interest to engage his attention, as Mr. Roberts grows a large variety of plants, and grows them well, too. In the stove-house I was much interested in a plant of Ixora in the collection on which Mr. Roberts depends so largely for cut flowers during the summer and early autumn months, that had been potted entirely in Wood & Co.'s fertilising moss, and on Mr. Roberts turning it out of the pot it was seen to be a perfect ball of roots, and the plant had grown with great luxuriance. As a matter of course it would be too expensive to pot wholly in fertilising moss, but that it is very helpful to all soft-wooded plants there can be no doubt; to use Mr. Roberts expression, "they grow in it like weeds." Begonia insignis is worth noting as a good winter-flowering variety, the colour of the blossoms delicate pink. Here were a number of pots of cuttings of the pretty basket-grass, Panicum variegatum; a number are put into 60 and 48-sized pots, and they are simply potted on without being disturbed, and in this way the pots are quickly furnished with foliage.

In the East Indian Orchid-house there is a fine lot of young plants of Vanda teres; Mr. Roberts is working up a large stock of it, and seems to be very fortunate in propagating it. The pots are half filled with crocks, and the cuttings or rooted pieces are all planted in moss. In the act of propagating the plants are cut up into pieces about 3 inches in length; and they do not appear to fail to grow. Mr. Roberts is growing this fine species largely planted out, and intends to fill two or three more pits with it in the spring.

Some very fine specimen Eucharis amazonica are to be seen in one of the span-roofed stoves; there are about nine fine specimens in No. 4 pots, and they have altogether about 150 flower stems. They are occasionally fed with a little liquid manure; and some top-dressing, in which soot plays an important part, is occasionally given. The plants are re-potted about once in six years.

Cypripedium insigne is a charming feature, and it stands so well both upon the plants and in a cut state. Mr. Roberts always relies upon it for coming into bloom at this season of the year, and it will stand a good deal of rough treatment. C. Spicerianum and C. venustum, the latter with handsome blotched foliage, are also in bloom.

A house of Epacrises—good-sized plants in full flower—is found very useful indeed for cutting from. They are good-sized plants, and as they are cut-in hard for bloom, but little cutting-back is required when they have gone out of bloom; they are then placed in a house in which fruit-forcing is commencing, and continually potted as required; but repotting is not done every year. Among the sorts grown are varieties of Hyacinthiflora, Sunset, Alba-odorata—a late white-flowering variety, Lady Panmure, Vesta, Delicata, Fireball—rich in colour, Tricolor, Devoniana, carminata, Ardentissima, Exoniensis, a long-tubed deep-coloured variety; rosea compacta, Princess Royal, pictum, Mrs. Storey, &c. As the plants keep in bloom three months they are invaluable for cut flowers. In this house is Erica hyemalis grandiflora, the flowers larger than the type, and a vigorous grower. There is also a good batch of finely grown plants of E. hyemalis laden with spikes of bloom.

As a winter flowering double zonal Pelargonium F. V. Raspail is a great favourite with Mr. Roberts. In his opinion it surpasses all the double zonals for this particular purpose, and he is working up a good stock of it. In a warm pit there is a good batch of the old double white Primula sinensis, well grown and bloomed; and the pale salmon-rose coloured Lord Beaconsfield, one of Mr. Gilbert's new varieties. But the old double white still holds its own for freedom of flower and general usefulness.

In the Rose-house, where there are some fine bushes of Camellias planted out, and where they are in full flower, is a very fine form of the double white, which appears to be a perfect white Camellia. But the feature of the house is a large bush of Daphne indica rubra planted out; it is of large size, and laden with trusses of flowers which fill the house with a most delightful perfume. Double Azalea Pauline Marden deserves to be noticed for its handsome flowers of a charming shade of pale soft rose; it is one of those varieties that stands well, and is a first-rate early flower. A. narcissiflora is seen covered with its pure white blossoms. A. Borsig is also a very useful semi-double white variety, but the gem among white Azaleas appears to be the white form of Roi Leopold; it is a fine form like its type, and a capital forcer. The old A. amœna is seen here in large bushes, blooming finely and abundantly.

In the cool Orchid-house there are a large number of forms of Odontoglossum Alexandræ, some of which are throwing up strong flower-spikes, and the plants are in very fine condition. They are standing on inverted flower-pots, placed in a bed of cocoa-fibre, and the base of the pots in which the plants are growing are about an inch above the fibre. Mr. Roberts appears to be a great believer in the advantage to be derived from standing Orchids over a bed of fibre. *R. D.*

THE FRENCH VANILLA TRADE.

BORDEAUX, which is one of the principal centres of the Vanilla trade, imports, it is stated, over 50,000 lb. annually. Most of the Vanilla imported comes from the French colony of Réunion, where the culture is of comparatively recent date. The annual exports from that island previous to 1845 amounted to only 6 or 8 kilos per annum, while the total exports from the French colonies of Réunion, Mayotti, Tahiti, St. Marie, Madagascar, and Guadaloupe for 1880 were 78,243 kilos, and in 1886, 180,671 kilos. By the local dealers Vanilla is classified into four qualities; the pods of the first or *primiera* measure from 7 to 9 inches long; they possess the characteristic perfume in a greater degree than the other sorts. The Vanilla vine, it is stated, is at times covered with efflorescence of a silvery brilliance, producing a crystallisation similar to that found in the pod, and which in good specimens covers the outside of the pod. This is called Vanilla vine, and is in great demand in the Bordeaux market.

Two different methods prevail for preparing the pods for market, which are described as follows:—The first consists of harvesting the capsules after they have lost their green tint. Woollen sheets are spread upon the ground, and when thoroughly heated by the sun the pods are spread upon the sheets and exposed to the sun for a certain period they are then put into boxes, covered by a cloth and exposed to the sun. The fruit should assume a coffee colour in twelve or fifteen hours after this last exposure. If this colour is not obtained, the Vanilla is again submitted to the heat of the sun. This process occupies about two months, at the expiration of which the Vanilla is packed in tin boxes containing about fifty pods each, and securely packed.

The second process consists of tying together about a thousand pods and plunging them into boiling-water to bleach them, after which they are exposed to the sun for several hours and then coated with oil or wrapped in oiled cotton to prevent the pod from bursting. During the drying the pod exudes a sticky liquid, the flow of which is promoted by gentle pressure of the pods two or three times a day. In the course of preparation for market the capsule loses about one quarter its original size.

Regarding the trade in Vanilla in the London market for the week ending November 3 last, it is stated that the latest mail reports from Mauritius estimate that the outturn of the coming crop in that island will be a small one, and will probably not exceed 34,000 lb.

The present market price in London for Vanilla is very good, ranging from 8*s.* per pound for common, to 23*s.* for fine sorts.

DATURA ARBOREA.

[SEE SUPPLEMENTARY SHEET.]

DATURAS have long been in cultivation in our gardens, and were formerly found in every garden of any pretensions. In garden parlance the annual species go under the name of Datura, and those of shrubby habit under that of Brugmansia; but both are now included in the *Genera Plantarum* under Datura. The best known shrubby species are:—D. sanguinea, D. suaveolens, D. Knightii, and D. arborea. All of these make imposing plants when planted out in cool conservatories in plenty of moderately rich free soil, and they can be brought into a flowering condition in a few seasons by restricting their root-run; but the best way to grow the plants in houses of moderate dimensions is by putting them into pots or tubs, and shifting into larger sizes as they seem to need more space for the roots. These plants, when of large size, if in tubs or pots, can be effectively made use of in the grounds around the dwelling, sheltered nooks and angles with a warm aspect suiting them admirably. The plants shown in our Supplement in this issue were grown at Knight's Hill, the residence of T. H. Maudsley, Esq., West Norwood, Surrey, by Mr. Noble, the gardener, whose remarks concerning the house they grew in and his method of treating them are as follows:—

The house from which the photograph was taken is 46 feet long by 26 feet, and has a bed in the middle of 35 feet by 14 feet, and 6 feet deep. On the bottom is laid 2 feet of rough rubble for drainage, over this is placed a mass of good turfy loam, to which one-fifth well rotted manure and the same quantity of sifted burnt ballast is added, for the purpose of keeping it open and porous.

The Daturas were raised from cuttings taken in March, 1887, and grown in pots till planted out in March, 1888. There are sixteen plants in all in the bed, and at the time the photograph was taken (August 14) 200 blooms were fully expanded on each plant. The perfume when the doors of the house were open attracted the attention of persons 50 yards distant. The flowers of D. arborea are white, the corolla 7—8 inches in length; leaves elliptic oblong, and covered with a white powdery pubescence, as are also the young shoots and petioles.

It may be mentioned that the rest of the bed is filled with various species of plants, as Begonias, Fuchsias, Agapanthus, Abutilons, double-flowered Pelargoniums, Ferns, Ficus elastica, Acacias, &c. The border round the house is 2 feet in width, and is planted with greenhouse plants in variety.

PLANTS AND THEIR CULTURE.

SEASONABLE HINTS.—Winter-flowering Begonias that are past their best should be placed in a cooler house, only keeping a sufficient number for stock, old unsightly plants being discarded. Poinsettias that have lost their brightness should now be laid on their sides in a dry place to rest till required again to supply cuttings for propagation.

Allamandas and Bougainvillea glabra which are in pots, and have been at rest since the autumn, should, if now showing signs of growth, and they are wanted to flower early in the summer, be pruned back, all weak wood cut away, but retaining the stronger growths to produce flowering shoots for this season. Turn them out of their pots, and shake off a large portion of the old soil, and if the plants are old cut back the large thick roots somewhat, placing the root masses in a tub of warm water for an hour or two till thoroughly saturated, afterwards allowing them to drain; repot in good loam, not too finely broken up, and which contains a liberal proportion of decayed dry cow-dung, a little coarse silver-sand, and a small quantity of bone-dust. The soil for Allamandas should be rammed firmly, so as to induce firm, short-jointed flowering wood. Give them a temperature of 70°, and syringe daily once or twice according to the weather.

Clerodendron Balfourianum should also be started into growth if required to bloom early; and if large specimens are desired and the plants are vigorous they may have a liberal shift, in repotting great care being taken not to disturb the roots, only removing the drainage. A lighter compost than that employed for Allamandas will suit them, if some rough fibrous peat and a few small lumps of charcoal be added. Train the plants as may be desired, and place them near the light at the coolest end of the stove; syringe frequently in bright weather, and water sparingly for a time.

Ixoras.—A few plants should be pruned for early bloom, and placed in a warm pit where a higher temperature can be given than the stove admits of. When repotting use rough fibrous peat, a small quantity of loam, and plenty of sharp clean silver-sand. A plant or two of Dipladenia should be started at the same time, and find a place in the same pit, the shoots being trained along the roof. A mild bottom-heat should be afforded the plants, to encourage free growth. Plants that have begun to push their buds may be repotted, using for them the compost recommended for Ixoras. *G. Wythes, Sion House, Middlesex.*

THE FLOWER GARDEN.

WORK TO BE DONE:—*Begonias (tuberous).*—As bedding plants these have of late come to the front, being suited alike for a warm or cold season. They were equally good with us last wintry summer as they were during the tropical summer of 1887. It is a pity they are not hardier. They totally collapsed on the morning of October 2, when we registered 9° of frost. However, we do not frequently get such severity so early, and I would advocate their being used as bedding plants. One-year old tubers produced the finest display; it is hard to assign a reason why this should happen, unless, as I surmise, our case is exceptional, as the oldest tubers had been grown for a year or more in pots, and were planted out into the beds from pots, whereas the younger tubers were started in a frame, and transplanted direct to the flower beds, with such a large mass of soil adhering to the roots, that they could hardly have felt the removal. By sowing at once in heat, and growing the plants on continuously in an intermediate temperature, moderate-sized plants can be had for planting out at the end of May: but to avoid disappointment those who are intending to use them as bedding plants for the first time should procure one-year old tubers. Plant them in boxes or in frames in a soil of a light fibrous nature, containing a free admixture of leaf-soil or cocoa-nut fibre; do not force growth, a mass of roots rather than great top growth being of greater importance at planting-out time. Both seeds and tubers can now be bought at a cheap rate true to colour, the most effective colours for massing being scarlet, rose, and orange or apricot.

Subtropical Bedding.—This is not nearly so formidable an undertaking as many suppose from having seen the examples of it in the parks of London, notably Battersea Park, where it was first practised, and where grand Palms, Ferns, Musas, and find-foliaged stove plants were used *ad libitum* and regardless of expense. This mode of planting the beds as well as the varieties of plants employed, has now however been very much modified, and that for the better, because we gardeners are such copyists, and the attempts made at forming "little Batterseas" (without the assistance of the nation's purse) was such a complete failure as to cause bedding-out after this fashion to be generally condemned. However, quite as good lessons are learnt from failure as from successes, and the Battersea examples, though generally prohibitive on the ground of expense, led up to, in fact, gave us the idea of using fine and graceful foliage plants of a hardier nature than were there used, and that, too, with little or no loss, either of the picturesque or beautiful, whilst the gain in regard to housing of plants lessened the anxiety to injury by cold and storms; add to these advantages, the possibility of every garden of any extent, that has the appliances for raising seeds having a first-rate subtropical bed or beds, at the price of a few shillings for seeds, and it will be seen, as at the commencement of this note was remarked, that subtropical bedding is not the

formidable affair it is often pictured. As it is now time that hardy plants which can be made available for this kind of display should be planted, I name such as have served us well here, viz., Acacia pseudo-Acacia, Ailantus glandulosus, Acer Negundo variegata, A. japonica, Aralia Sieboldii (hardy in most places), Arundo conspicua (nearly always in flower), Bambusa Metake, Prunus Pissardii, Rhus cotinus, R. glabra, and Yucca recurva. These constitute the entire list of hardy trees, shrubs, and grasses, we have used, and that with excellent effect. There are a few hardy herbaceous perennials that being of dwarf habit are suitable for undergrowths to some of the deciduous trees, as also as edging plants for large beds. All the Funkias, with their massive foliage and dwarf habit are excellent for the latter purpose, as are the Acanthuses and these also are the perfection of plants for massing or grouping on turf. Anchusa italica is a grand plant for use as undergrowth to Acacia lophantha, and its free-flowering propensity renders it equally suitable for the flower garden proper. Bocconia cordata, growing to a height of 6 feet, and its panicles of graceful blossoms towering still higher, makes a fine central figure for a bed. I know of no plant that so greatly resents removal and therefore, the spot where it is to be planted should be well prepared, and be ever after left alone; the plant will take care of itself. Ferula gigantea, is one of the most graceful of plants, and, like the preceding, impatient of transplantation. We had plants of it last year 7 feet high, and already it is throwing up shoots of immense strength, so that the dimensions of last year are likely to be exceeded. Subtropical plants that are easily raised from seeds are numerous, but I shall name only such as give the least trouble, and are the most effective for the longest period, viz., Acacia lophantha, a graceful Fern-like plant, as easy to raise from seed as it is handsome to look at, and stands all weathers—frost excepted—without injury; sow at once in a bottom-heat of 70°. Cannabis gigantea (Hemp), a very rapid growing plant; in a kindly growing season attaining a height of 8 feet with a proportionate spread of its graceful branches. This should not be sown before the end of February, it being such a free rooter the plants would get pot-bound, and stunted before planting out time if sown earlier. Eucalyptus globulus (Blue Gum Tree).—At one time this promised to make a timber tree; some plants here flourished for six years, but the winter of two years ago killed them to the ground-line, so that in future it will only do to treat it as an annual. The colour of its foliage—a bluish-grey—and the freedom of its growth makes it a desirable subject for the subtropical garden. Last summer we used it as a setting for a mass of Solanum robustum, and the effect was most telling. Sow at once in heat. Grevillea robusta is of rather slow growth, and therefore it is desirable that the plants be at least a year old before they are used for bedding. The second season they may be expected to grow 1 yard or even more in height, and are most suitable for planting in conjunction with plants of a broad leaved type, such as Cannas, with which they harmonise perfectly when arranged as an encircling or boundary line. Nicotiana (Tobacco).—The varieties affinis, night smelling, and Wigandoides, the gigantic growing kind, are all that need be grown. These also being of rapid growth ought not to be sown before the end of next month. Ricinus (Castor-oil).—The varieties africanus, Gibsoni, and sanguineus, are all that need be grown for even the largest garden, and these also ought not to be sown till the end of February or the beginning of March. The Solanums complete the list. The varieties marginatum, pyracanthum, and robustum are all of slow growth, and should therefore be sown in bottom-heat at once. The varieties giganteum, and laciniatum grow freely and to an immense size, and for reasons previously given the sowing of these should also be postponed for another month. There are many other plants that are, no doubt, equal to those I have named for the production of sub-tropical effects, but, having had little or no personal experience of them, is sufficient reason for their not being included in my list. *W. Wildsmith, Hechfield Gardens, Winchfield.*

Fruits Under Glass.

Strawberries.—Plants in proportion to the number forced should be put into heat fortnightly. Peach-houses and vineries with a temperature of 45° to 50° suit them admirably when first started. Wash the pots, remove decayed leaves carefully, and dip the plants in tobacco-water solution if any greenfly are visible, and dust over with flowers of sulphur if red-spider be present, with a label removing any mossy or loose soil from the surface, and top-dressing with loam mixed with a little of Thomson's manure; make the new soil quite firm. See that plants on elevated shelves do not suffer from drought. Those plants which are in bloom keep at a temperature of 50° to 55° by night, and use the camel's hair pencil on bright sunny days to distribute the pollen over weak blooms and shy setters; when set and beginning to swell raise the temperature to 60° to 65° by night, and by sun-heat to 75° by day. Although Strawberries have to be grown mostly in forcing-houses, and in all positions in these, they will not do in a draught, and when placed on a shelf in a vinery against the roof close to the top ventilation I have seen them fail completely; at the same time, others at a yard lower, and nearer to the front of the house, were as fine as one could wish to see. La Grosse Sucreé, Vicomtesse Hericaut de Thury, with President for the main crop, are good forcers. It is singular that at Rangemore we cannot grow Sir Joseph Paxton, Keens' Seedling, or British Queen; the plants go blind, and gradually die out.

Physalis edulis is a plant not usually grown, but it gives variety to a dessert, and is a very accommodating plant. A few seeds or cuttings grown on can be made to occupy any spare place in a forcing-house, and they will do either in pots or planted out in restricted spaces; it will do on a back wall or on a trellis in a Peach-house, although it may there be much shaded. It is a very pleasant fruit to eat after a little acquaintance. *W. Bennett, Rangemore.*

The Hardy Fruit Garden.

Prospective Work: Pruning and Nailing Apricots.—This work, if not already finished, should be attended to now. We generally commence with these in the second week of January or about that time. The buds are more forward this season than they usually are; but as yet not too forward to take harm. In the first place, before commencing to prune and nail the trees cover the border with some long straw litter, or use strong planks for treading upon, as this not only prevents the border from being trodden into a sticky paste, but is much more comfortable to the feet. If pinching and pruning were well attended to during the summer months very little will now be required. Several of the last year's shoots, especially those on young trees, have not, by all appearance, ripened well; therefore it will be necessary to shorten these back to where the wood seems to be ripe and hard. Spur in to a couple of buds all foreright shoots, and shorten back weaker growth intended to be nailed to the wall to one-third. Strong fruitful growths should be laid in at intervals all over the trees, as it is from these that the finest fruits are produced, sometimes the first year, but generally the second, and those reserved at the bottom should receive every encouragement to take the place of older branches or of any which may die off. See that every shred or tie is removed if at all likely to pinch, and do not nail too tightly, and drive in as few nails as possible, so long as the branches are made secure. When completed, the next consideration is the protection of the flowers; this, however, we like to defer as late as possible with safety; but everything will be got in readiness.

Strawberries.—Those who make it a practice to plant a bed of forced plants annually, and to destroy about the same quantity, should prepare the ground for them some months before the plantation is made, and more especially is this desirable on shallow soils, as by doing so the soil is consolidated before the planting is done—an important point in the cultivation of Strawberries. Light ground should be deeply trenched, and have abundance of rotten manure placed in between the lower and the top splits, the surface soil being left in as rough a state as possible. If the soil be of an exceptionally light character, a few cartloads of clayey loam, well incorporated with the soil as the work is being done, will prove of real benefit to the plants. Ground well prepared at the winter season, usually requires very little more attention at planting time. A light fork over on a fine morning, and then a good firm treading and a rake over being all that need be done. The plants may be quickly planted with the trowel, taking care to ram the soil firmly about them. A moderately deep heavy loam will require but little preparing, but a heavy cold soil should be trenched deeply and have an abundance of lime rubbish, burnt refuse, road-scrapings mixed with it. Manure should also be added, but this should not be decayed, a strawy manure being best for such soils.

Winter Dressing of Fruit Trees.—It is advisable to dress all fruit trees infected with scale or other insect pests before the buds become advanced, as a much stronger solution may be used with safety. Peach and Nectarines trees should be taken entirely from the walls, and have the young shoots carefully sponged over with soapy-water and sulphur, the old branches being thoroughly scrubbed with a much stronger mixture. For this purpose we find nothing better than soapsuds, sulphur and petroleum. This must, however, be thoroughly mixed together, and be used at the following rate:—To every 4 gallons of soapsuds add one 60-sized flower-pot of petroleum, and about the same quantity of sulphur. If there are no scale upon the trees, a good wash of suds and sulphur will be fully sufficient in most cases, taking advantage of fine mornings to do the work. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

Seed Sowing.—If not already done no time should be lost in sowing a pinch of Cauliflower seed in a gentle heat; Veitch's EarlyForcing, Early London, Eclipse, and Autumn Giant, are all good for present sowings; Cabbages Stuart & Mein's No. 1, Ellam's Early, Little Pixie; Brussels Sprouts; Lettuce Tom Thumb, All the Year Round, Paris White, and Green Cos, may also be sown in heat. In sowing these seeds shallow boxes or pans should be made use of, and these when the plants are through the soil should be at once put on a shelf close to the roof-glass of the house or pit. As soon as the plants are fit to handle, they should be pricked off into boxes or a frame, and afforded the slightest amount of bottom-heat. Failing this, they may be accorded a place in a Peach-house or vinery, where the temperature does not exceed 55°, keeping them as close to the light and ventilators as possible.

French Beans.—Do not allow the pods to get too large before gathering them. Give the plants in fruit weak dung-water at every alternate watering, and sometimes a dusting of Thomson's manure. Successional crops should be earthed-up and staked as they advance in growth. When the plants are in blossom do not make use of manure, but as soon after as the pods are set. Continue to sow in succession according to the demand; 7 or 8-inch pots are quite large enough for the present sowings. Stand the pots in a warm place till germination has taken place or the seeds will damp, afterwards putting them on a shelf near the light. Kidney Beans at a little later date may be sown in shallow boxes of the width of the shelves. Far more produce can be obtained by this method than by employing pots, and the watering takes less time. After trying all early varieties recommended for forcing purposes I find no variety so reliable or productive as Osborn's Early Forcing.

Tomatos are more in request every year, and there are few places where they are not grown for use in the kitchen, for salads, and even for dessert, and there are sometimes worse things to be found there than a well ripened Tomato. Tomato growing is a very simple affair, provided a span-roof or lean-to house is at command. Here they may be trained up the roof. Where the roots are confined in a small space and the soil is not too rich, feeding with manure-water and top-dressings are easy matters. Regular attention to pinching the lateral shoots and thinning off the fruit where too numerously produced is all that is necessary to secure a good return. Like that other species of Solanum—the Potato, it is subject to disease, but this is chiefly brought about by affording the plant too much water and stimulants of too great potency, but when once it has appeared on a plant it is the wisest course to destroy the plant. The tops of early sown plants if they are spindly may be used for propagation, and some small quantity of seed may be sown for succession. Orange field Dwarf, though not a handsome variety, is one of the earliest varieties we have yet; Trophy, Criterion, Green Gage, Golden Queen, and Excelsior will be found trustworthy varieties for pot culture up till Christmas. The Tomatos are grown here on the rafters of the Fig and Peach-houses, and from two sets of plants we secure a plentiful supply from the end of April to the end of December. *W. M. Baillie, Luton Hoo, Beds.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

SATURDAY,	JAN. 26	Royal Botanic Society: General Meeting.

SALES.

MONDAY,	JAN. 21	Imported and English-grown Lilies, at Protheroe and Morris' Rooms.
TUESDAY,	JAN. 22	Imported and Established Orchids (some in flower), at Protheroe & Morris' Rooms.
WEDNESDAY,	JAN. 23	Lilium auratum from Japan, Tuberoses, Dwarf Roses, Fruit Trees, Border Plants, and Bulbs, at Stevens' Rooms. Lilies, Roses, &c., at Protheroe & Morris' Rooms.
THURSDAY,	JAN. 24	Established Orchids (many in Flower and Bud), at Stevens' Rooms.
FRIDAY,	JAN. 25	First Portion of the Barvins Park Collection of Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—33°.

The Schedule of The Royal Horticultural Society.

THE arrangements of the Royal Horticultural Society for the current year have now been issued, and are to be had on application to the Hon. Secretary, 117, Victoria Street, S.W. The first point to be noted is that, owing to the renumbering of the houses in Victoria Street, the offices and library are at 117, Victoria Street, instead of 111, as heretofore. Some of the meetings will be held at the Drill Hall, James Street, as before, while others will be held, as we have already announced, at the Temple Gardens, May 30—31; Chiswick (Rose Conference), July 2—3; July 9, Chiswick, in connection with the Chiswick Horticultural Society; September 24—26, Chiswick (Vegetables); November 12—13, Chiswick, Chrysanthemum Centenary.

In glancing over the programme we cannot but be struck with the evident signs of the energy which the Council has displayed during the past year. Its labours we know have been extremely onerous, and no one who peruses the arrangements now put forth will deny to the members of Council unstinted praise for the zeal and devotion which have already resulted in great improvement in the machinery and organisation of the Society, and which are full of promise for the future. The programme before us opens with a brief history of the Society, a summary of its methods of work, and a recountal of the mode of election and privileges of Fellows and Associates. Then follows a useful road-book, showing how to get to the Society's Gardens at Chiswick, accompanied by a serviceable railway map.

A summary of the work proposed to be done at Chiswick during the ensuing year is printed in another column, p. 75, together with the details of a proposed experimental trial with Artificial Manures, to be accompanied by a certified chemical analysis of the manures employed. This is a very important matter, but a few points seem to have been omitted, which, as there is still time to supply the deficiency, we shall do well to name. In the first place, the soil should be analysed before the trials are instituted, so as to afford a standard of comparison. We recommend this from a recollection of other trials of a similar nature in the gardens which were partially vitiated by the circumstance that the soil was too rich, even though means were then made to render it less so. For experiments of this kind the soil can hardly be too poor. The next point is, that nothing is said as to the cost of the manures—a vital point from a practical point of view. In a series of analyses of various popular fertilisers undertaken for this journal some years since it was found that while all or most of the manures were found more or less well adapted for the purpose intended, yet, that there was very considerable difference in the price, and, in some instances, the cost would have been out of all proportion to the results obtained. This is of little consequence in experiments on a small scale—flower-pot experiments—but would be of serious importance when large quantities are involved.

As to the *Journal* of the Society, we are delighted to see that it is proposed to recommence the publication of some regular official record of the Society's work. What has been published of late years is exceedingly valuable, but its value has been sadly diminished by the irregularity of issue and by the circumstance that the fact of publication has not been sufficiently made known. It may be well to remind Fellows and others that several numbers which contain matter which may safely challenge comparison with the contents of any publications of a similar character, may still be had on application at the office.

The Lindley Library is in the hands of trustees, and is rich in horticultural and botanical works, available for the use of the Fellows, and, under certain regulations of the general public also. The Library cannot be alienated or disposed of while the Society exists, but its annual income is very small, and any donations of books or funds would be welcome.

The re-institution of a series of popular lectures, as announced in another column, p. 76, will form a welcome addition to the privileges of the Fellows, and may develope into something worthy the dignity of the Society.

The Committees have been reconstituted as usual each year, but with this important change, that in future members of all Committees must be Fellows of the Society. The first to be mentioned is the Scientific Committee, which is essentially a committee of referees, comprising, entomologists, botanists, chemists, and representatives of most branches of science, which have any bearing on horticulture.

These gentlemen are most of them not specially interested in horticulture, but cheerfully give their services for the general benefit and therefore we think it unfortunate that the same hard and fast rule should have been adopted with them as with the other committees. The numbers of this committee remain the same as last year, the new members being Mr. W. T. Thiselton Dyer, Director, Royal Gardens, Kew; Professor Michael Foster, Mr. J. G. Baker, Kew; Francis Darwin, H. J. Elwes, Professor E. Frankland, Dr. Gilbert, F. Du Cane Godman, Dr. Hugo Müller, Dr. Francis Oliver, Mr. Osbert Salvin, Mr. G. J. Symonds, Mr. Harry Veitch. These names, added to those already on the rota, comprise a committee, we should think, without equal as to the repute and scientific standing of its members in the case of any society in the world. Nevertheless, the list as now issued shows the inexpediency of enforcing in this case the rule we have alluded to. Considering the great importance of those plant diseases dependent on parasitic fungi, it is weak precisely in the place where it ought to be strong—we mean in the department of mycology. The retirement of Mr. George Murray and of Mr. Worthington Smith will be specially felt in this department; while the absence of Colonel Clarke not only from this but from any of the other committees is a serious omission, as is also the entire default of any member of the staff of the Natural History Museum.

The Fruit and Vegetable Committee consists of forty-one members as compared with thirty-one last year, the new members being Sir Charles Strickland, whom we are specially glad to welcome back; H. Balderson, W. Bates, George Bunyard, G. Cliffe, Malcolm Dunn (Dalkeith); P. W. Fairgrieve (Dunkeld); J. H. Goodacre, C. Haycock, J. Hudson, F. Lane, J. McIndoe, F. Moore (Bexley); N. Sherwood, W. Wildsmith, Jesse Willard, and G. Wythes—an excellent selection, and which ought to do something to dispel the mischievous delusion that metropolitan interests are alone catered for.

The Floral Committee has forty-one members this year as against thirty-one last, the new members being Mr. W. Marshall, Mr. S. Barlow (Manchester); Messrs. Burbidge, Blair (Trentham); Cannell, Castle, Douglas, Girdlestone, Ingram (Belvoir); Kelway, Laing, Leach, Lindsay, Botanic Gardens, Edinburgh; E. Mawley, F. Ross, Harry Turner, H. Williams, W. H. Williams, (Salisbury). In addition there are the Narcissus Committee, the Rose Conference Committee, and the Vegetable Conference Committee, for the names of the members of which we must refer to the programme.

With reference to the committees who have to make the awards some alterations have been made. The First-class Certificate is retained, but a significant hint is given, certainly not too soon, that the committees heretofore have been too lavish or not sufficiently discriminative in their awards, and the same remark applies to the medals.

A second award, called the "Award of Merit," is instituted, which is intended to apply to plants worthy of commendation, but not reaching to the standard required for a First-class Certificate. We rather doubt the success of this modification, but time will show. Gold, silver, and bronze medals, are henceforth to be given, in *quite exceptional cases*, for objects of *extraordinary merit*. The italics are *not* our own.

Another innovation, and one which has our hearty approval, is, that henceforth the names present at each committee shall be published, together with the numbers of those voting for or



DATURA ARBOREA, IN THE GARDEN OF T. H. MAUDSLEY ESQ.

against a particular plant. This will do something towards obviating the scandal of a plant obtaining or losing a Certificate in a full committee on the votes of two or three members only.

The regulations for exhibitors at the committee meetings or shows, and who may be Fellows or outsiders, are given in full, as also for the larger exhibitions and for the several collateral shows of Primulas, Auriculas, Roses, Carnations, Picotees, and Vegetables. In the case of the Primulas and Auriculas, Carnations and Picotees, the exhibitions will be made in large measure by or under the auspices of the societies devoted to those specialties—a wise proviso, which will lead in time, we hope, to a federation of all the special societies with the central body. It is not within our power to publish all these regulations, but we recommend those of our readers interested in the matter to procure the Schedule and see for themselves.

The great show at the Temple, weather permitting, is sure to be a grand affair, and the several Conferences at Chiswick on Roses, Vegetables, and Chrysanthemums, can scarcely fail to excite great interest. Remembering the great interest felt in the former Conferences on Orchids, Primulas, Apples and Pears, held under less happy conditions than the present, we can hardly doubt that similar interest will be felt in the ensuing season. We must confine ourselves now to a mere outline of what is proposed, reserving the opportunity of criticism on points of detail till another time, but that the programme bears evidence of the desire of the Council to meet as far as possible the wishes that have been from time to time expressed, and to adopt the suggestions that have been offered, is obvious, and it affords some little evidence of the vast amount of work which has been done in the past year by the Council in the attempt to reorganise the Society. It is impossible to suppose that everyone will be pleased with the result, but any one one who can recognise and appreciate constant hard work, good will, and thorough devotion to the Society's interests, will be ready to give to the Council and its energetic Secretary the meed of praise that they have, in our opinion, thoroughly well earned. For the fulfilment of the other items in the ideal programme calculated to render the Society a true exponent of horticulture in general instead of certain departments only, as at present, we must be content to wait.

The Gardeners' Royal Benevolent Institution.—At the meeting held at Simpson's Hotel, Strand, on Wednesday, January 16, Herbert Adams, Esq., V.-P., in the Chair, the following statement of the receipts and payments of this Institution for the year ending December 31, 1888, was made:—

Dr.	£ s. d.	£ s. d.	£ s. d.
To Balance, 1887...	... ...	... ...	564 0 9
Annual Subscriptions .	1320 11 0		
Donations at and in consequence of annual dinner ...	849 5 6		
Collecting cards at do.	287 9 5		
	£2457 5 11		
Advertisements ...	63 10 6		
		2520 16 5	
Five Quarters Dividends on Stock ...	791 5 0		
Bonus on Conversion of Stock...	52 15 0		
Interest on deposits ...	46 16 3		
		890 16 3	
Legacies:—			
The late Lord Northwick...	100 0 0		
The late Mrs. Cameron	50 0 0		
		150 0 0	
			£3561 12 8
			£4125 13 5

Stock in 2·15 per cent. Consols, 21,100.

Cr.	£ s. d.	£ s. d.	£ s. d.
By Pensions and gratuities	... ...	... ...	2180 10 0
Secretary's salary and honorarium	£186 5 0		
Rent of offices	50 0 0		
Stationery	31 14 2		
Printing	115 4 1		
Advertising	5 11 0		
Expenses of annual dinner ...	86 10 10		
Postages, travelling expenses, &c.	122 1 0		
		597 9 1	
		£2777 19 1	
Placed on deposit at Glynn & Co.'s		700 0 0	
		£3477 19 1	
By balances, viz.:—			
With Treasurer at bankers'...	£630 6 9		
With Secretary	17 7 7		
		647 14 4	
		£4125 13 5	

Audited, January 9, 1889. John Lee. J. F. Meston. J. Willard.

The report of the committee and the accounts of the Institution as signed by the auditors were read and, on the proposition of Dr. Masters, adopted, and the best thanks of the meeting given to the committee for their able management of the affairs of the Institution during the past year. In accordance with the recommendation of the committee, Rule No. 18 was altered, and in future will stand as follows:—"That six members of the committee go out of office annually by rotation, but be eligible for re-election." H. Veitch, Esq., was re-elected Treasurer, Messrs. John Lee, of Kensington; T. A. Dickson, of Covent Garden; and W. Richards, of Wellington Street, were re-elected members of the committee: and Messrs. W. J. Nutting, of Southwark Street; Geo. Monro, of Covent Garden; and John Fraser, of Lea Bridge Road, were elected members of the committee for the four years ensuing. Messrs. John Lee, Joseph F. Meston, and Jesse Willard, were re-elected as auditors. The following gentlemen were appointed arbitrators for the year ensuing, viz.:—Messrs. George Monro, Edward Tidswell, James Webber, William Richards, and E. W. Cathie. Mr. Edward Roger Cutler was also re-elected as Secretary. The Chairman stated that the following five persons, whose cases had been duly in vestigated, claimed to be placed on the list of pensioners, viz., John Allen, of Compton Bassett, Calne, Wilts, aged 78, a yearly subscriber of £1 1*s.* for twenty-five years; Elizabeth Ridler Amos, of Widmore, Bromley, Kent, aged 74, widow of the late John Henry Amos, a yearly subscriber of £1 1*s.* for forty years; William Binder, of Rugeley, Staffordshire, aged 66, a yearly subscriber of £1 1*s.* for twenty-two years; Isaac Harris, of Lichfield, Staffordshire, aged 61, a yearly subscriber of £1 1*s.* for seventeen years; and John Mitchinson, of Truro, aged 67, a yearly subscriber of £1 1*s.* for twenty-two years. Their certificates and testimonials having proved to be in every way satisfactory, the committee recommended that they be placed on the list of pensioners without election, in conformity with Rule No. 6, from December 20 last. The other successful candidates were—John Slowe, W. Holah, Helen W. Lessells, Margaret Malcolm, George Read, C. Robinson, Elizabeth Kember, Sarah Naylor, and Charlotte Newell.

The Royal Horticultural Society.—An interesting series of autograph signatures of royal and other distinguished personages, Fellows of the Society, is now displayed on a screen in the Lindley Library, 117, Victoria Street. The signatures include those of "Victoria R.," Patron, above a representation of the Victoria regia. The Prince Consort's signature is "Albert," dated March 17, 1840, and is surrounded with flowers of Coburgia and Roses. The certificate of H.R.H. the Princess of Wales is signed "Alexandra," within a wreath of Forget-me-nots; white Roses, Lilies, Pelargoniums, Pansies, &c., form a fitting frame. The Prince of Wales signs "Albert Ed.," his signature being surmounted by the Prince's plumes, and framed in white and red Roses. This certificate, which as a work of art is one of the least satisfactory, was the work of two lady students of the Female School of Art, Queen Square. Their Royal Highnesses Princesses Alice (late Grand Duchess of Hesse), Helena (Princess Christian), and Louise (Marchioness of Lorne), inscribed their name on Pansies, and beneath them are the signatures of Prince Arthur (now Duke of Connaught) and Prince Leopold (the late Duke of Albany). The late Emperor Frederick (Frederick the Noble), then Crown Prince of Prussia, signs "Frederik Wilhelm" and his consort, "Victoria." William IV. signs within a wreath of Oak leaves. In one group are the autographs of Christian, Louisa, Frederick, Dagmar, Wilhelm and Thyra, Princes or Princesses of Denmark. Queen Charlotte's signature is appropriately decorated with Strelitzia. The sign-manual of George, Prince of Wales, 1819 (George IV.), is decorated with red and white Roses. Alexander, Emperor of Russia (1824), writes within a framework of Russian Apples and Siberian Crabs. (Why not Russian Violets?) The King of Wurtemburg's certificate (1824), is decorated with Genistas, Daphnes, Ericas, &c. Napoleon Jerome, Prince of the French, has Violets and a beehive as symbols. The connection of Princess Charlotte (1816) with the house of Brunswick is commemorated by Brunsvigia; Mahommed Said, Viceroy of Egypt, by Date and Doum Palms, and Nelumbium (Lotos). In addition, there are the signatures of Christian, Prince of Denmark (July, 1822), of the Grand Duke of Saxe-Weimar (1817), of Augusta Mary and George of Cambridge, of the Duke of Sussex, the Duke of York, of Frederick William, Prince of Prussia (1825); of H.I.H. Maria Louisa of Austria, of H.H. Prince Rasoumoffsky (1819), of Philippe, Comte de Flandres, and Louis Prince of Hesse; of Prince Leopold of Saxe Coburg (1817), the late King of the Belgians; and of William King of the Netherlands. These signatures are now many of them of historical interest, and some are noticeable as works of art.

Veitch Memorial Fund.—At a meeting of the Trustees, held at the *Journal of Horticulture*, 171, Fleet Street, on Wednesday last, Dr. Robert Hogg, in the chair, it was resolved that three Veitch Memorial Medals be awarded at the Temple Gardens Show, on May 30, 1889; that two Medals be placed at the disposal of the Royal Caledonian Horticultural Society, the Newcastle-on-Tyne, and one each to the Northampton, Tibshelf, and Chiswick Horticultural Societies respectively. Dr. Maxwell Masters was elected a trustee, and Mr. A. H. Kent was elected secretary, in place of the late Thomas Moore.

Chiswick Gardeners' Improvement Association.—We learn that Mrs. S. A. Lee, of Chiswick, has again kindly offered a sum of 10 guineas to be distributed in prizes on horticultural subjects, as follows:—1, Arrangement of the fruit garden, to produce a continuous supply of fruit without the aid of glass; 2, Best system of cropping the kitchen garden, to ensure a continuous supply of vegetables, where no forcing is practised; 3, How to maintain a gay conservatory throughout the year.

Kent County Chrysanthemum Society—This, the only county Chrysanthemum Society yet formed, held its first annual committee dinner at the "Plough Tavern," Lewisham, on Thursday evening, January 10. It was shown that, although but yet in its infancy, the Society was, from a financial point of view, in a flourishing condition.

Norfolk Island.—In a recent American consular report an account is given of the isolated British settlement on Norfolk Island, in the South-Western Pacific, about midway between the north cape of New Zealand and New Caledonia, and about 380 miles from each. The island is about 5 miles long by 3 broad, with a total area of 8600 acres. It is just outside the tropics, the extremes of temperature are never reached, the climate is most equable, and the thermometer never ranges higher

than 84° in summer and never lower than 46° in winter. At one time the island was densely wooded with the native Pine (Araucaria excelsa) and other trees, but now it is covered with open, park-like downs, interspersed with groups of this Pine. Originally used as a penal settlement it was in 1856 made over to the descendants of the famous mutineers of the *Bounty*, who had increased and multiplied beyond the sustaining power of Pitcairn Island, and who were presented with Norfolk Island. The soil is exceedingly fertile, being composed of a dark chocolate loam, or decomposed basalt. There is a complete absence of frost, and almost every temperate and sub-tropical plant grows in luxuriance. But three plants or weeds are so destructive to all other vegetation that a portion of every year is given by the whole community to their destruction; but, in spite of this, they are steadily increasing. These are two Solanums and the Cassia lævigata. The whole island is parcelled out into 50 acre lots, held at a peppercorn rent; the original immigrants received 50 acres each, and for some years each married couple received the same grant; this was reduced to 25 acres. The native vegetation of the island is wholly peculiar; besides the famous Norfolk Island Pine already mentioned there is a Tree Fern (Alsophilla excelsa) and a Palm (Areca Baueri); there are besides upwards of thirty different kinds of Ferns.

DOWNSIDE, LEATHERHEAD.—We read in the *Journal of Horticulture* that this well-known establishment, the residence of WM. LEE, Esq., has been purchased by A. TATE, Esq., Roseleigh, Woolton, Liverpool. Mr. W. MEASE, for seventeen years gardener at Wyncote, Liverpool, and a successful exhibitor, has been appointed to take charge of the gardens.

MASCULINE, FEMININE, OR NEUTER.—Our friends across the Channel have their little difficulties with regard to nomenclature as well as ourselves. To our great comfort, however, in this country, we need not trouble ourselves to think whether Chrysanthemums (as an English word) be masculine, feminine, or neuter. In France it is different, for while some some say "*un beau Chrysanthème*" (masculine), others prefer "*une belle Chrysanthème.*" The dictionaries give it as masculine, and this is the course followed by M. DUCHARTRE; on the other hand, it might be argued that all *plantes* are feminine, or that, as the Græco-Latin name is clearly neuter, it should be neuter also in French.

SURREY CHRYSANTHEMUM SOCIETY.—The annual dinner of the Surrey Chrysanthemum Society will be held on Tuesday, the 22nd, at the Grove House, The Grove, Camberwell, at 8 o'clock.

FOREST FLORA OF COCHIN CHINA.—M. PIERRE's fine series of illustrations of the forest trees of Cochin China has reached its twelfth issue. To botanists and to planters in our tropical colonies these plates and descriptions will be of great value. The present part is largely taken up with Sterculias and allied plants, many of which are described in HOOKER's *Flora of British India*. The abundant analysis of floral details are most serviceable.

EALING GARDENERS' ASSOCIATION.—At a recent meeting of this Society Mr. JOHN BARRY read a paper upon the "Management of Horticultural Exhibitions," making some suggestions which derived importance from the experience of the speaker. These referred to the system of naming and labelling plants, to the desirability of extending gardeners' conferences, and connecting them with flower shows; to the arrangement of flower shows; the desirability of doing something to obviate the monotonous long lines of green boxes at Rose shows; the construction of schedules, and the necessity of enforcing on would-be exhibitors due compliance with the regulations as to "entries," &c. In the discussion which followed, some of the members maintained that the present system was as good as any that could be adopted for the convenience of exhibitors and judges, and that not many Societies could arrange grass banks and beds of moss whereon to show the flowers. The proposition to inflict a fine on those who entered and failed to exhibit at the last moment, was not received with favour, though it was conceded that notice ought to be sent to the secretary the day before of any change of intention on the part of the exhibitor. Variety in framing the schedule was advocated. Much objection was raised to the holding of conferences, or reading papers, at local shows, as the gardeners and exhibitors were too much fatigued with their exertions to do justice to the papers read. Separate classes for cut blooms of Orchids were advocated, or the introduction of a limited number in a mixed class of cut flowers, so that a more representative display might be secured, and fine stove and greenhouse plants not crushed out of existence by Orchids.

DOWNHAM MARKET.—An entertainment was given in the Town Hall on Thursday evening, 10th inst., in aid of the Gardeners' Royal Benevolent Institution. Mr. JAMES BIRD, proprietor of the American Nurseries, was the promoter. It is gratifying to record the successful result of his efforts. The sum of ten guineas has been forwarded to the Institution.

GARDEN POTTERY.—Some excellent samples of pottery of the usual kind, and also ornamental, have been sent for our inspection by Messrs. SANKEY & SON, The Potteries, Bullwell, Nottinghamshire. Of the latter kind—mostly in rustic ware—the various pieces, consisting of pots, baskets, tazza, &c., were artistic and pleasing in design; and the ordinary ware showed careful making and burning, combined with the employment of first-rate materials.

BRIGHTON AND HOVE CHRYSANTHEMUM SOCIETY.—On January 3 the annual meeting of the above Society was held in the Odd Fellows' Hall, Brighton. Mr. R. MILLER in the chair, and about thirty members were present. The Secretary, Mr. LONGHURST, presented the report and balance-sheet, which showed that a sum of £88 6s. 10*d.* remained as balance in the hands of the Society. On the motion of Mr. RICHARDSON, £10 was ordered to be given to the Alexandra Hospital for Children. The number of visitors to the last exhibition, held in the Royal Pavilion and Dome, was 8000. The dates fixed for the next Chrysanthemum show are November 12 and 13.

SCHWEINFURTH'S METHOD FOR PRESERVING PLANTS.—H. SCHENCK (in *Bot. Centralbl.*, vol. xxv., p. 175) calls the attention of collectors, especially those travelling in the tropics, to a method of preserving plants for the herbarium recommended by SCHWEINFURTH, and which he found exceedingly convenient and efficient during his travels in Brazil. The plants when collected are at once put between the sheets of a leather portfolio. On his return from the excursion the collector places the specimens between single sheets of common grey, unsized paper (to be had in every "venda" in Brazil), which are firmly held together between two pieces of stout pasteboard by means of a strap. There the bundle is set upright in a tin box, and strong Sugar-cane brandy or common alcohol is poured on the sheets from above, until the paper and the plants are thoroughly moistened and the liquid begins to run off below. The bundle or bundles are kept in the tightly-covered tin box until a quantity of them has accumulated. Then the straps and boards are removed, the single packages are wrapped up in paper and packed as closely and firmly as possible in a tin box about 2 feet high, which, finally, is tightly closed by soldering a flat cover to it. Several such boxes are packed in a wooden case for shipping. Some small tin boxes ought to be taken on more extended excursions. The preservation of plants after this method requires very little time (an advantage of the utmost importance for a traveller), for it is not necessary to arrange the specimens carefully between the sheets. The plants remain in good order, soft, pliable, and moist, for years, and may be dried for the herbarium at the collector's convenience, after his return from his travels. They also remain in good condition for anatomical examination, and all kinds of flowers, as well as thick-leaved plants—such as many species of Orchids, Cactaceæ, &c.—will arrive at home in excellent order. Besides, plants may be collected and placed between the sheets in rainy weather.

LINDERA FRAGRANS.—Of this elegant shrub Dr. HENRY remarks (as cited in HOOKER's *Icones Plantarum*, October, 1888, t. 1788):—"The leaves are pounded in mills in the glens, and the powder mixed with that got from roots of Biota in a similar way; used for making 'Joss-sticks'—sticks of incense used in religious worship. It is known as the Hsiang Yeh tzu, *i.e.*, 'Incense leaves.' The flowers are fragrant." The shrub belongs to the true Laurels (Lauraceæ).

THE VINE AT KINNELL HOUSE, BREADALBANE.—In a *brochure* recently received, Mr. JOLY, of Paris, gives a short account of the Black Hamburgh Vine at the residence of the Marquis of BREADALBANE. He states that at the present time the house is 206 feet long. The stem measures 24 inches in circumference at 1 foot from the ground. The superficial measurement of the branches is given as 4275 square feet, and the Vine yielded in 1888 about 3000 bunches. There is also an illustration of the interior of the house. In BARRON's *Vines and Vine Culture* it is stated that the Vine was planted in 1832.

ROYAL HORTICULTURAL SOCIETY OF ABERDEEN.—The prize schedule for the Grand Floral Fête, to be held under the auspices of this Society in the Duthie Public Park, Aberdeen, on August 22, 23, and 24 next, has just been issued. There are in all 236 classes and 708 prizes. The special prizes, of which there are about twenty, consist of Silver Cups, Silver Medals, &c. The money prizes amount to nearly £150. The special features of this year's *fête* will be the large table of plants, bouquets of wild flowers by boys and girls under sixteen years of age, working-class window plants, &c. A large number of hon. vice-presidents and hon. directors has been added, and the appeal for donations has been well responded to.

MANCHESTER HORTICULTURAL IMPROVEMENT SOCIETY.—At the meeting of this Society on December 20, Mr. BIRKENHEAD read a paper on "The Functions of Leaves under the Influence of Sunlight," pointing his remarks on the physiology of leaves by some practical observations on the barbarism of cutting off Crocus leaves after flowering, and of the injudicious pruning of roots and branches.

THE "GARDEN AND HORTICULTURAL GAZETTE," a paper published in Manchester, is now to be issued weekly, at one penny. It contains full reports of the doings of the Manchester Horticultural Improvement Society, and a series of original articles on various subjects in the form of prize essays.

CUDRANIA TRILOBA AS A SILKWORM PLANT.—This is the Silkworm Thorn, known in China as the "Tsa" tree. It is evidently of wide distribution in China. Dr. HENRY says it is common about Tchang, where "it is considered to be as good for silkworms as the Mulberry, but is not used so long as Mulberry leaves can be got, because the tree is thorny, and it is troublesome to pick off the leaves. It is hence given chiefly to adult silkworms, and as Mulberry leaves soon become finished, it is much used." The tree belongs to the Artocarpeæ, and attains a height of about 20 feet. The leafy shoots, probably more especially from near the base, are often armed with strong, stout, straight-pointed

axillary spines. It is figured in the October number of HOOKER'S *Icones Plantarum*, 1888, t. 1792.

A GIGANTIC ICE PLANT.—In the part of HOOKER'S *Icones Plantarum* just published Mr. N. E. Brown describes, under the name of Mesembryanthemum Barklyi, a species of this genus that is of more than usual interest, not only on account of its size, but for the manner in which it is economically made use of. This species is a native of Namaqualand—a region where many vegetable curiosities grow—and specimens and drawings of it were sent to Kew by Sir Henry Barkly in 1876, which fully bears out the account he gives of it. According to Sir Henry Barkly the habit is somewhat peculiar, the main stem rises to about 2 feet in height, dividing into flowering branches at the top, whilst near the base a whorl of branches spreads all round on the ground, the branches being a yard or a yard and a half long, and over 1 inch thick, so that a single plant will measure 6 or 8 feet in diameter. The elliptic-oblong leaves are very large and thick, growing to as much as 15 inches long by 6 inches broad, and are quite entire. The flowers are borne in erect cymes; they are about 1½—2 inches in expanse, and bright purple. The dried stems are very light and pithy, and are used by the natives as fuel. But the chief interest in the plant, apart from its great size, resides in the fact that the "leaves are so juicy that it not only furnishes the cattle with moisture in that dry country, but is used by Europeans in travelling for the purpose of washing, and even drinking, the water squeezed out being devoid of taste." Thus we have in South Africa a plant containing water that may be used for drinking or washing purposes, in the same way as is afforded by the Cactaceæ, and some woody climbers (Bauhinia for example) of America.

THE NATIONAL CHRYSANTHEMUM SOCIETY.—A meeting of the General Committee took place at Anderton's Hotel, Fleet Street, E.C., on Monday, the 14th inst., Mr. E. C. JUKES in the chair, a very large number of members being present. The minutes of the last meeting having been read, the Hon. Secretary, Mr. W. HOLMES, read a letter from the President, Mr. E. SANDERSON, repeating his desire to resign. After some discussion a resolution was passed unanimously to the effect that the committee invite Mr. R. BALLANTINE, the present Vice-President, to accept the Presidency of the Society, and that, in the event of his declining, a President and Vice-Presidents, with a Chairman and Vice-Chairman of Committee be nominated; and that a sub-committee be appointed to ascertain suitable names for President and Vice-Presidents, and further to consider and advise as to the revision of the rules and regulations of the rules and regulations of the Society when necessary.—such sub-committee to report to the General Committee. It was also resolved that such sub-committee consist of Messrs. CASTLE, JUKES, and WYNNE. The sub-committee appointed to lay down a basis of negotiations for the provincial show reported they had received applications from Hull and York, and they were of opinion that that from Hull should be entertained. The basis laid down was that the National Chrysanthemum Society should contribute the sum of £50 as prizes in open classes; that certain open classes should be provided in the schedule of prizes, the amount jointly awarded amounting to just over £100; that the sum of £10 should be allowed for necessary expenses incurred by the National Society, that the exhibition should be announced as the Provincial Show of the National Chrysanthemum Society, and that all members of the latter should be entitled to compete in the open classes, and have free admission to the show: the National Society to print and circulate the schedule of prizes; any further matters of detail to be submitted to the Secretary of each Society, and one member chosen from each. In case of failure in these negotiations with the Hull Society, then the committee of the Ancient Society of York Florists to be approached. The sub-committee was instructed to carry out the details of the provincial show. The Devon and Exeter Botanical and Horticultural, and the Lewes and District Chrysanthemum Society were admitted to affiliation, and seven new members were elected, bringing the total up to 648. The Hon. Secretary suggested the re-arrangement of the Dahlia classes at the September show, in order to meet the wishes of the amateur growers; and it was agreed that, as the Hon. Secretary and other members of the committee were members also of the committee of the National Dahlia Show, the opinions of the latter should be taken on the matter. Special prizes from Messrs. E. WEBB & SONS, Stourbridge; and C. FIDLER, of Reading, offered at the November show, were accepted. Mr. HENRY CANNELL announced his intention to offer the sum of £5 in special prizes for Primula sinensis at the midwinter show in January, 1890. The judges for the November show were nominated, and a reserve judge in each division also. A vote of thanks to the Chairman closed the proceedings.

THE "ORCHIDIENNE."—The fourth meeting of this society was held on Sunday, the 13th inst., at Brussels. Certificates were awarded as follows:—First-class:—To Cypripedium Morganiæ, from M. Jules Hye; to Cattleya Trianæ Lucianiana, to C. Masereeliana, and Lycaste sp. nov., from Messrs. E. Vervaet & Co.; to Odontoglossum sulphureum, from M. Peeters; and to O. Heleneanum, from M. Halkin. Second Class:—To Cypripedium Stonei Hyeanum, from M. Jules Hye; and to C. Roebellni longipetalum, from M. Linden, Brussels.

THE ENGLISH APPLE AND FRUIT GROWING COMPANY (LIMITED).—The statutory first general meeting of the company took place at Anderton's Hotel, Fleet Street, E.C., on the 11th inst., Mr. C. J. Heald, Chairman of the Board of Directors presiding, supported by Messrs. J. Cheal and J. Roberts, Directors, and a fair representation of shareholders. The notice convening the meeting having been read, the Chairman stated that the present meeting was a preliminary one, as required by the Acts of Parliament regulating limited liability companies. The first application by the promoters was for the sum of £25,000; of this amount nearly £4000 worth of shares had been applied for by ninety-four shareholders, among whom he was happy to state there were forty-four practical horticulturists—men who know what can be done with the soil. For want of adequate capital the Directors had to give up the contemplated purchase of Speed Gate Farm; but they were looking about, and intended to take 100 acres of land suitable for fruit culture, as near London as possible, hiring the same on lease with option of purchase. They had three or four available sites under consideration, which were being thoroughly inspected. It was their intention to erect glasshouses, and grow fruit and flowers, and other subjects that will yield a quick return and command remunerative prices. On every hand there were evidences that land devoted to fruit culture could be made to pay well when properly managed; and the Directors were sanguine that their venture would issue in equally satisfactory results. The Fruit Conferences held during the past year had called attention to the importance of an increased culture of fruit and the principles laid down at these Conferences by practical fruit growers were the very ones they were seeking to apply in practice. He had every reason to believe that in a very short time they would have secured suitable land at advantageous terms, and be able to commence planting trees and erecting glass without delay. So far the company had been worked upon the most economical lines, and that end would be kept steadily in view throughout all their transactions; consequently the Directors would not accept fees until a dividend had been declared. The Board regretted the resignation of their colleague, Mr. A. F. Barron, who had taken an active part in promoting the company. In conclusion, Mr. Heald assured the shareholders that nothing would be wanting on the part of the Directors to give the shareholders entire confidence in the future of the company. Messrs. J. Chealand J. Roberts having also spoken, expressing themselves most sanguinely as to the prospects of the Company, it was moved by Mr. Jesse Willard, and seconded by Mr. J. Fraser, of Kew, "That Messrs. Heald, Cheal, and Roberts, be, and are, hereby re-elected." This was carried unanimously, the Chairman announcing that proxies to the number of nearly 500 votes had been sent in by forty shareholder in favour of the re-election of the Directors. The Chairman and Messrs. Cheal and Roberts briefly acknowledged the vote. A vote of thanks to the Directors, and to the Chairman for presiding, closed the proceedings.

THE EMPRESS FREDERICK.—On returning from the visit to the QUEEN at Osborne, her Imperial Majesty was presented with a bouquet of Orchids by Mr. SERLE, the manager of the London and Brighton Railway Co. The bouquet contained a great variety of flowers, and was supplied by Mr. H. APPLEBY, of Dorking, Surrey.

THE OXFORD CARNATION AND PICOTEE UNION.—It appears from the annual report and balance-sheet of this union just issued, that 320 subscribers produced an income of £142 3*s.*, and the balance from the sale of the Kilmurry Yellow Ground Seedlings was £64 11*s.*, making a total of £203 14*s.* The subscriptions have grown from £70 10*s.* 6*d.* the first year, to £142 3*s.* the fourth. The prizes awarded in the year just closed amounted to £61 15*s.*, and a balance of £15 6*s.* 7*d.* is carried forward in addition to £53 7*s.* 9*d.* from the sale of the Kilmurry Seedlings. One hundred and eleven new members had been enrolled during the year, and the total number is now 335. The sum derived from the Kilmurry Seedlings is to be set apart for prizes, especially for yellow ground varieties, and there will be two classes for six blooms each. The exhibition for 1889 will take place in Mr. DODWELL'S garden at Oxford, on Tuesday, August 6, and the prizes for single blooms will, for the future, be eight in each class instead of five as heretofore.

CAPE FOREST LAWS.—*Apropos* of Mr. HARRY BOLUS' excellently illustrated work on the *Flora of the Cape Peninsula* reviewed in these columns, and which will be such a great assistance to so many who make the study of botany a pastime, a correspondent writes from Cape Town:—"I think you will be interested to learn what a wonderful machine our Cape Government is—capable like an elephant's trunk of lifting a cannon or picking up a pin. Formerly, I and many others made a very reasonable pleasure out of inspecting the flora of Table Mountain, which is Government land, and occasionally bringing away a few specimens. Unfortunately a few athletic young gentlemen in the Civil Service ('ARRY will be 'ARRY wherever he goes), also made it their practice to climb the mountain every week, and a rivalry arose whereby SMITH would try to get more Disas than his fellow-clerk JONES, and would destroy the flower-spikes he could not carry away, all to 'do' JONES completely. JONES is naturally annoyed, and fancies that the botanisers and their agents are at the bottom of the clean sweep made of the material for his Sunday bouquet. Actually this has resulted in a section of the Forest Act, which for niggling folly is perhaps unparalleled even in forestry laws. Here is the text of the definition of 'forest produce' which may not be touched under penalty:—Game, fish, minerals, stones, earth, trees, timber, firewood, wattles, kraal wood, branch wood, slabs, chips, sawdust, plants, grass, Reeds, thatch, Rushes, bedding, peat, creepers, fibres, leaves, moss, flowers, Ferns, fruits, seeds, roots, bulbs, galls, spices, bark, gum, resin, sap, charcoal, honey, wax, shells, horns, ivory, and generally anything growing or contained in the forest.'!!! Anything else? Could it not be enacted that the respectable subject or botanical student should be blindfolded before going up to further atone for the stupidity of a few 'snobs' who could easily have been stopped without enacting such absurdities."

BOOK NOTICE.

VEITCH'S MANUAL OF ORCHIDACEOUS PLANTS.*

Part IV. Tribe Cypripediæ.

This issue of Messrs. Jas. Veitch & Sons' excellent work may fairly lay claim to being the best of the series yet issued by them, for notwithstanding the well-known complicated condition of the genus Cypripedium, the task has been grasped in such a clever and lucid manner as to render the 108 pages contained in this part of the work a boon alike to botanists and to gardeners. It says much for the forethought of the authors that the plan fixed for the first part—Odontoglossum—has been followed in all the others, no amendment having been deemed necessary either by the authors or the public, who have so largely patronised the work, and who are, perhaps, the best judges of such a matter.

The work before us is illustrated with some forty excellent illustrations of the leading types—many of them full-page—those devoted to the species in their sections being followed by excellent portraits of the leading hybrids which, by comparison with each other, and with the illustrations of the species from which they are obtained, convey much information in a very pleasant form. Coloured maps of the region the Cypripediæ inhabit, with the names of the species over the locality in which they are found, or, as in the case of Cypripedium Mastersianum and C. Farrieanum, where they were supposed to have been found, for with these and a few other, there is as yet no definite record. These maps also, with the aid of the clear exposition in the letterpress, are very interesting in following out the theory that the Cypripediæ known to us, and now found wild, are the remains of a genus undergoing a gradual extinction in Nature, but if we may judge by the wonderful list of garden hybrids which Messrs. Veitch so admirably attempt to classify in their work, likely to be saved, and given a fresh start by the hand of man, at any rate, in gardens.

The work begins with a masterly review of the genus as a whole, and properly estimating the Selenipedia as a section likely to be merged, as foreshadowed by the approach made in C. Sanderianum to the ordinary type, and by the fact that hybrids have been raised between the two sections (the Indian and the South American species), although they have not yet flowered in gardens. The chapters on the botanical status of the genus and the geographical distribution are followed by an enumeration of the species, their varieties and sub-varieties, about each of which, it appears, that a large amount of information, botanical, cultural, and general, is fairly and briefly stated; in fact, it may be said that the work under notice contains the essence of most that has been elicited on the many-sided question of Orchids up to date elaborated by the light of that experience which Messrs. James Veitch & Sons, as the oldest and largest firm of Orchid importers, growers, and hybridists, must necessarily possess. References to Dr. Pfitzer's works, and to the anatomy of the stigma as demonstrative of its threefold nature, are omitted, but will hardly be missed in a work of this character.

In a brief review it is impossible to enumerate the good features of the work, and as it is open for all who are sufficiently interested—and what gardener or plant lover would not be?—to obtain a copy, neither is it necessary to attempt it. We look through its pages in vain for something to find fault about, and, considering the difficulty of the subject, and the requirements it is intended to meet, it could not have been better handled. Labour and outlay seem to have been the last consideration in its production; let us hope that subscribers will not be slow to do their part as an acknowledgement of the enterprise.

* *Manual of Orchidaceous Plants Cultivated under Glass in Great Britain.* Part IV. Cypripedium. James Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, London, S.W.

ROSES.

A PLEA FOR THE OLD OR COMMON MOSS ROSE.

It needs courage to write the statement, and yet it is true that the old common Moss Rose is the best of all that class, absolutely and relatively. The constitution of the Moss Rose has also withstood the shock of centuries, the fall of thrones, and the crash of empires. Whilst as to her rivals and contemporaries, who shall say how many have come and gone since the red-letter day when the common Moss was clothed with its new grace and higher beauty? And yet not only the old common Moss survives, but even the same plants abide with us, enriching us with their beauty, and satisfying us with their sweetness through a lifetime.

I write within sight of an old Moss Rose that has not failed in its rich harvest of bloom once in the last forty years. At first it stood alone, it then became the attractive centre of a considerable border of Roses. Of the latter it must be written that within the last forty years all of them have come and gone, not once, but many times—the Moss alone has lived and bloomed on, if not for ever, at least through all these long years, and to-day it looks as like living for another forty or fifty years as ever. This extreme hardiness and longevity of the common Moss is assuredly one of its greatest merits. And its culture and propagation are as simple as its life is long. True, it does not strike fine cuttings very freely, nor sweetly. But what of that, when it suckers so freely?—and suckers are in this Rose equal or superior to cuttings, not only in strength and longevity, but in floriferousness. Any one that can grow a Gooseberry bush may, and can grow a Moss Rose; and those who have no other place to grow the common Moss, may grow them very successfully round about or among their Gooseberry bushes. The finest, fullest, sweetest common Roses ever seen by the writer were so grown. The common Moss thrives well on Gooseberry fare and culture. Feed the roots and prune the tops when you feed and prune your Gooseberries, and all will be well with your Moss Roses, Put in cuttings also at the same time and in the same manner, and you will be fairly successful. You will not root your Moss Roses so freely as you will your Gooseberries, albeit you will root some, and these, with suckers, will furnish sufficient plants; though, to be sure, no garden ever yet had any excess of common Moss Roses; for by planting them in different soils and in different sites, from sunny South to stormy North, a long succession may be obtained. But however greatly the season of the common Moss may be thus extended, the common Moss is by no means a perpetual bloomer, and most of them are hardly worth naming in comparison with it. Older rosarians will be glad to hear that the old Moss Rose is not only one of the most charming of all our Roses in bed or border, but also forces fairly well in pots. For blooming out of season it ranks on a level with the old Cabbage, which latter is a noble companion for the common Moss and the White Bath or Unique in the open. The common Moss is slower to move out of time or season than any of the Teas and most of the perpetuals. But though somewhat slow it is specially sure, and the harvest of beauty and fragrance is so rich and satisfying as to be well worth waiting and watching for. Most readers have known or may know the delights of a feast of common Moss Roses in June; with a little more skill, cost and care a yet sublimer bliss of common Moss Roses may be revelled in from March to midsummer. *Rosa.*

ROSES IN THE ROCK GARDEN.

It is, I think, a very important matter in writing about a rock garden, and plants which are suitable for it, to consider of what sort it is, for there are rockeries and rockeries. There are rockeries, such as at Kew and at Floore, which are so extensive that anything may be grown on them; there are rockeries which are devoted to what are ordinarily termed alpine flowers, although the Alps is a very wide term, and you might notice in a few rockeries very many things which in some gardens would be utterly out of place. I remember once seeing an alpine height reared in front of a house which was intended to give you the idea of a Pine-clad mountain, but which was a complete failure, as may be imagined when scarlet Pelargoniums and other half-hardy things were used to fill up the spaces on it.

Where the rockwork is bold and large, the Roses of the rampant sort may be freely used, but where it is limited in extent and more dwarf in character, then their employment is a matter of question, at least, so far as regards some of the truly alpine sorts. Thus, I once planted Rosa pyrenaica on my rockery; it was there for two or three years, spreading about in all directions, but at last it became so intolerable a nuisance, throwing itself up in the midst of small-growing alpines, and making itself so generally disagreeable, that I was at last obliged to dig up the whole space which it had occupied, and to plant it again, leaving out the defaulter altogether. Rosa alpina, I fancy only a variation of this, is equally an offender. In the same way I should never be tempted to introduce the Scotch Rose to any small rockery, and still less the Japanese Roses of the rugosa type, although I have seen the use of these advocated, but they are constantly throwing up suckers, and are utterly unsuitable for small rockeries.

Some have advocated the use of the Polyantha Roses which have been raised from the single Polyantha crossed with Tea Roses, but I think these have too artificial a character for the simplicity of a rock garden; we do not expect to see double flowers there, but those which we might meet with in a a ramble on the Alps or Pyrenees. Of course, other people may not take this view, but to me it seems that these flowers are out of place in such a situation.

It will thus be seen that there are but few of the species of Rosa which can be profitably used in the rockery of a small garden. One very seldom sees the dwarf fairy Rose, R. Lawrenciana, in such a situation. Its shining, glossy leaves and brilliantly-coloured flowers make it a very conspicuous object, although dwarfish in habit; but there is the objection of its being double. One often sees these Roses languishing in pots or in some corner where they are obliged to put up with neglect, but the rock garden seems a very suitable place for them, and their continuous flowering gives them a value which is wanting to many of their congeners.

R. berberidifolia = Hardii.—There is probably no more beautiful Rose for the rockery than this, if only it were perfectly hardy; in some parts of the country it is, but I question if it is to be generally accounted a hardy Rose. One often gets considerably disappointed by things being described as hardy without any reference to the part of the country which is written about. We are told to try them and those prove to be false lights that we have been trusting to. I do not think even so far south as East Kent is that this Rose is perfectly hardy; but then we are much afflicted by the east winds; further to the south and west I believe it to be perfectly able to stand our winters, especially if a little protection be given to it. It deserves a good deal of care, for it is very lovely; the colour is a pure bright yellow, and at the base of each petal is a dark mauve spot, so that at a distance it is not unlike some of the smaller flowered Cistus, such as algarvensis. I have not grown it in sufficient numbers to test its hardiness as it ought to be tried, but it is well worth adding to a collection. Mr. Backhouse evidently does not consider it to be perfectly hardy so far north, as he does not include it in his list; and Messrs. Paul & Son's verdict on it is that "it seems hardy, but requires a south wall;" if this be so, it will hardly be at home on a rockery.

R. lucida. — This charming Rose is pretty in every stage; it has very bright glaucous foliage

which remains so long on the plant that it is almost evergreen; the flowers are a bright rosy-pink, and the tips are bright red, and roundish in form. There is a nearly allied form in Rosa nitida. It has the same shining foliage, but is not so robust in growth and may very well be added to the rockery without incurring the charge of sameness.

R. Biggeriana and its closely allied form, R. nigricans, are Roses which come very near to R. spinosissima in their general character. The foliage is very pretty, and the small white flowers are very freely produced.

R. pimpinellifolia, another of the very spiny Roses. The flowers are blush coloured, and the foliage small, so that it makes a pretty plant for the rockery. In Nicholson's *Dictionary of Gardening* it is indeed given as a synonym of R. spinosa.

These are the few Roses which I think are suitable for the rockery where the limits are small, and the present is a very good time to obtain them. The season has been hitherto so delightfully open that there is no difficulty in planting, while of course, as they are hardy and grow naturally in all kinds of places, there is no great difficulty as to soil; but the wild Rose with us seems to rejoice in a good stiff soil, and these will all grow well on heavy soil, and thus may then be left to take care of themselves. Those which I have advised persons to avoid are apt to usurp the places designed for others. There is—another closely allied plant which is very charming, but had for the same reason better be avoided *Rubus arcticus;* nothing can be more sweetly innocent than its neat looking foliage and modest pinkish flowers, but woe betide the grower deceived by these appearances if he be possessed of a small rockery—it will insinuate itself into all sorts of nooks and crannies, and is as much in the way as the common Bramble of our hedges and woods would be if it had the same chance. *Wild Rose.*

ROSE NIPHETOS, AND OTHERS.

This, one of the whitest of Tea Roses, is a very free-flowering and useful Rose, the half-open flower-buds being greatly valued for button-holes and bouquets at all times, and particularly in winter and spring. A plant growing in a 14-inch pot in sound red loam, and in a small stove, the shoots being strained to wires placed within 6 inches of the roof-glass, is and has been producing for several weeks past large numbers of buds. Celine Forestier and William Allen Richardson are also two excellent winter and spring-flowering Noisette Roses, being superb in the bud, in which state they should be cut. The plants give good returns for liberal waterings with warm liquid manure at the roots, and an occasional top-dressing with Beeson's manure, clear water being used during the growing season. Slips of the young growths taken off now, and inserted round the sides of 3-inch pots filled with fine sandy loam, and surfaced with dry sand, so that some may fall to the base of the cuttings when these are inserted, and after being watered plunged in a box of sawdust placed over the pipe in a forcing-house, and covered with glass, will soon take root. When duly rooted, the young plants may be potted singly in small pots, and the same kind of loam, and kept in moderate heat for a time. A shelf near to the roof is a good place for them. Repotting may take place in the spring when it is required. *H. W. Ward.*

FORESTRY.

CONSUMPTION OF RAILWAY SLEEPERS.

THE Belgian *Bulletin du Musée Commercial*, as cited in the *Society of Arts Journal*, gives the following information respecting the number of sleepers used on various railways. In France alone the six larger railway companies require a daily supply of more than 10,000 sleepers, making an annual consumption of over 3,650,000. As a tree of ordinary dimensions cannot furnish much more than ten logs, it follows that more than a thousand fine trees are cut down every day solely for the purpose of supplying the necessary sleepers for the French railways. In the United States the amount required is still greater. Over 15,000,000 sleepers are annually used in this country, thus necessitating the annual destruction of 80,000 hectares, or 197,600 acres of forests. The *Bulletin du Musée Commercial* estimates at more than 40,000,000 the number of logs required for the railways of the world, and it is considered that this estimate is rather below than above the mark.

HOME CORRESPONDENCE.

RAINFALL AT ROTHAMSTED.—The rainfall of the year 1888 just ended, according to Sir J. B. Lawes' gauge at Rothamsted, which is of one-thousandth acre area, and stands at an elevation of 420 feet above the sea-level, is nearly 29 inches, which is somewhat higher than the average, extending over the past thirty-five years, and an excess of 8 inches over that recorded in the previous year of 1887. The following table gives the detailed record for each month of the past year, together with the average of the past thirty-five years, and the excess or deficiency of 1888 compared with the average:—

Rainfall at Rothamsted, Herts, in Inches.

	Rainfall, 1888.	Average, 35 years.	Excess or deficiency in 1888 from average.
	Inches.	Inches.	Inches.
January	0·95	2·56	−1·61
February	0·97	1·83	−0·86
March	3·28	1·75	+1·53
April	2·14	2·02	+0·12
May	1·28	2·30	−1·02
June	4·87	2·38	+2.49
July	3·85	2·56	+1·29
August	3·38	2·52	+0·86
September ...	1·03	2·67	−1·64
October	1·09	3·16	−2·07
November	1·15	2·80	+1·65
December	1·69	2·21	−0·52
Total 12 months	28·98	28·77	+0·21

The sign (−) signifies below, and the sign (+) above the average.

The results show that while the total yearly record differs but little from the computed average, yet the individual months vary considerably. Six months out of the twelve gave a deficiency compared with the average, while the other six months made up the deficit with an excess. The most notable rainfall of the year was on June 26, when about 3¼ inches of rain fell in the space of a few hours. *J. J. Willis, Harpenden.*

CLETHRA ARBOREA, LILY OF THE VALLEY TREE.—While on a visit to the west of Cornwall at Christmas time, I was very much struck with the hardiness and beauty of this somewhat rare shrub which was flowering abundantly in the open air in Mr. T. B. Bolitho's garden, Treurdden, Penzance. The plant is some 4 to 5 feet in height, and was literally covered with its beautiful Lily of the Valley-like flowers. I believe the flowering of the plant in the open air in this country to be a rare occurrence. *J. C. M.*

CRANBERRY GROWING AT ASHBURNHAM PLACE.—It is to me surprising that the subject of this note finds so few cultivators in this country, but this may be due to an erroneous impression that the plants are difficult to manage, except under special advantages, and would not find much favour at table in tarts or as a jelly. The first objection can be very easily met by any cultivator who wishes to grow the plants, and to prove that that is so I will simply state my own experience, and I will venture to foretell success to those who follow my practice; the second objection is disposed of by the admiration expressed by many ladies and gentlemen, and practical gardeners also, who have tasted the cooked fruits, many gallons of which Lord Ashburnham has distributed among his friends. Just imagine what it is to have from October to February a dish of these delicious fruits—this, too, independent of snow rain or frost (frost improves them, by the way). We have four beds here, each 55 feet by 12 feet; a water-pipe is connected with the upper or slightly higher bed, and by means of this sweet water from a lake is brought in which flows through the beds in succession, finally finding egress at the end of the lower of the beds, the flow continuing from April to September, after this date the water being turned off. The beds dry up in a wonderfully short time, and this fact is not to be lost sight of, as thereby the ripening of the fruit is hastened, and the ripe berries keep better than those partially ripe. An open sheltered position should be chosen for the overflow bed, which should be dug out to a depth of 2 feet, and lay overflow drain-pipes at a height of 6 inches from the bottom—the latter as well as the sides being rammed firmly, or, better still, cemented, so that no water may escape below the level of the overflow pipe. Place stout Oak posts at the required distance apart, allowing them to stand 2 feet out of the ground, and proceed to make a platform to carry the bed, erecting the latter so that 4 inches of water may rise through and round the bed. The boards composing the floor should not be nailed closer together than 2 inches, by this means ensuring good drainage for the bed of soil. Over the floor lay 9 inches of broken brick clinkers, and on this material place good fibrous peat and charcoal broken to an inch square, making all firm as the work proceeds. Early in April is a good time to plant. We simply cut off the previous summer's growth and plant it in trenches, and in September of the year following the beds should bear a good crop, and go on for some years, improving each year. All the attention these beds need is to clear away weeds and moss, seeing that water is supplied at the proper time, and that is kept at the height before stated. So far I have stated how their successful culture is carried out here, but I have omitted to state that one bed is encased in cemented brickwork, which is, in my opinion, unnecessary. I would hazard the opinion that Cranberries could be profitably grown on peaty land in this country now laying waste. It would simply be necessary to have open drains to convey water on and off the beds. That the fruit will grow with even less than this was proved by our success recently with a bed about thirty years old which showed signs of declining. I planted a fresh bed last April, and close by this one, I dug out a hole for another, 20 feet by 6 feet and 3 feet deep—a foot of drainage being placed at the bottom, and on this some furze and faggots were placed, filling up level with the surface with peat, &c. This bed received no water except by sprinkling night and morning, and of the two beds, the latter has done the better; but it remains to be seen whether it will crop as well in the future. We grow to varieties here, viz., palustris and macrocarpa—the former being most liked, its fruits are not quite so acrid as the other, and it is not so strong a grower and cropper as mycrocarpa. *H. R. Holmes, Ashburham Gardens, Battle.*

ASPARAGUS ROOTS FOR FORCING.—Having found that strong one-year-old roots of Asparagus, if transplanted into well-prepared beds, produced heads the following year little inferior in size—but, of course, less in number—than those from older roots, I took advantage of this wrinkle to secure roots for forcing, instead of waiting a longer time or lifting well-established beds. For early forcing, I find the younger roots respond more readily to heat, even early in November, than those of older growth; moreover, I find it easier to find a sufficient quantity of young roots to afford Asparagus for the table, almost daily, from November to the time of cutting out-of-doors, and if there are fewer large heads than from old roots, a much larger number of young roots can be got into a given space to compensate for this. I annually raise plants for forcing from seed of my own saving. In this we are particular to save seed only from the strongest stems. In spring we leave a few of the stoutest heads we can discover on the beds; stakes are then put to these, and as they grow they are kept tied. From these stems in the autumn the ripest and finest berries are picked, and the seeds washed out and dried; afterwards, during winter, a sufficient quantity of the plumpest and largest seeds is picked out for sowing. We usually sow as early in March as the state of the weather will admit, choosing a well-cultivated spot somewhat sheltered, but fully exposed to the sun. The seeds are sown thinly in drills a foot apart, and when the plants are up 3 or 4 inches high, some rich light compost or leaf-mould is laid between the rows; this keeps the roots cool and is gradually washed in by rains, or watering during hot dry weather. The roots remain in the seed bed until the following spring, when they have thrown up tops 4 to 6 inches high, they are

carefully lifted and separated, and the strongest picked out and planted on a quarter in the kitchen garden that has been, during autumn and winter, manured and well worked over with spade and fork. The rows are 20 inches apart and the plants 1 foot in the row, after planting the rows a light ridge of earth is drawn to them—this supports the young stems—and some Mushroom-dung or leaf-mould is dropped into the furrows between the ridges. By autumn the tops of these young plants are equal in strength to ordinary plants of three or four years' growth. We begin early in November to lift the roots for forcing and continue to introduce them, at intervals into the forcing-pit or frame, until we can gather supplies from beds in the open ground. Asparagus grown in this way is a capital kitchen garden rotation crop, nearly all other kinds of vegetables grow freely and do well after it. Although we have grown Connover's Colossal, Argenteuil, and other so called varieties, eventually I have failed to see any appreciable difference from the common Asparagus, save in colour, and as regards this, there are two kinds, one having purple and the other greenish-white heads, which is especially noticeable when the growth is young. *J. W., Orwell Park, Ipswich.*

LOAM should be taken now, as the grass is shortest at this time of year. Lift only a few inches of the top soil, and it will be found that after frosts the grubs, &c., have descended to some greater depth, and that which is lifted is thus fairly free from pests. Gardeners are sometimes under the necessity of lifting turf from places where it can be ill spared; but if taken off during winter, and a new layer of soil put on (refuse soils will do very well), the ground dug over, exposed to a little frost, and finally sown with good grass seeds in spring, a growth will be again secured for the summer-time. I think if this matter were attended to a little more, proprietors would be more willing to break up old pastures. The natural fertility of a soil mainly depends on its composition, yet a soil might contain large quantities of plant food without being fertile—if those elements are in a locked up or unavailable form; therefore, in selecting a soil for the cultivation of plants under glass one containing a large amount of readily available plant food is most suitable; and this may be secured by taking the turf from an old sheep pasture. Where a plentiful supply of this kind of loam exists all is fairly plain sailing; but in its absence it is not difficult to bring a poorer soil up to the same standard. A convenient mode of doing this is, when carting in the loam, to mix in layers throughout the stack manure from the stables, or from fatting bullocks preferably: it should be allowed to lie about a year, by which time the soil and manure will have become incorporated, and well suited for growing all sorts of soft-wooded plants requiring loam. If a quantity of bone-dust be added with the manure it would much enrich the mass. *F. Ross.*

EVERLASTING PEAS.—The commonly grown Everlasting Peas are Lathyrus grandifolius and L. latifolius (=L. sylvestris platyphyllus), and which are so well known as to need no reference. There are certain others, however, which are not so well known as they ought to be. The broad-leaved L. latifolius has given us a very beautiful white-flowered variety. Not only is it very beautiful when growing, trained to pillars, &c., but it is valuable for cutting from. Lathyrus roseus is a brighter rose-coloured flower than the others; L. latifolius splendens, of a rich glowing rose colour, excels both. Flowering a month in advance of the foregoing are L. rotundifolius and L. grandiflorus, the former with flowers of bright rose, a native of Southern Russia and the Caucasus; it has slender stems, and is very free flowering. The latter has bright rose and purple-coloured flowers of a large size, and is hardy and very handsome. Everlasting Peas soon establish themselves in almost any soil and position, and on that account should occupy a position where their rapid increase will not do injury to other less strong growers. *William Earley, Ilford.*

LORD TENNYSON POTATO.—The season for Potato planting will shortly be upon us, when many a cultivator will be set wondering what new variety he shall try by way of a change. As a main crop variety I would strongly recommend the new Potato, Lord Tennyson, sent out last spring by the raiser, Mr. H. Fletcher, of Annesley, Notts. I have grown it, and have seen it at exhibitions during the past summer and autumn, and I may say that in every case almost it carried off 1st prizes. It is a good late keeper; the tubers grow to a large size; white skin, beautifully flaked with purple; the flesh white and of good quality; a very heavy cropper. It was awarded a First-class Certificate at the meeting of the Royal Horticultural Society, September 21, 1887. Whilst many varieties of recent introduction have suffered in the past season greatly from disease Lord Tennyson was but slightly affected in this locality. *J. F.*

HELIANTHUS LÆTIFLORUS, OR HARPALIUM, RIGIDUM SEMI-PLENUM.—Last September a flower was exhibited to the Floral Committee of the Royal Horticultural Society by Mr. Ware, bearing the above ambiguous title. I think it received a Certificate, and the name became the subject of discussion in the *Gardeners' Chronicle*. As I was responsible for having distributed the plant under the former name, which was discredited by a higher authority, I at once pressed some specimens from my garden, and sent them in December to the keeper of the herbarium, at Harvard University, asking him to be so kind as to compare them with the late Professor Asa Gray's types, from which the various species of Helianthus had been described in the *Flora of North America*. I only added that opinions in England were divided, some referring the plant to H. lætiflorus, other to H. rigidus; but I named nobody. I have just received the following courteous reply:—

"Herbarium of Harvard University, Botanic Garden, Cambridge, Mass., Jan. 1, 1889.

"I have your favour of the 16th ult., with specimens of a Helianthus, which I have carefully compared with the species in the herbarium as named by Dr. Gray. I can come but to one conclusion, viz., that they should be referred to H. lætiflorus. The main differences between that species and H. rigidus are the colour of the disc and the shape of the involucral bracts—yellow disc and lanceolate-acuminate bracts in H. lætiflorus, purple disc and ovate or ovate-lanceolate acutish bracts in H. rigidus. By these characters there can be no doubt under which species your plant belongs. We have specimens of the two species as they were cultivated on the Continent seventy years ago, and I can see no difference whatever between this of yours and the H. lætiflorus of Hort. Paris in 1818. *Sereno Watson.*"
C. Wolley Dod, Edge Hall, January 13.

LILIUM POLYPHYLLUM.—In July, 1887, you published a note from me on Lilium polyphyllum blooming in the Wisley garden with thirteen flowers and buds on a stem 5 feet 5 inches high. I asked for information from any reader who had seen the Lilies flowering at home in India. Several of your readers were good enough to give their experience. I have just received some additional information from Mr. Griffith, of Kolagiri, Nilgiris: he says:—"You mention having thirteen blossoms of L. polyphyllum on one stem; I have never here had more than three, but another correspondent to whom I sent bulbs tells me he has had nine fine blooms on a stem. L. polyphyllum likes to be covered with snow for two or three months in the year, and here they only bloom, as it were, under protest, though they will grow well if protected from sun. Mr. Huflelen, of New York, tells me also one of my L. polyphyllum bulbs gave me nine blooms on a stem." I showed the stem of one bulb at the Scientific Committee on November 8, 1887. *George F. Wilson.*

CHRYSANTHEMUM SPORTS.—I have read with much interest Mr. Davis' remarks on the floral colouring of the Chrysanthemum (p. 40-41), and beg to supplement his remarks by saying that, without a doubt, yellow is the original or primary ground-colour of these flowers. There is really no such colour as white, a white petal being composed of tissues from which the primary colours, the red, yellow, and blue pigments, are absent. Mr. Davis is singularly unfortunate in his illustrations; for example, he says, "a true red must be a self-colour, as, for instance, the scarlet Pelargonium." Now the colouring of a scarlet Pelargonium is not a self-colour, but, in reality, a thin film of purplish-red cells overlying a pure white ground-colour. Anyone can prove this by tearing a petal across diagonally, and the only way we can obtain pure scarlet is on these conditions—red on a white ground. Yellow is the true primary or ground-colour of the Chrysanthemum, as the very name implies, although the Greeks intended it for a very different plant to ours of to-day. White Chrysanthemums, originally sported, or came as seedlings, from the yellow-ground type, and the white varieties, bearing yellow sports now-a-days, are simply reversions to the ancestral type (atavism) or form. The ground colour of all Chrysanthemum flowers is yellow, even when the yellow pigment is partially absent, as in the so-called white varieties, some of it always remains at the base of the florets. All floral colouring was originally green, then yellow, then white flesh, rose, red, purple, and finally blue, which is the highest and rarest note in floral colour. Why the blue pigment should vanish from green petals, thus leaving them yellow; or why it returns to the red flowers, thus forming purple ones; and finally, why red colour finally vanishes, leaving us blue flowers, is what I cannot explain. No doubt the question is a chemical one. *F. W. Burbidge.*

HOW TO PRESERVE ENGLISH APPLES.—We have now had before the gardening world for many months the question—How the Apple grower is to make the most of his Apple harvest after the orchards have cast the golden riches at his feet? I think most of your readers would agree with me when I say that in ordinary seasons, in non-cider counties, there is a clear loss, through bletting and rotting, and sometimes frost, of one half the crop after it has been stowed away in the Apple chamber, and before the whole is consumed. In view of this serious loss could we not, at the season of gathering, make use of some process with the object of preserving the fruit, either by boiling and reducing to a pulp, with or without sugar, and storing the product in large jars or casks properly headed down? Our American cousins often speak of "barrels of Apple sauce" (or "sarce"). What is the precise meaning of that phrase? Do they have barrels of Apple sauce, and how do they do it? I wish some kind, Transatlantic friend would enlighten us on the matter, by putting us in the way of cheaply preventing half of our Apple crop from going to waste every year. If "a penny saved is a penny got," so an Apple saved is an Apple got. I therefore urge the case on behalf of the children—let alone the parents—and would say, what a grand addition would thus be made to the happiness, as well as to the stock of wholesome food of the rising generation. *W. M.*

BEGONIA GIGANTEA ROSEA.—As seen in the conservatory of Captain Edmonds at Eastcote, Pinner, this is a noble plant for winter work, its large trusses of rosy-crimson flowers being carried well above the massive shiny green leaves which also constitute it an ornamental plant when not in flower. It was certificated to Mr. Cannell, of Swanley, and Mr. Fry the gardener grows a lot of it, as it is a handsome robust plant not easily matched for a large conservatory. Cannell's White Perfection, Fern-leaved Primula, which is plentifully displayed on the side stages makes a fine contrast with the Begonia above-mentioned, and the brilliant scarlet of the Poinsettias and the graceful sprays of Calanthes and a few other Orchids. *J. O'B.*

HERBACEONS PLANTS.—Replying to Mr. Horsefield's note (p. 21), permit me to explain that when I stated his front row would be "nearly bare for nearly nine months of the year" I had in my own mind turned out the Tussilago as unworthy a place in the select border, and seeing that another writer has protested against its admission into the herbaceous border, it remains for those planting it in such a position to await a season and see the folly of their ways. This refers to T. fragrans, the best use for which I have indicated at p. 634, vol. iv. T. farfara variegata is rarely recommended, for its seed is as great a pest as that of Groundsel, and but for its foliage, which is certainly handsome when well coloured, every atom should be most carefully searched for and burnt. And now a word as to what Mr. Horsefield calls my "random statements" at p. 21. For many years I have asserted that I would undertake to make a border gay for at least nine months of the year when planted exclusively with hardy perennials, but Mr. Horsefield undertakes to provide flowers for eleven months with a dozen species and a few varieties which he has not named, As showing the variety he would give to a beginner, I may point out that six of those named have blue flowers of varying shades; the Hellebores are white in midwinter, the Iberis white, tinged with lilac or purple; the Hepaticas, pink, white, and blue; while Veronica reptans I do not know—this is most probably a misnomer. I regret to find that your correspondent has curiously extended the times of flowering. Did Mr. Horsefield ever know a plant of Gentiana verna to flower for two months in succession? I have had hundreds of this plant in my charge at one time,

but never in my most sanguine moments did I ever hope to see the flowers with me for more than one month. Again, when has Mr. Horsefield seen Campanula carpatica in flower in April or October? I gather my seeds of these in the latter month, and in open weather there may be in a bed 4 feet long half-a-dozen straggling blooms, but this entirely depends on the presence or absence of frost. There is a wide difference in the times of the flowering as given by your correspondent and myself; for instance, the Hepaticas are stated to flower for a period of three months, but the half of that time is near the mark. *E. Jenkins.*

ANTHRACITE COAL.—After reading the remarks of your correspondent, "W. H.," in the *Gardeners' Chronicle* of January 5, p. 20, on fuels and stoking, it occurred to me that anthracite coal has been in use for gardening purposes to a larger extent than many might be aware of. During the last twelve years we have used nothing else, except we by chance have run short before the next supply of coals came, we have then filled up the deficiency by using coke for a day or so. If this change of fuel happened in cold weather, the majority of the temperatures were found to be wrong in the morning. This Welsh coal requires a little patience and perseverance at first. No doubt there are different kinds of anthracite, some burning more freely than others; that we have used is slow burning, and it is therefore wise to start the fires in time. I have made it a rule that the fires should be attended to soon after 2 P.M., so that if any were low they could be got into order before the evening, after which time there is little trouble with them until the next morning. One of the first drawbacks we had to contend with was the fire-bars expanding so much that they twisted out of their proper form. I discovered the cause of this was that the ash or cinders falling into the ash-pit, retained a much stronger heat for a considerable time longer than the cinder of ordinary coal or coke, thus having a fierce heat both at the top and under the fire-bars; the latter were almost melted. The best remedy I could think of for dry stokeholes was to have the ash-pit cleared out often; and in order to make it more convenient and pleasant for the stoker, I had the pit formed as follows:—At about 6 inches from the furnace front inside a drop was made 6 inches deep, this dip being carried forward under the bottom door, and sloped up outside at about 18 inches from the furnace front, the lower pit being about 1 foot wide; arranged in this way there is no excuse for the stoker to let the hot ashes remain under the bars, as they can be drawn down into the lower ash-pit to cool. There is no unpleasant dust or sulphur. Of course it is necessary, when desirous of checking the fire, to let sufficient ashes stop in the pit to block the opening. The boilers in use here are of the saddle form. I have always considered it best to set the boilers in pairs, that is, instead of having one large boiler, to have two connected, the combined power of which would be equal to a large one twice the size of either. The temperatures can be kept more under control, and two smaller boilers are more easily managed than one double their size. We have also provided against a breakdown by having fullway screw valves attached, so that if one boiler became disabled, we could screw down the valves and still continue working the other boiler. *C. Woolford.*

—— I was somewhat interested in reading in the *Gardeners' Chronicle*, December 29, p. 766, Mr. Thomas Christy's experience in the use of anthracite coal. I am of opinion that there are still many who have not ventured to give it a trial who cannot form any idea of the advantages derived from its use. Of course the mode of stoking for the anthracite is very different to that for coke, consequently a slight difficulty will creep in here, but when this is once overcome the results are widely apart. I quite endorse Mr. Christy's remarks regarding the raking system, which is so customary with those who have been used to coke fires. To make the anthracite coal a success this should not be resorted to, but when once placed on the fire it should be allowed to remain and gradually burn down, and, as Mr. Christy observes, be regulated by the draught. When visiting Mr. B. S. Williams' Nursery, Holloway, in 1881, I found that they were using the Diamond anthracite coal; they informed me that they used no other fuel. I obtained the address of the person from whom they obtained their supply, and placed this before my employer. We had a truck for trial. The results proved so favourable, that we continued to use it. From that date up to the present I have induced many gardening friends to give a trial, and I believe with one exception they are still using it. To have the supply from the proprietor, no doubt, must be an advantage, as the same quality may always be relied on. *J. Churchfield*, 27, *North Terrace, Lower Sydenham.*

SOCIETIES.

ROYAL HORTICULTURAL.

January 15.—This, the first of the year, was also a very small meeting, in so far as regarded the objects brought before the various committees; the Drill Hall, Westminster, consequently presented an unwonted appearance, but the usually comfortless aspect of the place was banished by roaring fires in the two fireplaces. The Fruit and Floral Committees, both made powerful by the addition of ten new members to each, met in full force.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. J. Fraser, C. Pilcher, H. Ballantine, J. Dominy, H. M. Pollett, J. O'Brien, E. Hill, R. B. Lowe, T. W. Girdlestone, J. Douglas, W. H. Williams, C. Noble, R. Dean, W. Holmes, B. Wynne, L. Castle, H. Herbst, J. Laing, H. Cannell, H. Williams, E. Mawley, G. Nicholson, F. Ross, J. Leach, G. Paul, T. Baines, Shirley Hibberd, and J. Walker, M. T. Masters.

Some lovely spikes of Lælias came from Baron Schroder's gardens, The Dell, Egham. These consisted of L. Dawsoni, L. Sanderiana, L. anceps, L. Percivalliana, and L. Schroderiana, and were in the fine condition we are always accustomed to observe in Mr. Ballantine's plants.

Mr. Parkes, gr. to H. M. Pollett, Esq., Fernside, Bickley, exhibited two plants of rather remarkable Odontoglossum crispum, the one, rubro-maculatum, has the ground colour of sepals and petals white, upon each of which there is an irregular shaped, comparatively large patch of chocolate-brown; the lip has a small, roundish patch of the same hue. Bickleyense has a creamy-white ground on which, on sepals and petals, a large, also irregular light brown blotch appears. It had both large flowers and a large spike; both varieties have showy and effective flowers, and were well done.

From the gardens of Lord Rothschild, Tring (gr. Mr. E. Hill), came cut flowerspikes of Phalænopsis Rothschildiana (P. Schilleriana × P. Aphrodite-amabile of Lindley). All parts of the flower are white, except the lip, which is faintly spotted with brown. The total expanse of a good bloom was 2 inches; and the foliage resembles that of P. Stuartiana. From the same collection, was Vanda Amesiana, with four blooms on a spike; the sepals and petals are white with a very faint suffusion of rose colour; the lip, magenta, was bent at the margins downwards, causing an apparent lessening of its width. The foliage, about 8 inches long and ½ inch wide, was dark green, and deeply channelled.

Some few examples of Messrs. Cannell & Sons' latest advances in Chinese Primula raising, were much admired, although in the much frilled and voluted segments there is considerable departure from the type demanded by the older florists. The colours are admirable, and the flowers have much substance; and in only one instance was the disfigurement of the pin eye observed. The plants were exhibited merely as types of new strains. This mode of showing a few plants—or one only, of any particular strain, new hybrid, or species, is far preferable to showing the same in great masses as is sometimes done. P. s. carinata elegans is a seedling—long sought for—from P. s. punctata. It has fine carmine coloured flowers, with a pentagonal eye; P. s. Princess Mary, and Queen's Favourite are of varied shades of pink, the latter having the deeper tone; P. s. Swanley Mauve has good quality, and plenty of foliage of the usual stamp; P. s. Her Majesty has fern-like leaves, and white, much-frilled blooms. The eye spoils it, but more rigid selection of seedling blooms may lead to improvement here.

A pale yellow, double-flowered Bouvardia, named flavescens, came also from Messrs. Cannell's. It will be useful as a variety, especially for small bouquet work. A group of a semi-double flowered Primula, named Miss Inez, was exhibited by Mr. J. Knight, The Oaks, Epsom; it has very pale flesh-coloured flowers, which are freely produced. Two flower-stems of Billbergia decora came from Sir G. Macleay's garden, Pendell Court, Bletchingley (gr., Mr. F. Ross). The flowers are inconspicuous, the beauty of the plant being in its bracts, of which there are 8—10 on an inflorescence. These are about 3 inches long, and 1 inch wide, and of a rosy-scarlet hue: the foliage is green, with numerous specklings of white.

FIRST-CLASS CERTIFICATES.

To Vanda Amesiana, from Lord Rothschild. Votes, sixteen to three.

To Primula Swanley Mauve, from Messrs. H. Cannell & Sons. Votes, eleven to eight.

AWARDS OF MERIT.

To Primula Miss Inez, from Mr. J. Knight.

To Primula Princess Mary, from Messrs. H. Cannell & Sons.

Fruit Committee.

Present: R. D. Blackmore, in the chair; and Messrs. H. J. Veitch, J. Roberts, W. Bates, J. Cheal, G. Cliffe, W. Denning, J. Burnett, T. J. Saltmarsh, W. Warren, G. T. Miles, S. Ford, G. Bunyard, C. Ross, G. Wythes, Harrison Weir, F. Lane, J. Willard, F. Moore, P. Crowley, P. Barr.

The Rev. R. W. Wilks, Vicarage, Shirley, Croydon showed three fruits—well preserved—of Pear Doyenné d'Alençon, the characteristic rich russet marking of the rind being well brought out. It is a tender buttery pear, if somewhat gritty at the core, and valuable for its late keeping. It is a good grower and bearer. Mr. W. Allan, gr. to Lord Suffield, Gunton Park, Norwich, showed four bunches of Mrs. Pearson Grape unusually well matured, and showing the rich amber tint of the variety in that eventuality. It is an excellent fruit, but the long period required to ripen it precludes its general cultivation. The exhibitor received a Cultural Commendation.

Mr. C. Davis, gr. to the Rev. H. Arkwright, Bodenham, Leominster, showed a plateful of a seedling Apple, named Bodenham. It is a rich-coloured fruit, above medium size; of its quality we cannot speak.

HOW TO PRODUCE IN MAY EARLY POTATOS WITHOUT THE AID OF GLASS.

I HAVE been doing my best for the last three or four years to stimulate or intensify early Potato production in warm sheltered nooks in the southern portion of the County Cork, and I have always been told the climate was quite equal to it, and indeed that in former times throughout Kenmare Bay, extending into Bantry harbour, and about Crookhaven, the common "white Pinks" were often brought into Skibbereen and other markets from May 10 to 15. If this can be done with the variety White Pink. that, to my mind, is only a July variety, why can it not be better done if we use the following method of cultivation and an earlier selection of sorts, such as Myatt's Ashleaf Kidney, Early Vermont, or Beauty of Hebron?

First of all, we must select warm, sheltered, southern slopes, trench, dig, manure, or lime, the soil during winter, and throw up raised beds of 4½ feet in width, ridged to the sides from a 2-foot centre. The furrow or alley should be also 2 feet wide, in which "hillocks" should be formed 15 to 18 inches apart, and on which hillocks the Potato sets should be inserted, using good stable manure. By the end of March and first week in April the Potatos will appear well above ground, when a little artificial manure should be applied, and the stalks drawn to or earthed with a draw-hoe or *griffawn*. The only danger then to be dreaded is white frost and cutting easterly winds, and any experienced person can tell of the approach of frost, when a few rough mats got from corn stores, or platted reeds or rushes, laid down across the beds, will protect the stalks, that are by design in hollows; in fact, every raised two beds, with the mats so placed, covers one hollow, and all such raised beds can be planted with young Cabbages, Leeks, Onions, or Broccoli, the latter planted out the previous autumn; and the very fact of having green foliage on each

side of the Potato sets acts as protection and shelter for the tender esculent, as the leaves of all Brassicas absorb frost, and there is no lost ground on small plots by adopting this plan.

The very fact of getting from 6*d*. to 9*d*. per lb. for the Potatos sent away in neat boxes to Dublin, Edinburgh, or Belfast by parcel post in May repays the trouble; and when the Potatos are dug from the furrows, Savoy Cabbage, Celery, and Brussels Sprouts can occupy the position, to be taken from the soil later on. I would advise all our landlords by the sea coast to grow Escallonia macrantha from cuttings put in during October and November, and afterwards distribute the plants in spring, for fencing and protecting the warm, sheltered nooks of the south coast. It is already being done on the Derry estate in Rosscarbery, and no other plant or shrub yields so good a maritime protection. One fact to be considered, and which I forgot to mention above. How forcibly the sun's rays will catch and ripen the Potatos thus placed on "hills in hollows," and how concentrated the heat becomes in the warm sunshine of an April morning. The idea is original, and has never been practised unless by your obedient servant, and it may also be practised in the South of England. *W. B. Hartland, Temple Hill, Cork (in Cork paper).*

PHALÆNOPSIS AMABILIS.

In the history of Phalænopsis amabilis given by Mr. J. Douglas at p. 45, two different plants are unfortunately mixed up, as Cuming's Manilla plant is different from the one of Rumph and Blume there mentioned. These two latter represent what Mr. Douglas mentions a few lines later as P. grandiflora. The confusion which has arisen between these two plants is fully discussed in my "Revision of the Genus Phalænopsis," in these columns, in 1886 (n.s., vol. xxvi., p. 168 and p. 212). A few points may be here repeated.

Phalænopsis amabilis is a name originally given by Blume in 1825 (*Bijdr.*, p. 294, t. 44), to distinguish a plant found on the small island of Nusa Kambangan, off the coast of Java. The same plant had been figured and described by Rumphius, seventy-five years previously, as Angræcum album majus (*Herb. Amb.*, vi., p. 99, t. 43, A.D., 1750). This author remarks that he found the plant growing, in the island of Amboyna, on short, thick trees covered with moss, up which it turns like a rope, and from which it hangs down in entangled tufts. In 1753 Linnæus described it in the first edition of his famous *Species Plantarum*, p. 593, as Epidendrum amabile. The type specimen (still in an excellent state of preservation in the Linnean Herbarium) had been sent to him by Osbeck, who obtained it on January 19, 1752. at the western extremity of Java, where he touched on his voyage home from China. Osbeck's account of the plant, and the curious circumstances under which he obtained it, are given in my paper above cited. Roxburgh transferred the plant to Cymbidium, and Blume founded the genus Phalænopsis for its reception. In 1833 Lindley had the plant all correct in his *Genera and Species of Orchidaceous Plants*, and there is not the slightest confusion until five years later. Then a plant which had been sent from Manilla by Cuming flowered in Messrs. Rollisson's Nursery at Tooting; and Lindley, instead of describing it as a new species, wrongly identified it with Blume's plant, not yet in cultivation. When, however, ten years later, this latter plant flowered for the first time in this country, Lindley saw its distinctness, but, not perceiving the error into which he had stumbled (*Bot. Reg.*, 1838, t. 34), he described the new-comer (the plant actually figured and described ninety-eight years before) as P. grandiflora (*Gard. Chron.*, 1848, p. 39, fig. 1). For the further history of this confusion, and corrected synonymy, I must refer readers to the paper above cited (excluding, however, P. casta, leucorrhoda, and Sanderiana, from the list of supposed varieties of P. Aprodite, and replacing them as hybrids), merely adding here that P. grandiflora is none other than P. amabilis, the original plant of Blume, the Cymbidium amabile of Roxburgh, the Epidendrum amabile of Linnæus, the Angræcum album majus of Rumphius, a plant known eighty-eight years before the Philippine plant was described at all. The spurious P. amabilis, the Philippine plant, has been rechristened P. Aphrodite by Professor Reichenbach, and why should we not adopt the change now we find out our error? I am told "This may be all right for botanists, but let us keep the spurious names for gardens." Why should we? "Well, gardeners will not change their names; you must be content to have one name for science and another for gardens. In this case it cannot be helped." But why not? I would ask. Gardeners want names by which they can distinguish their plants, and these names they are content to accept from the books and periodicals that come in their way; and once get these names corrected in the books the rest will follow. Mr. Nicholson, in his excellent *Dictionary of Gardening*, has had the courage to adopt the correction, and I have little doubt the Messrs. Veitch will follow suit. In this case there is some hope of the names righting themselves in time, when the gardener will understand what the botanist is talking about, and the reverse. Some inconvenience will be felt at first, though less than will result from a continuation of the present illogical nomenclature of these plants. The longer the correction is deferred the more difficult to effect it becomes. *R. A. Rolfe.*

LAW NOTES.

ARNOLD *v.* WHITE.

This case was heard before the Lord Chief Justice and Mr. Justice Hawkins in the Queen's Bench Division on the 14th inst. It was an appeal from the County Court of Devonshire. The plaintiff, a market gardener, claimed from the defendant, a salesman in Covent Garden, a sum of £56 14*s*. for Primroses sold him on the occasion of last Primrose Day, but he reduced his claim to £50 in order to bring his action in the County Court, which resulted in a verdict for the plaintiff. The question arose upon certain telegrams. One from the plaintiff, on Tuesday, April 17 (the 19th being Primrose Day), was to the effect:—"I can sell you, to arrive on Wednesday, 500 dozen at 9*d*. a dozen. Wire sharp." On the same day the defendant telegraphed—"I will take all you can send to-day, to-morrow at 7*d*. dozen." One dispute was whether this meant to-day for to-morrow," or "to-day and to-morrow." One lot arrived in due time, and a cheque for £19 19*s*. was sent in payment, but there were disputes as to other lots, and it appeared that two cheques the plaintiff had received he had not cashed. Their Lordships reduced the amount of the verdict to £17 7*s*. 10*d*., on the understanding that the cheques held by the plaintiff should be cashed.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending Jan. 14, is furnished from the Meteorological Office:—

"The *weather* has been very dull generally with a good deal of haze or mist. Rain fell in all parts of the kingdom during the first part of the period, but subsequently the conditions became drier, although slight rain was still reported from some of our eastern stations. Snow and sleet were experienced over England during the 12th.

"The *temperature* has continued slightly above the mean in the north and east of Scotland, but in nearly all other districts it has been rather below. The highest of the maxima, which were registered either on the 8th or 9th, varied frem 45° in 'England, N.E.' to 52° in 'Ireland, S.,' and the 'Channel Islands.' The lowest of the minima were recorded in most places during the early morning of the 8th, when the thermometer fell to 21° in 'England, E.,' and to between 24° and 29° in most other districts. In 'England, N.W.' the minimum was 30°, and in the 'Channel Islands' 31°.

"The *rainfall* has been more than the mean in 'England, N.E.' and over Ireland, but in most other districts a deficit is shown.

"*Bright sunshine* has been very deficient—especially over Great Britain. The percentage of the possible amount of duration ranged from 12 to 23 in Ireland, and from 2 to 14 in Scotland. In 'England, N.E.' bright sunshine was quite absent, but in the other English districts the percentage ranged from 4 to 21."

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree — a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature.				
		Accumulated.			
	Above or below the Mean for the week ending Jan. 14.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1889.	Below 42° difference from Mean since Jan. 1, 1889.
Principal Wheat producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. Scotland, N. ...	1 above	3	25	+ 4	— 25
1. Scotland, E. ...	1 above	0	36	— 6	— 10
2. England, N.E. ...	0 (aver.)	0	29	— 11	+ 6
3. England, E. ...	1 below	0	37	— 14	+ 46
4. Midland Cos. ...	1 below	0	34	— 19	+ 46
5. England, S. ...	1 below	1	27	— 19	— 29
Principal Grazing, &c., Districts.					
6. Scotland, W. ...	1 below	0	25	— 12	— 9
7. England, N.W....	1 below	0	22	— 17	+ 2
8. England, S.W....	1 below	5	22	— 29	+ 25
9. Ireland, N. ...	2 below	3	31	— 21	+ 18
10. Ireland, S. ...	1 below	19	18	— 16	+ 15
— Channel Islands	0 (aver.)	22	4	+ 1	— 5

Districts.	Rainfall.			Bright Sunshine.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 1, 1889.	Total Fall since Jan. 1, 1889.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1889.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. Scotland, N. ...	1 less	8	0.9	14	15
1. Scotland, E. ...	2 less	5	0.6	2	14
2. England, N.E. ...	3 more	7	0.8	0	6
3. England, E. ...	0 (aver.)	6	0.5	4	10
4. Midland Cos. ...	0 (aver).	4	0.6	10	12
5 England, S. ...	1 less	5	0.5	13	15
Principal Grazing, &c., Districts.					
6. Scotland, W. ...	1 less	5	1.2	3	8
7. England, N.W....	6 less	3	0.2	13	14
8. England, S.W....	2 less	4	0.9	21	22
9. Ireland, N. ...	4 more	7	1.4	12	16
10. Ireland, S. ...	3 more	6	2.0	23	26
— Channel Islands	0 (aver.)	5	0.9	22	45

Obituary.

James Kidd.—We regret to have to announce the death, at Canterbury, of Mr. James Kidd, late of the Exotic Nursery in that city. Mr Kidd died on January 7, aged fifty-eight years. Mr. Kidd, we believe, was in former days gardener to the Earl of Airlie, and was beloved by those who knew him for his upright principles and gentle character.

REV. CHURCHILL BABINGTON, DD. F.L.S.—We regret to learn of the death on Sunday morning last of this gentleman, who was well-known in archæological circles, and in botany as a lichenologist, chiefly. The reverend gentleman was brother to Mr. Cardale Babington, the well-known Professor of Botany at Cambridge University.

MARKETS.

COVENT GARDEN, January 17.

TRADE very quiet, prices remaining unaltered. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2 0–	4 6	Grapes, per lb.	0 6–	2 6
— Canada and Nova Scotia, per barrel	5 0–	12 0	Lemons, per case	12 0–	21 0
Cobs, 100 lb.	100 0–	110 0	Pine-apples, Eng., lb.	1 6	2 0
			— St. Michael, each	2 0–	8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	5 0–	...	Mustard and Cress, punnet	0 4–	...
— French, bundle	18 0–	...	Onions, per bunch	0 5–	...
Beans, Jersey and French, per lb.	1 6–	...	Parsley, per bunch	0 8–	...
Beet, red, per dozen	1 0–	2 0	Peas, French, per lb.	1 0–	...
Carrots, per bunch	0 6–	...	Potatos, per cwt.	4 0–	5 0
Cauliflowers, each	0 3–	...	— kidney, per cwt.	4 0–	5 0
Celery, per bundle	1 6–	2 0	— new French, lb.	0 6–	...
Cucumbers, each	1 0–	...	Rhubarb, bundle	0 6–	...
Endive, per dozen	3 0–	...	Seakale, punnet	2 6–	...
Green Mint, bunch	1 0–	...	Shallots, per lb.	0 6–	...
Herbs, per bunch	0 6–	...	Spinach, per bushel	4 0–	...
Leeks, per bunch	0 4–	...	Tomatos, per lb.	2 0–	...
Lettuce, per dozen	1 6–	...	Turnips, per bunch, new	0 5–	...
Mushrooms, punnet	1 6–	...			

POTATOS.—Beauty of Hebron, 80*s.* to 100*s.*; Imperators, 70*s.* to 90*s.*; Dunbar Regents, 110*s.*; do. Magnums, 120*s.*; and York Magnums, 100*s.* per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0–	18 0	Ferns, in var., doz.	4 0–	18 0
Arum Lilies, p. doz.	9 0–	15 0	Foliage plants, various, each	2 0–	10 0
Azaleas, dozen	24 0–	42 0	Ficus elastica, each	1 6–	7 0
Chrysanthems., doz.	4 0–	9 0	Hyacinths, dozen	9 0–	12 0
Cyperus, per dozen	4 0–	12 0	— Rom., doz. pots	9 0–	10 0
Dracæna terminalis, per dozen	30 0–	60 0	Lily-of-Val., doz. pts.	18 0–	30 0
— viridis, per doz.	12 0–	24 0	Marguerites, doz.	6 0–	12 0
Erica hyemalis, doz.	12 0–	24 0	Palms in var., each	2 6–	21 0
— caffra, dozen	6 0–	12 0	Pelargoniums, scarlet, per dozen	6 0–	9 0
— gracilis, dozen	8 0–	12 0	Poinsettias, dozen	9 0–	15 0
Euonymus, in var., per dozen	6 0–	18 0	Primulas, per dozen	4 0–	6 0
Evergreens, in var., per dozen	6 0–	24 0	Solanums, dozen	9 0–	15 0
Epiphyllums, doz.	18 0–	30 0	Tulips, dozen pots	6 0–	9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutillons, 12 bun.	3 0–	6 0	Mignonette, 12 bun.	2 0–	4 0
Arum Lilies, 12 blooms	4 0–	8 0	Narcis., paper-white, (French), 12 bun.	3 0–	6 0
Azaleas, 12 sprays	0 9–	1 0	— double, 12 bun.	1 6–	3 0
Bouvardias, per bun.	0 9–	1 6	Pelargoniums, 12 spr.	1 0–	1 6
Camellias, 12 blms.	3 0–	6 0	— scarlet, 12 spr.	0 6–	1 0
Carnations, 12 blms.	2 0–	3 0	Poinsettias, doz.	4 0–	9 0
Christmas Roses, 12 blooms	0 6–	1 6	Primulas, dbl., 12 sp.	1 0–	1 6
Chrysanthemums, 12 blooms	0 6–	3 0	Roses, Tea, per doz.	2 0–	6 0
— dozen bunches	4 0–	12 0	— coloured, dozen.	2 0–	4 0
Eucharis, per dozen	3 0–	6 0	— red, per dozen	1 0–	2 0
Gardenias, 12 blooms	12 0–	18 0	— Safrano, dozen	2 0–	3 0
Heliotropes, 12 spr.	0 6–	1 0	Stephanotis, 12 spr.	12 0–	15 0
Hyacinths, Roman, 12 sprays	1 0–	1 6	Tuberoses, 12 blms.	1 6–	3 0
Lapageria, 12 blooms	1 6–	3 0	Tulips, 12 blooms	1 0–	1 6
Lilac, white Fr., bun.	3 0–	7 0	Violets, 12 bunches	1 0–	1 6
Lily-of-Val., 12 spr.	0 9–	1 6	— dark, Fr., bunch	1 6	3 0
Marguerites, 12 bun.	3 0–	6 0	— Parme, Fr., bun.	6 0–	7 6
			Wallflowers, 12 bun.	6 0–	9 0

SEEDS.

LONDON: *Jan.* 16.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market thinly attended, with no great amount of business passing. Values all round continue exceedingly firm, and the future of this season's trade is regarded by holders with great confidence. In red Clover seed the tendency of values continues upwards. Alsike and white are dearer. Slightly higher prices are asked for foreign Italian. The rates demanded for Kœnigsberg Tares are considered prohibitory, consequently there is more inquiry for winter vetches. Peas and Haricots are without quotable change. For Bird seeds the sale keeps slow.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending January 12 :—Wheat, 30*s.* 2*d.*; Barley, 26*s.* 8*d.*; Oats, 16*s.* 6*d.* For the corresponding week in 1888:—Wheat, 31*s.* 4*d.*; Barley, 30*s.* 9*d.*; Oats, 15*s.* 11*d.*

FRUIT AND VEGETABLES.

SPITALFIELDS: *Jan.* 16—Large supplies of all kinds of greenstuffs. Trade very slow indeed. The Potato trade a little firmer in prices. Supplies not quite so good. Quotations:—Cabbages, 1*s.* 6*d.* to 2*s.* 6*d.* per tally; Savoys, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Greens, 3*s.* to 3*s.* 9*d.* do.; Cauliflowers, 10*d.* to 1*s.* per dozen; Broccoli, 8*d.* to 10*d.* do.; Brussels Sprouts, 9*d.* to 1*s.* 3*d.* per half-sieve; Spinach, 1*s.* to 1*s.* 6*d.* per bushel; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; Parsnips, 6*d.* to 7*d.* per score; Turnips, 1*s.* 6*d.* to 2*s.* per dozen bunches; Carrots, 1*s.* 6*d.* to 2*s.* do.; Parsley, 2*s.* to 3*s.* do.; Beetroots, 8*d.* to 9*d.* per dozen; forced Rhubarb, 1*s.* to 1*s.* 6*d.* per dozen bundles; Celery, 6*s.* to 12*s.*, do.; Horse-radish, 10*d.* to 1*s.* 4*d.* per bundle; English Onions, 4*s.* to 4*s.* 6*d.* per cwt.; Dutch do., 2*s.* 9*d.* to 3*s.* 3*d.* per bag; Belgian do., 2*s.* 9*d.* to 3*s.* do.; pickling do., 3*s.* 6*d.* to 4*s.* 6*d.* do.; Endive, 1*s.* 6*d.* to 2*s.* per dozen; Carrots, 18*s.* to 32*s.* per ton; Mangels, 16*s.* to 18*s.* do.; English Apples, 3*s.* to 5*s.* per bushel; do., 1*s.* 6*d.* to 2*s.* 6*d.* per half-bushel; American do., 6*d.* to 9*s.* per barrel.

POTATOS.

BOROUGH AND SPITALFIELDS: *Jan.* 15.—Supplies continue moderate and the trade steady, with very little variation in prices.—Regents, Scotch, 80*s.* to 125*s.*; English, 65*s.* to 95*s.*; Hebrons, 70*s.* to 115*s.*; Magnum Bonums, 60*s.* to 120*s.* per ton.

SPITALFIELDS: *Jan.* 16.—Quotations:—Regents, 70*s.* to 110*s.*; Imperators, 70*s.* to 90*s.*; Champions, 55*s.* to 65*s.*; Hebrons, 70*s.* to 90*s.*; Magnums, 55*s.* to 90*s.* per ton.

STRATFORD: *Jan.* 18. — Quotations: — Scotch Regents 80*s.* to 100*s.*; do., Magnums, 70*s.* to 105*s.*; do., English, light soil, 60*s.* to 80*s.*; Elephants, 65*s.* to 80*s.* per ton.

Imports.—The imports into London last week consisted of 200 bags from Hamburgh, 2 from Rotterdam, 20 packages from Flushing, and 60 from Malta.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime old, 120*s.* to 145*s.*; do., good second, 80*s.* to 110*s.*; do., inferior, 40*s.* to 75*s.*; do., new, 85*s.* to 110*s.*; do., inferior, 60*s.* to 80*s.* Hay, prime meadow, 120*s.* to 130*s.*; do., new, 80*s.* to 105*s.*; do., inferior, 30*s.* to 70*s.*; straw, old, 42*s.* to 49*s.*; new, 28*s.* to 42*s.* per load.

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

MANURES FOR MARKET GARDENS.—Can any market gardener give "Manures" the benefit of his experience with artificial manures for market garden crops, more especially for Strawberries, Currants, Gooseberries, Raspberries, Plums, Apples, &c.?

HEATING GLASSHOUSES.—I purpose erecting a set of glasshouses about 150 feet long. Can any of your correspondents give me their experience in heating with steam from a vertical boiler which would run a dynamo for the dwelling-house? *Oaks.*

NOTICES TO CORRESPONDENTS.

ACHIMENES: *Amateur.* There is no need to enquire which is the "right end" of the tubers; but in planting them thickly in shallow pans of sandy peat and leaf-mould finely sifted, first press the soil down slightly and make level; then lay the tubers horizontally, and about one inch apart, over the surface, covering them with half an inch of the compost. When the plants are 2 inches high transplant them in bunches of two or three plants, or singly, to properly prepared baskets, pots, or deep pans.

BOOKS: *J. T.* The publishers' name (Longmans, Green & Co.) is given in brackets.—*G. K. G. Kew Bulletin.* The price is 2*d.* Sold by Messrs. Eyre & Spottiswoode, East Harding Street, Fleet Street.

BOX TREES: *J. B.* Cut in midwinter, and dry very slowly in the shade—a barn or thatched shed is best.

CHRYSANTHEMUMS FOR SUMMER: *J. B.* See our Calendar for the Flower Garden last week.

COLOURS OF FLOWERS: *Mertens & Co.* There is no work dealing specially with this subject.

DAISIES ON LAWNS: *W. J. P.* Watson's lawn sand is, we believe, a kind of manure of a nitrogenous nature, which has the effect of causing rapid leaf development in plants. On lawns the effect is most noticeable in the grasses which are generally in the majority in turf; these grow with vigour and choke the weeds out of existence in time. In very dirty lawns the scythe is to be preferred to the mowing-machine for a season or two, the smothering of the grasses taking effect in less time when it is allowed to reach a height of 3 inches before being cut. There is no gain in employing the sand before leaf growth is about to commence.

GARDENIAS LOSING THEIR LEAVES: *Alpha.* The heat you have given the plants is much too high for the winter season—60° by night is high enough, between that and 55° is better. Day temperature, 6°—10° higher—even 15° with sunheat. With a lower temperature much less water at the root is necessary. Very little or no bottom-heat at this season.

GRAFTING, &C.: *O. H.* Your questions require too long an answer to be given here. Consult any text-book of gardening. It is well known that Adam grafted on the Paradise stock. Your first question answers your second.

KAURI PINE (DAMMARA AUSTRALIS): *J. L.* This tree is not hardy generally in this country. In Arran, Cornwall, and the south-west parts of Ireland, the plant will live in the open air without protection, but it is usually treated in gardens as a cool conservatory subject.

NAMES OF PLANTS: *T. Clarke.* Cyathea medullaris, probably, but the specimen was a poor one. The contents of the pod are neither Peas nor Beans. Where did you get the pod from?—*G. W. B.* It appears to be the ordinary Cœlogyne cristata.—*W. X.* 1, Hexacentris missouriensis; 2, Epacris miniata; 3, Cypripedium venustum.—*J. E.* 1, Retinospora filifera; 2, R. lycopodioides; 3, Cupressus Lawsoniana; 4, Juniperus sinensis; 5, Abies Lowiana; 6, Retinospora squarrosa; 7, R. plumosa; 8, R. filicoides.

NESPERA: *W. E. G.* Solanum betaceum, *alias* Cyphomandra betacea, *alias* Tree Tomato, *alias* Granadilla (erroneously) of the market. See *Gardeners' Chronicle*, vol. i., 1887, p. 383.

ORCHID LEAF: *D.* The spots are probably occasioned by the perforation of some insect (greenfly) at an early stage of the growth of the leaf.

PEAR GLOUT MORÇEAU: *An Enquirer.* We cannot say what has caused the Pear to become bletted; the stalk has dried up, and the juices have escaped. Where did the fruit tree grow—on a wall, or in the open? and in what part of the country?

PINUS: *W.* They are all certainly forms of the Corsican Pine (P. Laricio). Nos. 1 and 4 we take to be the Black Austrian; 2, 3, and 5, seem to be P. Laricio var. Pallasiana; but without a named collection of trees at hand it is difficult to distinguish the several varieties.

SAP: *J. E. P.* Water rises through the young wood to the leaves. Elaborated sap, as the gardeners term it, is formed in certain cells, and moves from cell to cell upwards, downwards, or crosswise, as circumstances demand and necessity compels. The old notion of an upward and downward current requires to be modified in the sense we have mentioned. Read the introductory remarks in the "Epitome of Gardening," or the chapters on the "Life History of Plants" in *Cassell's Popular Gardening.*

TRAPA BICORNIS: *W. H. R.* A description of this plant is found in the *Treasury of Botany.*

CATALOGUES RECEIVED.

ALEX. DICKSON & SONS, 55, Royal Avenue, Belfast —Seeds.

BEN. REID & Co., Aberdeen, N.B.—Seed List.

JOHN EDWARDS BARNES, Great Eastern Seed Stores, 9, Exchange Street, Norwich—Seeds and Requisites.

A. D. COWAN & Co., 114, Chambers Street, New York, U.S.A.—Lorillard Tomato.

WM. L. BEALE, Neath.—Garden Seeds.
OAKSHOTT & MILLARD, Reading.—Vegetable and Flower Seeds. [List.
J. C. WHEELER & SONS, Gloucester.—Select Seed
ROBERT VEITCH & SON, Exeter.—Kitchen Garden and Flower Seeds.
THOMAS BUTCHEE, Station Road, South Norwood, S.E.—Garden and Flower Seeds, and Sundries.
LITTLE & BALLANTINE, Carlisle.—Garden Seeds.
HOOPER & Co., Covent Garden Market, London, W.C.—Seeds.
WILLIAM WATT, Cupar and Perth, N.B.—Trees and Herbaceous Plants, &c.
JAMES YATES, Underbank and Royal Oak Mills, Stockport—Trade List of Seeds.
J. R. PEARSON & SONS, 2, Exchange Row, Nottingham—Garden Seeds.
J. and R. THYNE, 83, St. Vincent Street, Glasgow, N.B.—Garden Seeds.
WM. LEIGHTON, 89, Union Street, Glasgow, N.B.—Seed List.
HENRY ERSKINE, 80A, George Street, Edinburgh, N.B.—Seeds, Gladioli, &c.
PETER HENDERSON & Co., 35, and 37, Cortland Street, New York, U.S.A.—General Catalogue.
BARR & SON, 12, King Street, Covent Garden, London, W.C.—Seed Catalogue.
W. DRUMMOND & SONS, Stirling, N.B.—Vegetable and Flower Seeds, &c.
HAAGE & SCHMIDT, Erfurt, Germany — Seed and Plant Catalogues. [List.
J. CHEAL & SONS, Lowfield Nursery, Crawley—Seed
WM. PAUL & SON, Waltham Cross, Herts—Seeds and Sundries.
ALEX. LISTER, Rothesay, N.B.—Seeds and Plants.
PETER LAWSON & SON (LIMITED), 1, George IV. Bridge, Edinburgh, N.B.—Seeds; Trade List.
DOBBIE & Co., Rothesay, Scotland — General Catalogue of Seeds.
WILLIAM FELL & Co., Wentworth Nurseries, Hexham—Spring Seed Guide.
E. P. DIXON & SONS, Yorkshire Seed Establishment, Hull—Garden and Farm Seeds.
FIELD, JAMES & FIELD, Norwich—Seeds.
THOMSONS, 20, High Street, Birmingham—Seeds.
W. BULL, 536, King's Road, Chelsea—Select Seeds, Lilies, Gladioli, and other Bulbs.
ALFRED LEGERTON, 5, Aldgate, London, E. — Trade Catalogue of Garden and Agricultural Seeds.
W. CUTBUSH & SON, Highgate and Barnet—Flower, Vegetable, and Farm Seeds.
MESSRS. TOOGOOD & FINLAYSON, Above-Bar, Southampton — Garden Seeds and Amateur's Guide.
J. GREEN, Norfolk Nurseries, Dereham — Vegetable and Flower Seeds, Rooted Cuttings, and Annual Guide.
JOHN LAING & SONS, Forest Hill, London, S.E.—Begonias and Seeds.
W. DRUMMOND & SONS, 58, Dawson Street, Dublin, Ireland—Vegetable and Flower Seeds.
KENT & BRYDON, Darlington—Seeds and Trees.
DOBBIE & MASON, 66, Deansgate, Manchester Seeds.
W. PIERCY, 89, West Road (Beadnell Road), Forest Hill, London, S.E.—Chrysanthemums.
HEINRICH STRAUSS, Cologne — Palms (Seed and Plants), and Orchids, &c.
FISHER, SON & SIBRAY, 4, Market Street, Sheffield—Seeds and Requisites.
THOMAS KENNEDY & Co., 106 and 108, High Street, Dumfries, N.B.—Vegetable and Flower Seeds.
DUVAL, 8, Rue de l'Ermitage, Versailles, France—Orchids, Foliage Plants, Azaleas, &c.
CLARK, BROTHERS & Co., 65, Scotch Street, Carlisle—Seeds.
CHARLES TURNER, Royal Nurseries, Slough—General Seed Catalogue.
CARDNO & DARLING, 11, Bridge Street, Aberdeen, N.B.—General Catalogue.
SAMUEL YATES, 75, Shudehill, Manchester — Garden and Farm Seeds.
WOOD & INGRAM, Huntingdon and St. Neot's—Seeds and Requisites, &c. [Seeds.
W. H. BLAIR, 73, Patrick Street, Cork, Ireland—
JAMES BACKHOUSE & SON, York—Garden Seeds, &c.
LUCOMBE, PINCE & Co., Exeter Nursery, Exeter—Vegetable and Flower Seeds.
W. B. SMALE, 31, Fleet Street, Torquay—Seeds.
W. B. HARTLAND, Temple Hill, Cork—List of Helianthus multiflorus vars.

COMMUNICATIONS RECEIVED.—Professor McL., Ghent.—L. C. C. W. D.—T. S.—Godefroy (not received).—B.—O.—J. R. J.—L.—K. P. & Co. Professor McO.—W. C.—R. T. R.—Jay Aye.—W. C.—W. H.—J. D.—F. W. B.—E. C.—J. W.—W. B.—A. D.—W, H.—H. A. B.—Pteris.—T B. B.—J. R.—J. W.—W. S.—J. Williamson.—N. D.—Rich, Marsden & Co., shortly.

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LEAF, or PEAT MOULD ... } (sacks included).
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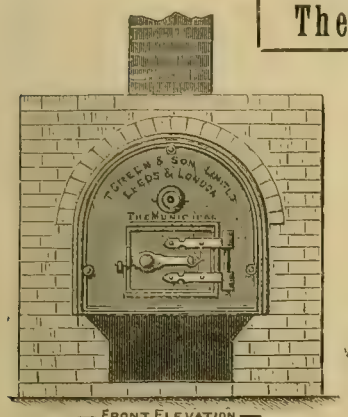
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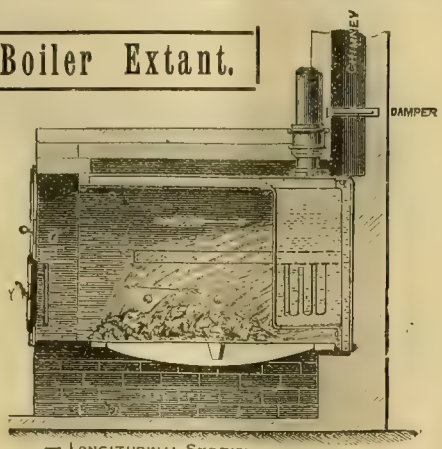
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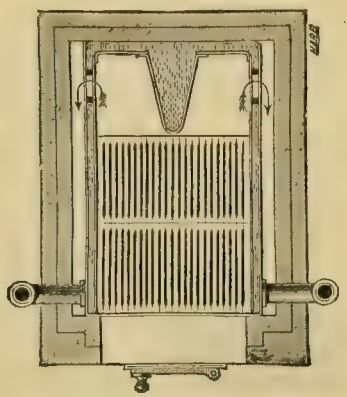
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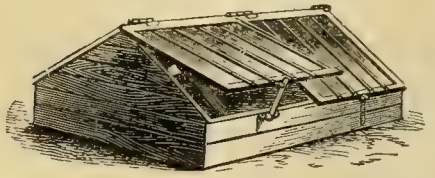
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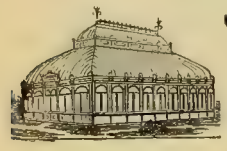
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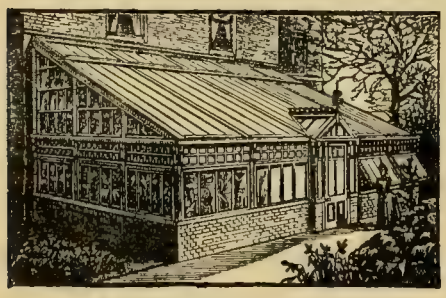
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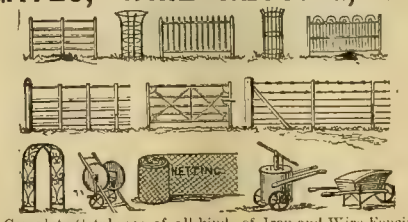
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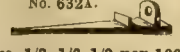


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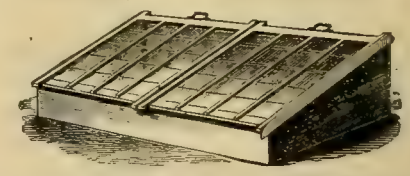
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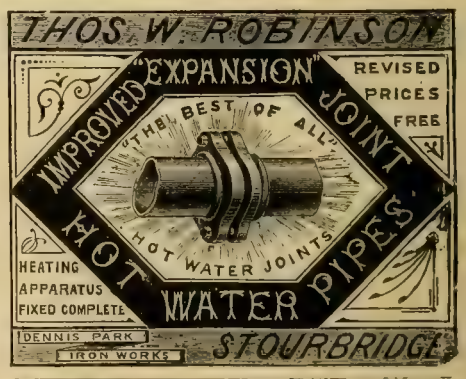
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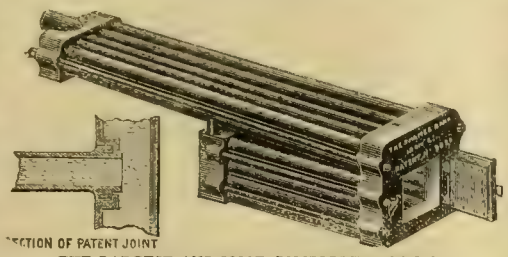
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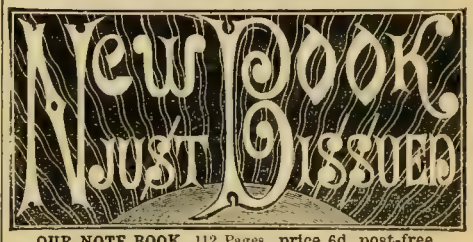
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ARCHIBALD F. BARRON,

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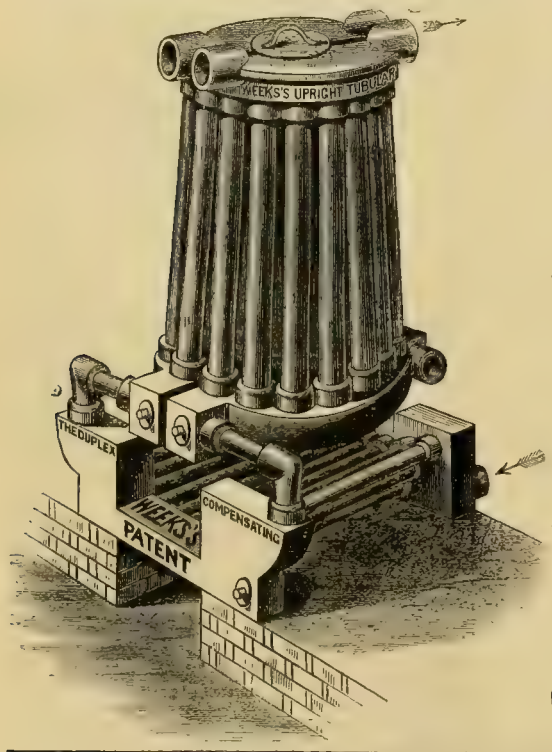
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By the late SIR JOSEPH PAXTON, M.P. Reprinted from the *Gardeners' Chronicle.*

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ARRANGEMENTS, 1889.
SPRING EXHIBITIONS, WEDNESDAYS, March 20 and April 10.
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EVENING FÊTE (Probable Date), WEDNESDAY, July 3.

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GEORGE READ begs to return his sincere thanks to all those who accorded Votes to him at the Election of Pensioners, held January 16 last.

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HELEN LESSELS desires to accord her heartfelt thanks to all those who have so kindly assisted her with their Votes and Interest at the late Election of Pensioners to the Funds of this Institution.

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MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent, W.C., on WEDNESDAY NEXT, January 30, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday, January 31, 1889.

Without the least reserve.

ONCIDIUM MACRANTHUM.

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On view morning of Sale, and Catalogues had.

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MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, January 28, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Tuesday Next.

SALE of NURSERY STOCK and GREENHOUSE PLANTS from Sample.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, January 29, at half-past 12 o'Clock precisely, the following items of NURSERY STOCK and GREENHOUSE PLANTS from Sample:—

10,000 Asparagus
1,000 Seakale
1,000 Christmas Roses
1,000 Double White Primulas
Quantity of Erica hyemalis and Double Hollyhocks
5,000 Gooseberries
100 Pandanus utilis
300 Pteris tremula
300 Lomaria gibba
Thousands of Dwarf-trained and Standard Fruit Trees
10,000 Currants
2000 Cupressus Lawsoni
10,000 Scotch Fir
10,000 Pinus austriaca
100 Vines, short-jointed Fruiting Canes
Thousands of Forest Trees

A large Collection of HERBACEOUS PLANTS.

Samples will be on view the morning of the Sale. Catalogues forwarded on application.

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CARNATIONS, PICOTEES, Standard and Dwarf ROSES, FRUIT TREES, EVERGREENS, CAMELLIAS, and AZALEAS.

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On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Wednesday Next.

5000 LILIUM AURATUM, splendid bulbs, just received from Japan; 20,000 FREESIA REFRACTA ALBA, from the Cape; English-grown LILIES, Japanese IRIS, SPIRÆAS, AZALEAS, CAMELLIAS, STOVE and GREENHOUSE PLANTS, various Hardy BULBS, ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, January 30, at half-past 12 o'Clock precisely.

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Also on MONDAY, Feb 4; TUESDAY, February 5; and WEDNESDAY, February 6.

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UNRESERVED SALE of the Second Portion of this extensive COLLECTION, by order of the Proprietor, who is leaving the neighbourhood and selling the Estate.

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Corn Exchange, Reading.

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CHOICE GERMAN FLOWER and VEGETABLE SEEDS.

CATALOGUES free on application.

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500 LABURNUMS, 7 to 9 feet.

Price LISTS of above and General Nursery Stock post-free on application to

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No.	PRICE. Per 100. £ s. d.	Per 1000. £ s. d.
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3.—BATEMANNIA WALLISII, Rchb. f.	20 0 0	
4.— „ aff. B. GUSTAVI, Rchb. f.	20 0 0	
5.—CATASETUM EXPANSUM, Rchb. f.	25 0 0	
6.— „ LEHMANNI, Rgl.	20 0 0	
7.— „ OCHRACEUM, Rchb. f.	15 0 0	
8.—CATTLEYA AUREA	40 0 0	
9.— „ CHOCOENSIS	15 0 0	100 0 0
10.— „ „ large selected masses	35 0 0	
11.— „ „ var. ALBA, £1 each.		
12.— „ GIGAS	15 0 0	100 0 0
13.— „ MAXIMA	12 0 0	75 0 0
14.— „ „ var. BACKHOUSEI	15 0 0	100 0 0
15.— „ TRIANÆ	18 0 0	125 0 0
16.— „ „ masses of from 50 to 100 bulbs.	75 0 0	
17.— „ „ var. ALBA, £3 each.		
18.— „ „ var. ALBIDA. Sepals and petals pure white, the expanded part of the lip soft pink, £2 each.		
19.—COMPARETTIA FALCATA, Pöpp. et Endl.	5 0 0	35 0 0
20.— „ SPECIOSA, Rchb. f.	10 0 0	
21.—CYCNOCHES LEHMANNI, Rchb. f.	20 0 0	
22.—HOULLETIA CHRYSANTHA (?)	8 0 0	
23.— „ spec. (?)	8 0 0	
24.—LUDDEMANNIA LEHMANNI, Rchb. f.	40 0 0	
25.—LYCASTE DENNINGIANA, Rchb. f. (?)	40 0 0	
26.— „ MESOCHLÆNA, Rchb. f.	15 0 0	
27.— „ spec. Sepals brown, petals and lip white	15 0 0	
28.— „ spec. Flowers white	15 0 0	
29.— „ XYTRIOPHORA, Lindl. et Rchb. f.	12 0 0	
30.—MASDEVALLIAS.—These plants, not travelling unless attended to personally on the voyage, the naming of species has been omitted here. Special arrangements for large orders may be made.		
31.—MAXILLARIA FRACTIFLEXA, Rchb. f.	10 0 0	
32.— „ GRANDIFLORA, Lindl.	10 0 0	60 0 0
33.— „ LEHMANNIA, Rchb. f.	15 0 0	75 0 0
34.— „ LEPIDOTA, Lindl.	6 0 0	40 0 0
35.— „ „ var. ALBIDA, Rchb. f.	10 0 0	
36.— „ LUTEO ALBA	8 0 0	
37.— „ SANDERIANA, Rchb. f.	20 0 0	100 0 0
38.— „ spec. aff. M. FRACTIFLEXA	8 0 0	
39.— „ spec. aff. M. LEHMANNI.—Flowers 16—18 cm. (6—7 inches) across; sepals white, at the apex rose; petals white, streaked with rose; lip rose, streaked with purple, the inside yellow. This is the rarest and most beautiful of the genus	30 0 0	
40.— „ spec. Flowers as large as the preceding, but very distinct. Very rare	50 0 0	
41.—MESOSPINIDIUM SANGUINEUM, Rchb. f.	6 0 0	35 0 0
42.— „ ROSEUM, Rchb. f.	8 0 0	40 0 0
43.— „ VULCANICUM, Rchb. f.	10 0 0	60 0 0
44.—ODONTOGLOSSUM ANGUSTATUM, Lindl.	8 0 0	50 0 0
45.— „ CIRRHOSUM, Lindl.	6 0 0	40 0 0
46.— „ CLAVICEPS, Rchb. f.	10 0 0	50 0 0
47.— „ CRISPUM, Lindl.	8 0 0	50 0 0
48.— „ „ var. LEHMANNI, Rchb. f.	6 0 0	40 0 0
49.— „ CRISTATELLUM, Rchb. f.	9 0 0	60 0 0
50.— „ EDUARDI, Rchb. f.	8 0 0	50 0 0
51.— „ EPIDENDROIDES, H. B. Kth.	20 0 0	100 0 0
52.— „ HALLI, Lindl.	7 0 0	45 0 0
53.— „ var. XANTHOGLOSSUM, Rchb. f.	7 0 0	45 0 0
54.— „ HARRYANUM, Rchb. f.	15 0 0	100 0 0
56.— „ LEHMANNI, Rchb. f.	25 0 0	
57.— „ LUTEO-PURPUREUM, Lindl.	8 0 0	55 0 0
58.— „ „ var. Flowers smaller	6 0 0	40 0 0
59.— „ „ var. SCEPTRUM	6 0 0	40 0 0
60.— „ PARDINUM, Lindl.	7 0 0	50 0 0
61.— „ POLYXANTHUM, Rchb. f.	8 0 0	55 0 0
62.— „ RAMOSISSIMUM. Lindl.	10 0 0	75 0 0
63.— „ „ var. XANTHINUM	8 0 0	60 0 0

No.	PRICE. Per 100. £ s. d.	Per 1000. £ s. d.
64.—ODONTOGLOSSUM ROEZLI, Rchb. f.	10 0 0	75 0 0
65.— „ VEXILLARIUM, Rchb. f.	10 0 0	75 0 0
66.— „ „ var. RUBELLUM	8 0 0	60 0 0
67.— „ „ var. LEHMANNI, Rchb. f.	10 0 0	75 0 0
68.— „ WALLISI, Rchb. f.	6 0 0	40 0 0
69.—ONCIDIUM AURIFERUM, Rchb. f.	5 0 0	35 0 0
70.— „ JAMESONI, Lindl.	8 0 0	50 0 0
71.— „ KRAMERI, Rchb. f.	6 0 0	40 0 0
72.— „ NUBIGENUM, Lindl.	6 0 0	40 0 0
73.— „ OBRYZATUM, Rchb. f.	6 0 0	40 0 0
74.— „ OLIVACEUM H. B. Kth. (CUCULLATUM var. MACROCHILUM, Lindl.)	6 0 0	40 0 0
75.— „ PYRAMIDALE, Lindl.	5 0 0	35 0 0
76.—ONCIDIUM VIRGULATUM, Rchb. f.	8 0 0	45 0 0
77.— „ WELTONI (FUSCATUM, Rchb. f.)	6 0 0	40 0 0
78.— „ XANTHOCENTRON, Rchb. f.	6 0 0	40 0 0
79.— „ (CYRTOCHILUM) MACRANTHUM, Lindl.	15 0 0	100 0 0
80.— „ („) „ var. HASTIFERUM	20 0 0	125 0 0
81.— „ („) SERRATUM, Lindl.	15 0 0	100 0 0
82.— „ („) spec. nov.—spike 50—80 cm. high. Sepals chestnut-brown; petals yellow, spotted with brown. Very rare	35 0 0	
83.— „ („) spec.	20 0 0	
84.— „ („) UNDULATUM, Lindl.	10 0 0	75 0 0
85.—PAPHINIA RUGOSA	15 0 0	
86.—PERISTERIA ELATA	10 0 0	
87.—RESTREPIA ANTENNIFERA, H.B.Kth.	6 0 0	
88.— „ GUTTULATA, Lindl.	6 0 0	
89.—RODRIGUEZIA SECUNDA, H. B. Kth.	5 0 0	
90.— „ (BURLINGTONIA) NEO-GRANADENSIS	5 0 0	
92.—SCHOMBURGKIA UNDULATA (?)	10 0 0	
93.—SELENIPEDIUM (CYPRIPEDIUM) HARTWEGI, Rchb. f.	25 0 0	
94.— „ („) RETICULATUM, Rchb. f.	50 0 0	
95.— „ („) WALLISI, Rch. f.	50 0 0	
96.— „ („) ROEZLI, Rchb. f.	10 0 0	
97.—STANHOPEA BUCEPHALUS, Lindl.	20 0 0	
98.— „ CONNATA, Kltzsch.	20 0 0	
99.— „ spec.—Flowers orange, spotted with purple	20 0 0	
100.— „ spec.—Flowers white, with a little purple in the interior of the hypochil	20 0 0	
101.— „ TRICORNIS, Lindl.	15 0 0	
102.—TRICHOCENTRUM spec.—Flowers pale yellow; lip spotted with red	10 0 0	
103.— „ spec. nov	30 0 0	
104.— „ TIGRINUM	8 0 0	
105.—TRICHOPILIA FRAGRANS, Rchb. f.	8 0 0	50 0 0
106.— „ LAXA, Rchb. f.	6 0 0	40 0 0
107.—UROPEDIUM LINDENI, Lindl.	10 0 0	
108.—ZYGOPETALUM (BOLLEA) CŒLESTE, Rchb. f.	15 0 0	
109.— „ (PESCATOREA) DAYANUM, Rchb. f.	15 0 0	
110.— „ „ KLABOCHORUM, Rchb. f.	15 0 0	
111.— „ „ LEHMANNI, Rchb. f.	20 0 0	
112.— „ „ ROEZLI (EUGLOSSA), Rchb. f.	15 0 0	
113.— „ (KEFERSTEINIA) GRAMINEUM, Rchb. f.	8 0 0	
114.— „ „ spec.	8 0 0	
115.— „ (WARSCEWICZELLA) VELATUM, Rchb. f.	10 0 0	
116.— „ „ spec.	10 0 0	
117. „ (CHONDRORHYNCHA) CHESTERTONI, Rchb. f.	15 0 0	
118.—EUCHARIS GRANDIFLORA, Planch. (MASTERSI, Bak.)	2 0 0	15 0 0
119.— „ SANDERIANA, Bak.	2 0 0	15 0 0
120.—HIPPEASTRUM (AMARYLLIS) SOLANDRÆFLORUM. Herb., var. ALBUM	7 0 0	50 0 0
121.—PHÆDRANASSA CHLORACEA, Herb.	3 10 0	25 0 0
122.— „ LEHMANNI, Rgl.	5 0 9	30 0 0
123.— „ SCHIZANTHA, Bak.	2 0 0	15 0 0
124.— „ VENTRICOSA, Bak.	5 0 0	
125.—STENOMESSON AURANTIACUM.	3 0 0	20 0 0

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If necessary, samples free, and sent carriage paid.
General Nursery PRICE LIST, and Special Quotations for any other kinds of stocks. Distance no object; send largely to South of England.

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TRUE NATIVE SCOTS FIR.—500,000 stout, extra rooted, 1½ to 2 feet, and 2 to 2½ feet, cheap, to clear ground.
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QUICKS or WHITE THORNS, about 2,000,000 to offer. Splendid strong fibrous rooted stuff can be supplied as follows, for cash on rails:—2-yr.-old, 7*s.* per 1000; 3-yr.-old, grand stuff, principally 2 to 3 feet, extra strong, wonderfully cheap, 10*s.* per 1000; 4 and 5-yr.-old, transplanted, 15*s.* and 20*s.* per 1000; picked for gap stopping, 30*s.* per 1000.
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BEECH, extra strong, principally 3 feet, 40*s.* per 1000; 5*s.* per 100. Catalogues on application.
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A. M. C. JONGKINDT-CONINCK begs to intimate that he has a few Vacancies for Young Gentlemen wishing to avail themselves of his tuition in PRACTICAL and THEORETICAL HORTICULTURE, BOTANY, BOTANICAL TERMINOLOGY, LANDSCAPE GARDENING, BOOK-KEEPING, and COMMERCIAL CORRESPONDENCE in DUTCH, GERMAN, ENGLISH, and FRENCH.
The highest possible references, English and Continental, can be given.—Full particulars as to terms, &c., upon application.
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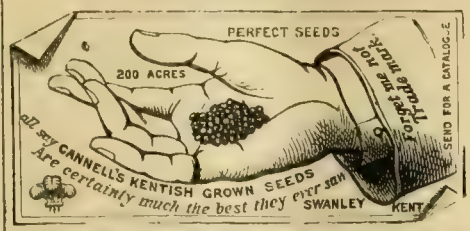
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COOKING POTATOS.—A few tons of very choice Cooking Potatos for sale, cheap, by sack or ton. Sample gratis.
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100 CONIFERS in 50 distinct varieties ... ... for 50*s.*
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100 DECIDUOUS SHRUBS, in 50 distinct varieties ... ... for 20*s.*
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100 ROSES, in 50 distinct varieties, of H.P., Moss, Tea, &c. ... ... for 35*s.*
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CATALOGUE of Names free on application.
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FOR SALE, 12,000 ASPARAGUS ROOTS, Connover's Colossal, 6 years old, in fine condition for Forcing, land being required for other purposes. Price, 25*s.* per 1000, in lots of 500 or 1000.
Apply, G. D. VALLANCE, Tresco, Scilly, Cornwall.

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It is a settled question that our seeds (200 acres), owing to our sunny position, warmer and better soil, are a lot the best, the difference between them and those grown farther north, bought and sold half-a-dozen times by those who never grow a grain, is immense. Have them direct from us, the ACTUAL GROWERS, at nearly wholesale prices, effecting a great saving. Numerous First-class Certificates the last quarter of a century stamp ours the best strains. All Seeds Carriage Free except heavy kinds. Send for ours, the best Illustrated Catalogue ever issued.

From Mrs. O'REILLY, *Colamber, Rathowen, October* 16, 1888.
"I wish to say that having tested most of the seeds supplied in England and Ireland for years, I found your supply more generous, the yield better and more certain than the others, and have this year decided on getting all my garden seeds from you."

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COLLECTIONS OF GARDEN SEEDS.
10s. 6d., 15s., 21s., 30s., 42s., 63s. each.
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ROSES—20 ACRES,
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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At a General Meeting of the Subscribers to this Institution, held on WEDNESDAY, the 16th January, 1889, for the Election of New Pensioners on the Fund, the following was the result of the Ballot:—

CANDIDATES.

Votes.	Name.	Age.
1122	STEPHEN EVANS	73
916	THOMAS MORLEY	79
773	JOSEPH NORVAL	63
1490	JOHN SLOWE	79
1234	ELIZABETH SNOW	74
1917	WILLIAM HOLAH	67
1900	HELEN W. LESSELLS	72
1815	MARGARET MALCOLM	59
592	JAMES MANDERSON	65
718	ELIZABETH POLLARD	76
1729	GEORGE READ	58
1626	CHRISTOPHER ROBINSON	77
965	HENRY BERRY	73
385	JAMES EDMONDS	82
983	WILLIAM FOWLE	68
114	GEORGE FRICKER	72
452	JOHN GRIMSHAW	78
111	JOHN HOOPER	79
1383	ELIZABETH KEMBER	83
2014	SARAH NAYLOR	61
1587	CHARLOTTE NEWELL	64
274	WILLIAM NIXON	61
174	CLEMENT PRESTON	76
1313	JAMES PRUST	64

The Meeting then declared John Slowe, Wiliam Holah, Helen W. Lessells, Margaret Malcolm, George Read, Christopher Robinson, Elizabeth Kember, Sarah Naylor, and Charlotte Newell, as having the greatest number of votes, duly elected Pensioners of this Institution, from the 25th December, 1888.
By Order. EDWARD ROGER CUTLER, Secretary.
50, Parliament Street, S.W., January 19, 1889.

THE GARDENERS' ORPHAN FUND.

DONATIONS and SUBSCRIPTIONS
WILL BE THANKFULLY RECEIVED BY
A. F. BARRON, Hon. Sec.,
Royal Horticultural Society's Gardens,
Chiswick, London, W.

To the Trade.

POTATOS for SEED.
MYATT'S PROLIFIC EARLY ASHLEAF KIDNEY, splendid stuff; a large quantity to offer at 90*s.* per ton, on rails; 5*s.* per cwt. do. Also
BEAUTY OF HEBRON, at 90*s.* per ton; 5*s.* per cwt.
WHITE ELEPHANT, at 80*s.* per ton; 4*s.* 6*d.* per cwt.
EARLY ROSE, very fine, at 80*s.* per ton; 4*s.* 6*d.* per cwt.
SCHOOLMASTER (Turner's True), at 90*s.* per ton; 5*s.* per cwt.
SUTTON'S EARLY REGENT (True), at 90*s.* per ton; 5*s.* per cwt., on rails, for cash.
Sacks to hold 1 cwt., 6*d.* each; do., 2 cwt., striped, at 9*d.* each; do., 2 cwt. 4 lb. sacks, at 1*s.* each.
Many other kinds can be supplied. Special price CATALOGUE on application. Cheques and Post-office Orders made payable to
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H. AND F. SHARPE are now prepared to give SPECIAL QUOTATIONS for all the best kinds of VEGETABLE and FIELD SEEDS grown this season from carefully selected stocks. The quality is very good, and the prices will be found advantageous to purchaser.
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The Best Present for a Gardener.

VINES and VINE CULTURE.
The most complete and exhaustive Treatise on Grapes and their Culture ever published.
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STRAWBERRY PLANTS, in small pots. Splendid stuff of all best kinds, and true to name. Price List on application.
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NEW MELON:

BEAUTY OF WORDSLEY.

A cross between William Tillery and Colston Bassett, and we have every confidence in recommending it as one of the finest green-fleshed Melons in cultivation,

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"Your new Melon 'Beauty of Wordsley' is a very desirable variety. I grew it along with six other kinds, and found it to be the best. It is a sure setter, of very superior flavour, and the most handsome Melon I ever saw."

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SHARPE'S VICTOR.

6d. per Pound.

Ready for lifting in eight or ten weeks after planting.

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CARNATIONS and PICOTEES (Plants),
Assortment of ten pieces, in ten fine varieties, 6s.
Carriage Paid to all Post Stations of Great Britain.

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APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, and other FRUIT TREES, as Standards, Dwarfs, Pyramids, Bushes, Cordon, and Trained Trees in great variety.

VINES, excellent Canes, *3s. 6d.*, *5s.*, *7s. 6d.*, *10s. 6d.*

Orchard House Trees in pots, PEACHES, APRICOTS, NECTARINES, &c., from *5s.* FIGS from *3s. 6d.*

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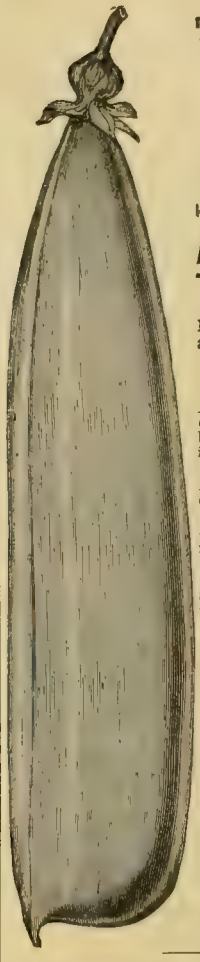
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THE PEA
FOR
EVERYBODY
IS
CARTERS'
ANTICIPATION.

We claim for this fine Marrowfat Pea complete and distinct individuality.

Height 3 feet.

The Superintendent of the Royal Horticultural Society's Gardens says:—"Should have been called Realisation, so good is it."

The Marquis of Hartington's Head Gardener says:—"A most excellent variety."

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PRICE IN SEALED PACKETS.
3s. 6d. per pint;
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ILLUSTRATED
CATALOGUE
Of this and other Sterling Novelties, containing
SEVEN COLOURED PLATES
Price 6*d.*; *Gratis to Customers.*

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THE REAL WHITE ELEPHANT
OR IMPROVED WHITE ELEPHANT POTATO.

This is a sport from Daniels' White Elephant Potato, but has the great advantage of having a pure white skin. It is one of the heaviest croppers grown. Cooks splendidly.

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CARLISLE,

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VEGETABLE SEEDS—
of superior and selected stocks.

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from Prize Strains.

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specially grown for seed on new land.

Collections of the above from 5s. to £5 5s.

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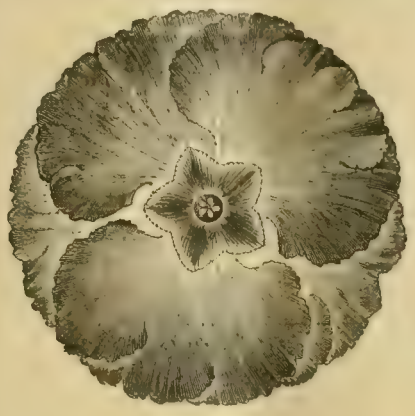
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A SILVER-GILT BANKSIAN MEDAL,

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SEVEN FIRST-CLASS CERTIFICATES

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The Royal Horticultural Society,

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A SILVER-GILT MEDAL, A SILVER MEDAL, and 11 FIRST-CLASS CERTIFICATES,

By the National Chrysanthemum Society.

"**The Chinese Primrose.**—The horticultural public were startled in the early weeks of the past year by the wonderful exhibition made at South Kensington by several of the leading growers, notably Messrs. SUTTON & SONS, of Reading, who obtained no less than Six First-class Certificates from the Floral Committee of the Royal Horticultural Society. They had evidently been growing and working up the various strains for several years, as numerous plants are exhibited of each type." *The Garden, January* 14, 1888.

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COLLECTION OF PRIMULA SEEDS,

Containing a Packet of each of the following Varieties:—

Sutton's Dark Rose, Sutton's Reading Scarlet, Sutton's Reading Blue, Sutton's Pearl, Sutton's Giant Lilac, Sutton's Snowdrift, Sutton's Rosy Queen, Sutton's Rosy Lilac, Sutton's Gipsy Queen, Sutton's Double Scarlet, Sutton's Double Rose, Sutton's Double Carmine, Sutton's Double White, Sutton's Moss-curled White.

Post-free for 21s.

The above-named sorts are also offered separately, in packets, at 5s. and 2s. 6d. each, post-free.

"The Primulas I had of you are really grand. I never saw such; they are admired, and I could say envied, by all who see them. I often wonder where you are going to stop, the additions you give us now are so remarkable." Mr. CHAS. ILOTT, *The Gardens, Wokefield Park.*

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As a Supplement

TO THE

GARDENERS' CHRONICLE

FOR

Next Week, February 2,

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Published an Ink Photograph

OF

I G H T H A M - M O T E,

K E N T.



THE

Gardeners' Chronicle.

SATURDAY, JANUARY 26, 1889.

AMERICAN APPLES.

ONE half of our supply of Apples is received from the United States and Canada. Although there was a slight check to the steady advance in 1887, yet the imports are still considerable, and form a remarkable feature of our green fruit supply, the sums we have paid for Apples in the last four years averaging £731,000. But there is another development of the trade in this fruit, which is progressing on the other side of the Atlantic, and that is the export of dried Apples, which is worth notice.

With 5,000,000 acres under orchards in the States the production of food is necessarily large. With an average export of over, 1,000,000 bushels of green fruit, and an equally large home consumption, there still remains a large surplus of American Apples to be utilised.

The windfalls and inferior grades of Apples are used for evaporation, or drying, in the manufacture of Apple brandy, which is known in the Southern States and New Jersey as "Apple-jack;" for cider-making, and vinegar, &c. Another application of Apples is what is known as Apple butter, a kind of jelly of Apples boiled down, either in cider or with water, for several hours, which forms a standing dish in most American houses.

The imports of Apples into our ports from the United States are very large, as will be seen from the following figures:—

	Bushels.	Value.
1883	273,825	£126,219
1884	976,269	349,168
1885	1,349,798	440,925
1886	1,647,052	478,895
1887	997,413	295,108

Our total imports of Apples average more than

2,500,000 bushels, the following being the figures for the five years :—

	Bushels.	Value.
1883	2,251,925	£553,488
1884	2,679,800	786,415
1885	2,387,685	717,031
1886	3,261,160	857,095
1887	1,944,460	563,919

Besides the United States, Canada, Belgium, Holland, and France are the countries from whence we principally draw our supplies.

The export trade in Apples from America only dates from about twenty years back, and from small beginnings of about £50,000 in value has increased to over half a million sterling. The crop, however, it seems, can only be depended on in alternate years.

To pass now to the drying processes. It is by desiccation that the pulpy fruits are deprived of the 80 per cent. of water which they contain, while preserving much of their natural colour and flavour. It is, however, in the United States that the industry is chiefly carried on on a large scale, dating only from about fifteen years back. It is said to reach now to 30,000,000 lb., representing a capital of £400,000. To produce the dried Apples, 5,000,000 bushels of anthracite coal are consumed, and 25,000 to 30,000 men, women, and children are employed. The fruit is reduced in weight to one-eighth in the process of drying. For shipment, the dried slices are packed in cases of about half a hundredweight each and sent to different parts of the world. The remnants of the fruit—peels, cores, &c.—are dried, and form the basis of many low-priced jellies and compotes, so that no portion of the fruit is wasted.

Millions of tons of Apples, formerly wasted, are now thus utilised and sent into commerce in an excellent condition of preservation for domestic use, and yielding a remunerative return to the producers. The Apples of the New York State enjoy a high reputation both at home and abroad, due to favourable climate, good soil, and skilful culture. To give an idea of the importance of the dried Apple industry in America, it may be stated that within a radius of 40 miles round Rochester, in the State of New York, there are more than 1500 evaporators, from the small drying place of the farm of the capacity of 25 bushels to the large steam evaporators capable of drying 800 to 1000 Apples every twenty-four hours, and these figures increase day by day. The principal consumers of these dried Apples are the working classes of Germany, Belgium, and Holland.

In 1887 we received 6734 cwt. of these dried fruits from America, valued at £16,831. France imported in the same year 15,000 barrels of dried Apples from the States, which were chiefly used to make cider and other low-priced beverages.

Special machines are in use in America to peel the fruit, slice the Apples, and remove the pips. The evaporators then dry the slices. These consist of rectangular cases, 12 or 13 yards high, by 1½—2 yards wide. In the interior a vertical wall or partition divides it into two columns, in which circulate the trays, superposed, containing the slices of fruit. A heated stove below supplies a current of hot air. The trays of fruit ascend by one column or side and descend by the other. The intensity of the heat can be regulated according to the degree of dryness required. A chimney carries off the saturated vapour. The fruit dryer is now almost as much a matter of necessity on every homestead in America, as the cider mill and the cheese factory. The evaporating process has of late years grown to such large proportions that it is becoming fairly entitled to take rank in her domestic and foreign trade with the staple productions. So rapid has been the growth of this branch of trade, and so decided the advance in prices, that considerable capital has lately been attracted to the industry, and many new evaporating mills have been erected in those portions of the Apple growing regions of the United States which are too remote from the market to warrant shipment of the fruit in its natural state.

By the evaporating process Apples from the tree are converted within seven hours into a merchantable article, having almost the whiteness of snowflakes, and vastly superior in every respect to the product made by the old sun-drying method formerly in vogue.

In California Apples are cured or dried by the cold air blast from a foundry, which frees the fruit from its excess of moisture, with no possibility of burning or shrivelling it. Compared with sun-drying and fire-drying, this is a saving of time, labour, and expense. In France the trade in preserving dried Apples is principally carried on in the districts of Chateherault and Saumur. In these two localities the fresh fruit are dried in ovens placed on hurdles, they are exposed at different times to a sufficient heat to harden them without burning. They are then kept in sacks in dry localities. In general the fruit thus prepared is classed into three categories. The two first are packed in small baskets of 7 or 8 lb., the others are sent away in barrels of 1 cwt. Paris consumes about half the production, and the restaurants convert them chiefly into compotes or stewed fruit. *P. L. Simmonds, F.L.S.*

NEW OR NOTEWORTHY PLANTS.

LÆLIA ANCEPS (*Lindl.*) VAR. AMABILIS, *n. var.*

A LOVELY variety, kindly sent by my indefatigable correspondent, Mr. F. Sander. It has a two-flowered peduncle with long bracts, which have very numerous small dark brownish dots. The sepals and the broader oblong-acute petals are of the clearest white. The lip is distinctly trifid. It has a yellowish colour, with very light oblique mauve-purple streaks outside on the anterior parts of the side laciniæ. Inside is the broad ligulate median thickened callus, having three keels of a fine orange colour, and with three dark purple lines in the middle. The protracted ligulate blunt mid-lacinia is of the lightest purple at the base, white in front and in the middle, and mauve-purple at the apex. Angles of the side-laciniæ of the same colour, then the side-laciniæ are divided into an inner yellow area with red, and a median white area. The yellow portion has a purple angle in front of the angle of the white space, and some most minute purple spots are scattered in front of the angle on the white ground. The upper part of the yellow area has very light inconspicuous red-purple lines on the yellow ground. Column light green.

I hope Mr. Sander may add a remark as to the origin of the plant, whether from the Atlantic side, or from that of the great ocean. This would be useful for cultural purposes. Then the average shape of bulbs might be indicated. *H. G. Rchb. f.*

HAMPTON COURT GARDENS.

(Continued from p. 74.)

IN THE TIME OF WILLIAM AND MARY. — In 1691 a certain Dr. Barr visited the gardens and entered the following notes in his notebook on them:—"Hampton Court garden is a large plat environed with an iron palisade round about next the park, laid all in walks, grass plats and borders. Next to the house some flat and broad beds are set with narrow rows of dwarf Box, in figures like lace patterns. In one of the lesser gardens is a large greenhouse divided into several rooms and all of them with stoves* under them and fire to keep a continual heat, stocked with tender plants that need continual warmth."† This greenhouse, which Dr. Barr mentions, was erected by William III.* It is a plain red-brick building, 176 feet long, with sash windows and an ugly depressed slated roof. It was here probably that Queen Mary devoted so much of her time to her favourite pursuit of gardening. We are told by Switzer that "in gardening she was particularly skilled, especially in exotics, and allowed Dr. Plukenet 200*li.* per annum for his assistance therein."† In the British Museum are several lists of the Exotic plants which were grown here in 1692 and 1693. Among these plants are several species of Acacia, Aloe, Jasminum, Genista, and Passion-flower, Pomegranates, Sea Lavender, Convolvulus, Water-melons, and an innumerable quantity of plants which are noted as having come from the Barbadoes.‡ In 1698 the hotbed system of raising exotic plants was adopted at Hampton Court, and many East Indian and Cape plants were raised. A list of the names of these plants may be found in the Sloan MS. No. 3343. In William III.'s time Oranges were also first cultivated at Hampton Court. The ground floor of the south front was used for this purpose. "In the Office of Works," says Mr. Law, "is a sketch of this part of the building, showing the Orange trees within the window arches." Defoe refers to them in his *Tour through Great Britain* thus:—"The Orange trees and fine Dutch Bays are placed within the arches of the building under the first floor, so that the lower part of the house was all one for a greenhouse for some time." The Orange trees are now, in summer, ranged in line in front of this old orangery. In the winter they are now protected in the greenhouse.

"On the death of Queen Mary," writes Switzer, "gardening and all other pleasures were under an eclipse with that prince; and the beloved Hampton Court lay for some time unregarded; but that error being dispelled, His Majesty reassumed his further pursuit of gardening in altering and making considerable improvements to the gardens." The gardeners employed by him were the celebrated partners, London and Wise. Wise, however, seems to have had the principle direction and management of the works; and the accounts of his expenses, dated 1699, are still preserved.§

Until the year 1699 there existed only a narrow gravel path between the Fountain Garden and the palace. This gravel path Wise immediately widened into what is now called the Broadwalk. Among the items in Wise's estimate for its construction is the following :—

> "Y^e^ walk parrallel to y^e^ House that lyeth between y^e^ Fountaine Garden & the Building, sinking and carrying away all the ground to y^e^ Levell of the floor by y^e^ Building, make, 10,475 sollid y^ds^ being sunk and carryed off at twice; as first was sunk and carried off 2,097 solid y^ds^ to lay y^e^ ground to the Levell of the great Fountain garden: afterwards to the floor of y^e^ Levell of the Building and one foot under, for to allow a f^t^ thick of gravell, both which sinkings come to 10,474 solid y^ds^. The charges of carting it to y^e^ lower end next y^e^ Thames to raise all that lowe ground to y^e^ levell of y^e^ floor of the Building, sorting it and spreading it sinking it to its true levells and into its severall Divisions, as a walk for gravell, 2 verges for grass and a border, all workes being included in it at 15^d^ p solid y^d^ most of it being pickaxe work . £654 13 0."

The beds bordering on the long walk were also considerably altered, and new evergreens were planted :—

"To prepaire the ground and lay it with Turffe in

* The dimensions of these stoves may be found in Sloan MS. 4036, No. 86.

† See *Archæologia*, xii., 181.

* Among the *Treasury Papers* of 1718 (vol. ccxv., 18) is a petition of John Cole, glazier, of Kingston-upon-Thames, asking for arrears of 300*li.*, due to him for repairs of the greenhouse at Hampton Court in the time of King William III.

† See also *Archæologia*, 1782, p. 72, and compare the following passage in Queen Mary's Funeral Sermon, by Archbishop Tillotson:—"O, how good, how happy a life was this, not of vain, unprofitable ease, but of true usefulness and honour to her country! How innocent were her diversions, such as *gardening*, and all other improvements," &c.

‡ See Sloan MS. 3343, No. 1, &c.

§ See *Treasury Papers*, lxiii., 48, 64; lxvii., 12. Minute Book, vol. ix., p. 258.

the two verges that are on the sides of the gravell walk being 4786 superficiall yds with ye charge of ye Turffe and all other charges of Cutting, Carting wheeling and laying at 4d p yd To lay this Walk with gravell ye length of ye Lymes wch is 2264 ft long 39 ft. wide and 1 ft. thick will take up 3270 solid yds at 3d p yd £490 10 0

"To work and make all ye severall borders that are to be made for the use of planting ye fine shap'd Ever-greens in, with fine Earth, and good rotten Dung, wch to make 6 ft. wide and 3 ft. deep will containe 2835 solid yards, at 18d p yd £210 0 0."

(To be continued.)

USEFUL FERNS.

Considering the immense number of species and varieties, comparatively few Ferns are really useful for producing a pleasing effect when arranged with foliage and flowering plants, or as single specimens; if effect, rather than rarity be desired. At the present time Ferns are very extensively used for furnishing, and indeed the effect produced by forming a good ground-work of fresh healthy Ferns, and a limited number of distinctly-coloured flowering plants, with a few taller specimens of Palms and Ferns as a relief, is far more pleasing than the massing together of flowering plants of all colours, which even at the present time is too often seen.

Adiantums.—In making a selection of these the popular A. cuneatum holds the first place; A. elegans closely resembles the above, but is of rather taller growth, with more spreading fronds. A. scutum, and several varieties which have been obtained from it, are very desirable, especially the varieties—Lathomi, Victoriæ, Reginæ. The beautiful Australian species, A. formosum, is very effective, and being comparatively hardy should find more favour than it seems to do at the present time. A. Mariesii (syn. A. Raperi), is a beautiful variety of the A. Capillus-veneris type, but with fronds of a much larger size. It is of good substance, and has a rich deep colour, and deserves to become popular. A. O'Brieni somewhat resembles this, but is not quite so broad in the pinnules. A. Williamsii has been in cultivation for a considerable time, but it is only recently that it has found much favour; when grown under cool treatment it is very elegant, and stands well after the fronds are well matured.

Pteris.—Of these the various forms of P. serrulata and P. cretica are the most serviceable; and varieties of both of these species are now so numerous that it is hardly worth while to give names, especially as some variation is to be found in almost all the named varieties; however, mention may be made of P. Ouverardi as one of the best forms of P. cretica, and P. cretica nobilis as the most distinct green-crested form. P. c. albo-lineata and the crested variety Mayii are both useful. P. serrulata major is generally sold as P. cretica in the market, and indeed it is difficult to separate the varieties of the two species. The various crested forms of P. serrulata find much favour. For stock purposes it is better to select the most desirable variety for any purpose rather than to depend upon any particular name. Pteris tremula is also a popular Fern, which being of free growth, only requires plenty of room to establish good plants in a very short time. There are several distinct forms of this, P. t., foliosa being one of the best. Pteris longifolia may be included, and if two or three plants of this be grown together they will be much more useful than if potted singly. P. argyrea is also an effectual Fern, especially when grown in combination with some of the dwarf-growing forms of P. serrulata; it is a little too straggling by itself, but with a green undergrowth of P. serrulata it is very pretty. Various other sorts may also be used in combination, such as P. hastata, P. cretica, &c.

Cyrtomium falcatum is another popular Fern; there are two distinct forms of this, one with flat, broad pinnæ and rather short fronds, the other having longer fronds and the pinnæ more narrow and curled backwards a little. It is also of a deeper shade of green.

Asplenium.—Several of these are very useful. A. laxum pumilum, A. fœniculaceum, A. Colensoi, and A. bulbiferum may be selected as the most useful.

Phlebodium aurcum is another very popular species, the distinct glaucous foliage forming a good contrast in colour, it is most serviceable where plants of a rather large size are wanted. P. sporodocarpum (glaucum) is also very pretty in growth; it is rather smaller than the former, and has a more distinct bluish shade to the fronds.

Lastreas.—L. aristata variegata, L. erythrosora, and L. patens are the most useful: when well grown the latter forms a very pretty table plant.

Onychium japonicum, grown on freely, makes a very useful plant, and of the dwarf-growing Ferns it is one of the best.

Lomaria gibba.—There are several different forms of this, but the original form, as sent out by Messrs. Veitch & Sons, is still the best.

Nephrolepis includes several very elegant species; unfortunately they do not bear the hardships to which plants used for furnishing are usually subject, otherwise they would soon be very popular, although not so serviceable as most of the sorts enumerated, and the beautiful N. davallioides furcans, N. ensifolia, N. exaltata, and N. philippinensis must be included.

Davallias.—This is another genus which is doubtfully to be included in this list, yet they deserve attention, especially D. Mooreana. This, if divided from time to time before the plants get too vigorous, will make a very pretty pot plant in a small state. D. elegans, D. canariensis, and the very elegant D. Mariesi, if grown on freely, will all make very effective plants.

Cultural Directions.—All the Ferns enumerated above may be readily increased either from spores, divisions, or, as is the case with the Aspleniums, from bulbils which are produced on the surface of the fronds; and as it is necessary that plants for the purposes for which they are recommended should be fresh, clean, and healthy, a continual supply of young plants should be grown on. To obtain satisfactory results, it is essential that Ferns should be grown on freely from a young state. When they are allowed to stand long in small pots and to become starved it is difficult to get them into vigorous health again. Another important point is to give hem plenty of room, and a fair amount of light. It is a great mistake to suppose that Ferns delight in semi-darkness, or that they can be grown satisfactorily under the shade of other plants. *Pteris.*

MANURES FOR CHRYSANTHEMUMS.*

This is a subject of a very complex nature, as it is difficult to lay down rules of guidance that will be equally applicable for all districts. The best manures to apply to produce the highest results in Chrysanthemum culture can only be known by means of a wide series of experiments conducted in various parts of the country, the kinds of manures being employed in the same manner, noting their effects at different stages of the growth of the plants, and reporting the results at the end of the season. It would then be seen which kind of manure was suitable for the soil in any particular locality, as much will necessarily depend upon the natural soil in determining how best to increase its fertility by adding those constituents which it lacks. At the outset I may say that I do not mean to treat the subject of manures in a scientific manner, but to bring forward facts as they have come under my notice in my own experience as a grower, with the addition of the opinions of some of our leading growers as founded on their practice.

Fortunately for Chrysanthemum growers prepared manures are numerous and easily applied, while many are inexpensive. In conversation with different cultivators of the Autumn Queen in various parts of the country I have noted an almost entire absence of reserve in discussing this matter. The days of supposed "secrets" are over, and I am pleased to say that I have found men generally willing to assist each other by giving their opinions freely on the merits or demerits of any particular kind of manures that have been tried. Mr. Garnett makes a suggestion that might prove of much service to growers:—That the National Chrysanthemum Society procure samples of wood from plants which have produced the best blooms in all the sections, in say a dozen localities widely spread. By special analysis of each sample of the growth we should get at some bases as to the best manure to apply to the soil to produce the best results in culture. Chrysanthemums, for whatever purpose they are cultivated, have such a short season of growth that they must have all the support that can be appropriated usefully by them, and before the roots have exhausted the nutriment contained in the soil stimulants must be afforded, or a check will be received by the plants. What best to give, and how best to apply it, is what we all desire to know, and to that end we searching for information.

Manure for mixing with the soil is the first consideration, as this is commencing at the foundation, so to speak; the superstructure or full development of the plant to its utmost capacity is an after consideration, if, perhaps, of equal importance. Nitrogenous manures promote quick growth, but their excessive use must be avoided, in a wet season especially. The chief of these are sulphate of ammonia and nitrate of soda. Phosphatic manures (bones in different forms) contribute to firmness of wood. Natural soil varies so much that a knowledge of its constituents is necessary before the cultivator knows what ingredient to add that the Chrysanthemum requires for its full development. Loam, as it is called, composed of the top spit of pasture, is considered to be the best medium for the roots. The constitution of this is an all-important point to study. For instance, to soil that is of a light or sandy nature, additions should be made which will not be needed in that of a heavy nature, and consequently containing less sand or other lightening matter. Crushed oyster shells are considered by some to be beneficial to a light sandy soil, containing, as they do, carbonate of lime, which substance assists in the maturation of the wood. Ground bones are beneficial to the plants when used with the soil in potting, especially if the soil is light; but in the case of soil of a close retentive nature they should not be used so freely, as they have a tendency to clog the soil and create sickly-looking foliage. This is especially noticeable in wet seasons. Soil which is of a heavy nature, in which the fibrous parts quickly decay, does not require so much manure mixed with it; first, because such is not needed in the early stages; and, later, it is apt to bind the soil more closely together. Soil of this nature is much worse to deal with than that that is lighter in character, as stimulants cannot be given nearly so freely as where the soil is more porous. Soil that is liable to "run together" when the fibre decays should have more lightening materials added, such as charcoal, wood-ashes, and old mortar; the two former are especially good for this purpose.

Natural manures are, no doubt, of great service when used in a proper manner. The best for mixing with soil of any kind is horse-droppings, as they contain ammonia. They should be prepared as if for a Mushroom-bed; in this manner the manure is sweetened, while much of the ammonia is retained. At the final potting horse-dung should be used in the proportion of two parts to four of light soil, and one part to three of heavy loam. Cow manure is not good for mixing with the soil on account of its pasty nature when fresh, and when decayed the qualities wanted have departed. Some use it in the, fresh state mixed with soil for top-dressing the plants but where the loam is stiff I think cow manure too heavy also, and liable to keep the soil cold. Soot is a valuable manure in the growth of Chrysanthemums,

* A paper read by Mr. E. Molyneux, Swanmore Park Gardens, Bishops Waltham, at the National "Chrysanthemum," Society's Conference, Jan. 9.

either for mixing with the soil or for using in a liquid state. When used with the soil in potting it should be done in a cautious manner, as any excess is liable to injure the roots. A 6-inch potful to 4 bushels of soil is a safe quantity to mix with any kind of soil.

Artificial manures are now largely used by Chrysanthemum growers, owing to the easy manner in which they can be applied; the convenient form in which they can be obtained by those persons who have not the opportunities of obtaining animal manures; and lastly, for the reason that they are so efficacious. Thomson's vine and plant manure is one deserving of notice, as it possesses qualities well suited to the growth of these plants. In potting the plants, to 1 peck of soil we add one 4½-inch potful of manure. For top-dressing the plants during August this manure is excellent, encouraging free root-action on the surface of the soil. For stimulating during the summer, especially in wet weather, when it is not possible to give liquid manure, this manure is good—the dose one teaspoonful to a 10-inch pot, say once a fortnight. Mr. McKenzie, Linton Park, and Mr. Doughty, speak very highly of this manure. Beeson's is another of the artificial manures largely employed in the growth of Chrysanthemums; it creates good firm growth without being too gross, and preserves a health colour in the foliage. Surface-roots are freely made when the plants are top-dressed with it in the proportion of a 5½-inch potful to 1 peck of soil. For mixing with the soil at potting-time we use 2 lb. of manure to 1 bushel of soil. In the North of England this manure is largely used, and is highly spoken of by Mr. T. B. Morton, Darlington, who is a successful grower. Standen's manure is highly valued; some of the best blooms I have had were grown by the aid of this manure, used at the rate of 1 lb. to 1 bushel of soil, also used afterwards at the rate of 1 teaspoonful to a 9-inch pot once in ten days. Mr. Mease, who has cause to be satisfied with his successes, speaks highly of Standen's. "Ichthemic guano" is favoured by many growers and with good cause, as their productions testify. Where this manure is used the plants retain a healthy colour without the growth being too gross—a sure sign that the manure suits them. For potting, to 5 bushels of soil add ¼ peck of guano; for use in a liquid state give a 5½-inch potful to 36 gallons of water.

Jensen's guano is highly approved by some growers, used at the rate of a 10-inch potful to 15 bushels of soil, also applying the guano in a liquid state once a week at the rate of 1 teaspoonful to 1 gallon of water. Clay's fertiliser is another manure that is used with good results, as Mr. J. Doughty can testify by the blooms staged by him at the recent show at the Aquarium, which were some of the best seen during the season; he sprinkles it on the surface occasionally to be watered in, commencing its use in August.

There are other kinds of manure which need further time for completing experiments before I can speak with accuracy as to their merits. Nitrate of soda is the quickest in action of any manure that I have tried. It is useful to give once or twice should the plants not appear to be making free growth after final potting; at that time nitrate of soda excites and prepares the plants for other food, which will tend to solidify the growth thus made. Should the season promise to be a wet one nitrate of soda must not be used, as it would cause a greater difficulty in ripening the growth made. Half a teaspoonful to a 10-inch pot, crushing the soda finely, spreading it on the surface, and watering it in once or twice at the most, according to the season, will be beneficial, but on no account must it be used if the plants are not well supplied with active roots. Sulphate of ammonia, in careful hands, is excellent and is, perhaps, unequalled as a stimulant, but it must not be used unwisely. My experience of it is that it imparts colour to the leaves of the plants and richness to the blooms, which is not excelled by any other manure. The cultivator should be guided by the state of the weather at the time of its application, and also by the state of the roots of the plants; indeed, this is the all-important point to consider.

Sulphate of ammonia should not be given to the plants until they are well furnished with roots. Used in safe quantities in a liquid form is the correct way to apply it. Some growers say that sulphate of ammonia tends to make the blooms damp, and I think they are right when it is used injudiciously; for instance, too strong doses often kill the roots, not only on the surface, but half-way down the soil in the pots; especially is this the case when the sulphate is put on the soil in a dry state and watered in. From experiments made during the past season, I am able to say that plants of all the sections in our collection were supplied with water which contained sulphate of ammonia every time the plants required water, from the time the buds were swelling freely until the blooms were developed, with the result that there was less damping of the blooms, including those of Empress of India, a notoriously bad "damper," than upon other plants treated differently. Of course, the plants were in good condition for receiving so much sulphate of ammonia, the pots and surface were full of roots, while the growth was not sappy. This was an experiment made purely to test the effect of this stimulant on the damping of the blooms, but I cannot say that the blooms were of the best; the flowers in the incurved section showed a tendency to coarseness and hollowness in the centre. The best way to apply sulphate of ammonia is by dissolving a quarter of an ounce in 1 gallon of weak liquid manure from the farmyard tank, commencing as soon as the flower buds are swelling freely, increasing the strength gradually until half an ounce is given to each gallon of water: to be applied once a week. Dissolved bones are perhaps better in some soils than ground bones, as they act quicker. Especially are they preferable for heavy soils. Mixed with turfy loam, two parts to one of the bonemeal, applied as a top-dressing early in August, the roots quickly find their way into it, while the continued waterings wash the virtues down among the roots.

Animal manures used for making liquid food for the plants are much appreciated when they can be obtained. Sheep dung forms a capital liquid manure if placed fresh from the fields in a bag to prevent the manure dissolving and mixing with the water, and rendering it too thick. By placing the bag in a tub or tank of water and allowing it to soak for twelve hours, the water will be ready for use. Cow manure used in the same way is good. Drainings from manure heaps are also good. These should be applied weak and often, rather than strong and seldom in the latter form the roots being more liable to be injured by it.

Having named the manures which have come under my notice, I will now state the time when I think the use of them ought to be commenced and how. It is not intended that any one person should use all those named. Experience only will teach accurately those which are best suited to each locality. Some people consider the plants ought to be supplied with stimulants when they are in small pots previously to being finally potted, but my experience does not lead me to adopt this plan. I think the proper time to commence the use of stimulants is when the roots have taken full possession of the soil, after the final potting. Some say that feeding should not commence until the flower-buds are formed. This I think is a mistake, because in some cases the buds do not form until the middle of September. From this time until the plants are in bloom is too short a space to allow them a chance of deriving much benefit from manures. The plants ought to be fed before they form their buds, so that they will be strong at that critical period. During the time the buds are forming the plants should not be excited by giving them stimulants, these being better reserved until after the buds are set and commencing to swell. The applications may be increased in strength as the buds swell satisfactorily.

The character of the season must be taken into account when deciding the quantity of stimulants the plants shall receive, and the nature of the soil, also if it be heavy or light. In a wet season the manure given should be on a small scale compared with the quantity required on a dry one, as wet summers are inimical to the maturation of the growth, and an excess of stimulating manures would aggravate this evil, and the plants fail in producing flowers of the finest quality.

We commence with soot-water at first. One bushel of soot put into a bag will be ample for a tank holding 100 gallons of water. We give this every time the plants require water, for a week, then withhold it for three weeks, when it is again used, this time with liquid from the farmyard tanks, or from sheep manure. After the first course of soot-water we give clear water for a day or two, then an application of liquid cow or sheep manure of about the colour of brown brandy, varying the sort every second or third day, when clear water is given, say once, returning then to the liquid manures. After the buds are formed and swelling freely stimulants should be given regularly, varying them constantly, as a change of food is found desirable. Whatever sort be used it should not be continued beyond three or four days at a time. The weakest growing plants should not have it so strong as those of a more vigorous habit. During a spell of wet weather it is not possible to use liquid made from animal manures; but a small portion of any of the artificials should be sprinkled on the surface of the soil in place of these. By this means the plants receive nourishment, whereas if liquid manure were entirely depended upon the plants would not be in a state to receive any intervening waterings. Any of the artificial manures named make a suitable change of nutriment for the plants if sprinkled on the soil, and watered in according to the instructions given by the dealers.

THE HENDERSONS OF NEW YORK.

Mr. Peter Henderson and his two sons, Alfred and Charles, trading under the name of Peter Henderson & Co., are as well known over the immense area of the United States as any nurseryman can be in Great Britain. Their great specialties are seeds and plants, and it is as to the latter we will give a little insight as to how things are done "out here."

It is in New York that the seed warehouses and stores are situated—in Cortland Street, one of the busiest of streets, and it is here that we first see the proprietor, who conducts us to the immense plant houses and trial-grounds by way of the ferry over North River to Jersey City, and thence to Jersey City Heights, where they are situate, about 2 miles distant.

Mr. Henderson, though no longer young in years, personally supervises (with his foreman, Mr. Davis) the whole of this "American home for flowers," the two sons managing the New York business. Each man has his allotted work—for instance, the watering is done solely by one man, who, with the help of a subordinate, carries the hose from house to house till it is finished, a watering-pot scarcely ever being used, except in the propagating house.

The great specialty is Roses, which are grown indoors by the million on their own roots in pots (three sizes being used). The reason for growing them in the three sizes is for the convenience of customers, more especially those who "live out West," where the carriage, or, as it is termed here, expressage, would be enormous for plants sent with a large "ball" of earth; for it must be understood that all plants are knocked out of pots except where otherwise requested.

All the popular and standard sorts are grown, but none are so well known or so much sought after as American Beauty—a seedling found in the gardens of Mr. Bancroft, the historian, at Washington, who has perhaps the finest collection of Roses in the country. In American Beauty we have a Rose of large size, having the ever-blooming qualities of the Tea Rose, with the delicious odour of the Damask, or Moss Rose, consequently equally valuable for

winter or summer flowering. In colour it is deep brilliant pink, shaded towards the centre with rich carmine."

The whole of the houses are built on the most modern principle, after Mr. Henderson's special design, the majority being span roofed, and the balance three-quarter span: length, 100 by 20 feet.

Almost the first house we enter is filled with the true Easter or Bermuda Lily (Lilium Longiflorum, Harris' variety), of which there are about 5000 in full bloom, forming such a sight of plants as before never saw, and coming into bloom, as they do, at this time of year, it is one of the finest Lilies for forcing extant; and to give some idea of its popularity, Mr. Henderson states that he sold last season over 200,000 bulbs.

Nearly every other house is filled with Roses in different stages of awakening from the rest they have been allowed during the last few months, but the great feature of the block is the Rose-house, an immense structure three-quarter span, constructed of wood and iron. Its dimensions are 350 by 20 feet, and it is heated by steam—a means of heating, I believe, never attempted in England, but greatly advocated by Mr. Henderson, who says in his *Practical Horticulture* —

STEAM-HEATING.

"Two years ago, to satisfy myself of the relative merits of hot-water and steam heating for greenhouse purposes, I erected a Rose-house 350 by 20 feet. This I heated by steam alongside another Rose-house of exactly the same dimensions heated by hot-water. These have given me an opportunity for a comparative test, and I find the result in favour of steam; first, that it saves 25 per cent. in fuel; second, that our firemen say that steam boilers require less labour; and third, that the steam pipes, by the use of valves, are more easily controlled than the hot-water pipes. But above all it must be certain, on a large scale at least, heating by steam must be cheaper than hot-water.

From our experience with steam, I believe, that, whenever greenhouses are erected to the extent of 5000 square feet of glass surface, steam should be used in preference to hot water; if for smaller areas it may be that hot water would be best. As far as health of plants is concerned there is nothing to choose; for although a steam pipe with a low pressure radiates at from 212° and over, and a hot water pipe at about an average of 160°, yet at 6 inches from either pipe the temperature is almost identical, radiation is rapid, anyone doubting this can easily test it by the thermometer.

Leaving out the question of the cost of boilers, which ought to be the same for the amount of work to be done, we find that a 1¼-inch pipe, when heated by steam, does almost exactly the same amount of work as a 4-inch hot-water pipe; at present prices the former costs 6 cents per foot, while the latter costs 20 cents. Thus, the piping costs three times more for hot water, than for steam, but so far there has been comparatively little difference in estimates between the two, owing probably to the steam heating of greenhouses being in so few hands."

There are four raised benches with a small footway down the centre of the two middle benches, also between those against the "walls." It is here that the Roses are grown for cut flowers during the Christmas and winter months.

The Roses are planted out a foot each way, and comprise the following varieties, they having proved best to force:—Perle des Jardins, Sunset, Niphetos, Catherine Mermet, Mr. F. Bennett, Magna Charta, and American Beauty, the last-named fetching as much as one or two dollars apiece, or 4*s.* 2*d.* and 8*s.* 4*d.* respectively. The house is simply gorgeous now with a large batch of Magna Charta in splendid bloom.

Other houses are filled with young Chrysanthemums, Moonflowers, Carnations, Coleus, Fuchsias, Pelargoniums, Verbenas, &c., the majority of which is soft-wood, this seeming to find more favour amongst the Americans, who have not yet learnt to appreciate hard-wooded plants, &c., to any extent.

Mr. Henderson states in his catalogue that he had sold during the season over 50,000 Ipomœa (or Calonyctron) grandiflora, or Moonflower as it is called here, and which finds immense favour.

Some idea may be given as to the extent of the annual sale of plants when we say that it exceeds 2,500,000; these do not include plants grown out-of-doors, the sale of which amounts nearer to 6,000,000. Mr. Henderson's "White Plume" and other Celeries are sown in great quantities to be distributed over the States, and as an instance of the quantity grown, we are told that over 150 lb. is sown; and when it is understood that 1 oz. will produce on an average 10,000 plants, a little calculation will soon give an idea that it is no child's play. America is not likely to remain long behind England in horticulture, as seen by the foregoing, and it will doubtless be pushing ahead in the course of a few years in the production of novelties, &c.

We cannot leave the great "Manufactory" without giving a word of praise to the system of packing which has helped to make the name of Henderson famous, amongst all who receive plants from the world-renowned firm, and live at a great distance.

Plants being of such a fragile and sensitive nature the difficulty in sending long distances is intensified, but Mr. Henderson has grappled with this obstacle, and could give some of our English plant growers a lesson, as sending plants from one part of America to another is totally different to sending from one part of England to the other, as the former means thousands, but the latter only hundreds, of miles. Their system of "mailing" is urged, and is the means of saving the pockets of the purchasers, who otherwise would have to pay immense "expressage."

And now, as the "last bell" is going, we are reminded that it is time we were moving in other directions than through labyrinths of greenhouses, where we have more than once lost our way; but, with the promise of a renewed visit, we bid our adieu, promising to return again when the trial-grounds were at their best. *H. A. Bunyard.*

SCOTLAND.

BOTANIC GARDEN, GLASGOW.

It is with much pleasure we learn that these gardens have again been opened to the public, and that the causes which led to their closure are likely to be amicably settled and their finances placed on a secure basis. As will be remembered it was the finance difficulty and the unwillingness of the inhabitants of the adjoining burgh of Hillhead to join the city and assist to maintain the garden out of the rates, which led to their being closed. The conduct of this burgh was much criticised locally at the time, for owing to their proximity to the gardens the residents would have been in a position to enjoy the gardens as much as any other section of the Glasgow community. It is to be hoped that Glasgow—the second city of the empire—will not permit this—one of the first gardens of its kind in the kingdom—to languish. As has been already mentioned the City authorities are evidently fully alive to the importance of the gardens, for not only have they advanced money to the original proprietors, but, had it not been for the conduct of the Hillheadites the gardens would long ago have been as accessible to the public as any of the other popular scientific and recreative institutions of the city, which are maintained out of the rates. Despite the depressing influences of the uncertainty surrounding its future there does not appear to have been relaxation on the part of the Curator, Mr. Bullen, although for obvious reasons his actions have of late years been much restricted.

Near the entrance gate stands the great winter garden, which was once the famous Kibble Palace, devoted to concert and dramatic uses. It is a circular curvilinear-roofed structure of moderate height, but of large capacity. This is now a winter garden in every way admirably suited for the purpose. Large Palms, &c., are grown under the main roof, and plants of moderate growth are grown in the annexes, and as they become too large for these they are planted out in the winter garden proper. There is a gravel walk all round, on the inner side of which there are slender iron columns, which, with a purlin, supports the roof; these are beautifully draped and festooned with trailing plants of Tacsonias, Passifloras, Loniceras, &c. One of the most effective was the old Cobæa scandens variegata; it had developed to enormous dimensions along the purlin of the roof, and hung down in a graceful manner.

On either side of this walk there is a broad border in which the finer things are planted. To give the names of all the plants in those borders would be something like going through the botany of the temperate parts of the world. But we noticed what appeared to be a preponderance of New Zealand and Australian vegetation, such as Metrosideros, Callistemons, Leptospermums, Melaleucas — there was a fine group of M. squarrosa, whose yellowish-white spikes of flower are very showy, and which must be a grand sight when in full flower. Another fine shrub is Bossiæa scolopendrium with its flattened, narrow, leafless toothed branches, which in season bear a profusion of small yellow and red Pea flowers. Acacies of species armata, retinoides, lineata, Riceana, platyptera, and a host of others. Phyllocladus rhomboidalis is a curious Conifer, with leaf-like deciduous branchlets. There is also a fine collection of Sikkim Rhododendrons, whose massive sweetly scented flowers are simply delicious; many grand plants of Camellias and Oranges, laden with their golden fruit; Daturas, with their large trumpet flowers, were very imposing; as also a fine specimen of Agave Salmiana, with its stout, tree-like inflorescence towering above its neighbours. Underneath the centre there are many tall growing plants kept in tubs. This group includes a fine collection of Tree Ferns, amongst which we noticed fine plants of Cyathea dealbata, C. medullaris, the baked pith of which is said to be much liked by the native New Zealanders; Cibotium Schiedei and princeps, and a good specimen of Marattia cicutæfolia, Araucaria excelsa, A. Bidwilii, the Bunya-Bunya Pine of Moreton Bay, whose large seeds, at certain seasons, are said to furnish the food of whole tribes of native Australians. Another important economic tree is Dammara australis. That these and many other things have found a congenial home, the luxuriant character of the growth admitted of no denial. The plants in the annexes attached are of similar character, but grown in pots on stages in the usual way. There are many fine examples of Erica, Darwinia, Tetratheca, Statices, bulbs, &c. Amongst the latter, Hippeastrum aulicum superbum was indeed superb—as seen here, quite equal to the much extolled, newer Certificated, varieties.

Passing along to the principal range, which is built of Teak wood, although comparatively new, and supposed to be nearly indestructible, yet it seemed as if a soaking of oil, or something of the kind, would have done much good. A minute Algæ has nearly covered the exposed surfaces of the wood, giving an offensive appearance; but internally, things were as of yore, in prime condition. The collections of Bromeliads, Ferns, Nepenthes, Orchids, Cycads, succulents, economic plants, aquatics, Cyclanths, and Palms, are all quite up to their usual standard of excellence. In the Palm-house, fine trees of Borassus flabelliformis and Livistona chinensis were fruiting freely. Of other things in this range mention must be made of a fine lot of the old-fashioned, pyramidal-trained Azalea indica—huge plants. The Ewing range was full of useful things—a grand lot of Adiantums, Amaryllis, Begonias, a grand collection of decorative Ferns, and a lot of seedling aquatics, amongst which was a fine form of Nymphæa scutifolia rosea. The back wall of this range has many fine climbers, including Cereus grandiflora, Bomarea Carderi, Jasminum sambac, many Philodendrons, Russellia juncea, and Ruscus androgynus, &c. Should Glasgow let such a fine garden disappear, it would be an everlasting blot in

the history of the city. *F. R.* [Three large illustrations of the conservatories, &c., were given in our columns for March 1, 1884. Ed.]

Cultural Memoranda.

PLUMBAGO COCCINEA.

If plants which have recently flowered have the ends of the shoots trimmed off, and liquid manure given fresh axillary inflorescences will be produced, rendering the plants quite as showy as at first.

EUPHORBIA JACQUINIFLORA.

This should be treated similarly to the Plumbagos, but Euphorbias are more impatient of any excess of water, and the liquid manure should not be very strong. This cutting back may be repeated several times provided the plants are clean and well grown, and a buoyant temperature of about 60° is maintained.

IRIS UNGUICULARIS.

This, better known as I. stylosa is an early flowering species, and well adapted for pot work. It is a native of Algiers. Twenty-four, or a size larger pot is a good size in which to grow them; they should not be over-potted, or they will not flower so freely as they do when the small rhizomes have completely covered the surface of the pot. Pot firmly in a mixture of loam and sand, and keep the rhizomes above the surface. During the summer and autumn they should be well exposed, so as to ripen them up thoroughly; they may then be stored away in a cool frame, or other similar quarters, until they commence to flower, which will be about the beginning of January. The flowers are fragrant, and produced singly: they do not last long, but compensation is made by the number of flowers that are capable of being produced from one pot, and as these do not all open at one time; they remain in full beauty for some time. *W. Harrow.*

The Apiary.

GLASS SECTIONS.

We have said before that there is a great future before glass sections, especially if they could be made both cheaply and well. Wooden sections can be used more than once, but they are made so cheaply that it is usual to discard them after the bees have done with them. Comb honey looks better in glass than anything else, and after removal the glass will do again and again as well as the first time. Thus, though they may cost slightly more in the first instance, they would be cheaper in the end. I have recommended Messrs. Breffits & Co., of Upper Thames Street, to manufacture glass cylinders open at both ends, 2¼ inches in diameter and 2 inches in length. It will be found that these hold nearly or just a pound. The difficulty in the case was not to square the circle, but to circle the square. It has been found that a piece of honeycomb measuring 4¼×4¼ inches weighs 1 lb. Now a circle that would just fit in such a square would be 2⅞ inches in diameter, but of course a circle of honeycomb such a size would not 1 lb., because in the new figure the angles of the square have to be accounted for. Therefore, if the diameter is slightly increased from 2⅞ to 2¼ inches, the difficulty is overcome to within a very small fraction. These sections can be obtained very cheaply in quantity, and no doubt they will be advertised. Sections of this kind can either be hung at the back of the hive or placed in boxes on the top. Circular pieces of foundation can be cut to size, and placed in the centre of each cylinder. No fastening of any kind would be required, and there would be no pop-holes. Sections of honey of this kind would look very nice on the table. They could be cut out of the glass much cleaner than they could out of a piece of wood, and, being circular, would look more in accordance with the shape of other palatable viands. They can be made for five farthings each. Crocuses and Snowdrops—especially the latter—are now appearing above the ground, and in due time will afford some food, we hope, for our pets. Nothing can look much prettier than long rows of Crocuses in front of our hives, and if a little pea-meal be sprinkled in them from a pepper-box the bees will revel and tumble about in the flower-cups, and carry home the contents. If room can be spared a large breadth of Limnanthes will well repay the trouble of planting. *Bee.*

CATTLEYA LODDIGESII.

Some difference of opinion exists as to the relation which this pretty rose-coloured Cattleya bears to C. Harrisoniæ (fig. 12), some being inclined to place the latter under C. Loddigesii. Unfortunately, if all the figures of these, and of the others in the same section—C. intermedia—be looked up, evidence that it is a complicated subject becomes apparent. The general opinion, however, of Orchid growers is, that these plants are very distinct, and that they need by no means be connected with each other. The feature relied on is the labellum, and the difference will readily appear by examination of our illustrations (figs. 12, 13), prepared from drawings taken by Mr. John Weathers, from plants flowered in Kew Gardens. Generally speaking, too, C. Harrisoniæ flowers at different times to C. Loddigesii, or rather, is frequently in bloom when no C. Loddigesii is to be found.



Fig. 12.—CATTLEYA HARRISONIÆ.

Imports of Para Rubber.—From a report of the quantity of caoutchouc brought into this country during the year 1888, it seems that the Para crop from Hevea brasiliensis for the half year ending June 30 showed an exceptionally large increase over the previous one, this increase amounting to 2200 tons, or equal to about 17 per cent. The large surplus in the market in the previous year almost entirely disappeared this year, owing to the heavy consumption in the United States, and a decided increase in the European wants. The quantity of Para rubber imported into London and Liverpool during 1888 amounted to 5080 tons.

FLOWER COLOUR.

Mr. Davis' remarkable article on "Chrysanthemum Sports" (p. 40), and your editorial remarks thereon, induce me to send you a few ideas on floral colouring generally. At the outset, we must remember that the primary or original colours are yellow, red, and blue [Blue, green, red (Maxwell)], and that all floral colouring is developed or evolved in the order in which these colours are named. This is a point we must grasp firmly at the outset, as the fact will enable us better to understand not only the lines of colour progression followed by all seedling flowers—all vegetation whatever—but it will also show us how the so-called vegetative "sports" are in reality, reversions (atavism), *i.e*, examples of a retrograde movement which may take place wholly or partially towards the conditions in a former stage of existence. White and black, properly speaking, are not colours; a white petal is the result of the true colours being absent, and black—in flowers represented by very dark browns (red and green mixed) or purple (red and blue mixed), the real colours being more or less disguised by opacity, and often by the non-reflection of light caused by silky or velvet-like hairs. The spots on a Bean blossom are really brown, and the spot on the falls of Iris iberica—the nearest approach to black that I know—is really very dark purple, rendered opaque by a hairy pile, which imparts to it some of the appearances of a bit of black velvet. Optically a petal which reflects all the colour of the solar spectrum, or rainbow, appears to be white, while one that absorbs all these rays appears to be black.

Some proof must now be given that all floral colouring develops from yellow through red towards blue. Quite instinctively the florists have ever held blue to be the highest point of excellence in floral colouring, hence their continual striving for a blue Rose, a blue Dahlia, a blue Auricula, or a blue Chrysanthemum; and it is curious to note in passing how nearly their persistence has at time been rewarded with success. For this purpose let us take the genus Primula, the great mass of which have not passed beyond their yellow-flowered

stage of existence. The Auricula, originally yellow or purple in some of its insect-fertilised forms, has yielded in our gardens varieties nearly blue. The same thing long ago took place in the so-called blue-flowered Polyanthus, and more recently the pinkish Chinese Primrose has yielded varieties of a lilac or lavender shade—that is to say, a transition from red towards blue is really taking place.

The Grant-Allen school of evolutionists believe and assert that all flowers were originally yellow, and that the green-blossomed plants now existing, such as many Orchids, Hellebores, &c., are reverted or degraded types. Some assume that all flowers, being but modified leaves (as Linnæus and afterwards Göethe pointed out in his *Metamorphoses*), were originally green (like leaves) in colour, and that they did not put on their brighter-coloured wedding dressses until ages after they were created—that is to say, not until the insects came on the scene to act as marriage priests. The fact that we find green (or apetalous phases), and scentless blossoms that do not open (cleistogamous, and which are, therefore, close-fertilising), to-day, seems to favour to some extent this view of the question, but the great central fact. that all the essential organs of plants (stamens, stigmas, ovaries, &c.) are green or yellow all the world over, proves beyond a doubt that these are the essential colour types, since common to nearly all plants whatever, and quite irrespective of their mere petal-colouring. Green leaves have always done their work, hence our present day coal and oil supply; but all this appears to have been done by cryptogamic or by dull coloured cleistogamic plants alone. The glorious floral colouring of to-day comes, as is believed, from a later date in the world's history, when advertising was added to the co-operative and savings' bank principles, always characteristic of vegetation.

But I must return from mere speculation to actual facts. I said that green leaves had always done their work—of laying up stores of carbon, starch, and oil, and this shows the power of yellow and blue as colours in combination under the stimulative action of light and heat—the sun. Now comes the question. Why should blue desert its leaf-green companion, yellow, when the real life-work of reproduction is taking place? Or, again, why should blue return so often as the proof so to speak of the full and perfect development of flowers or fruits? Trace the colour range in the natural order of the Gentians, for example—yellow, red, purple, blue. Follow it out in the fruit of the so-called black Grapes or Plums—green, red, purple, and finally, the blue "bloom." Note the fruits of the great Rose order, Apples, Pears, Peaches, &c., all varying from green and yellow to red. Look at the flowers of the great Buttercup family—green (Helleborus), yellow (Buttercup), red (Paeonia), and blue (Aconite and Delphinium). [We have seen a Chinese drawing in which a blue Paeony was represented.] Let us now glance at the flowers whose colours change after opening, or in process of development. There is ×Dianthus alpino-barbatus—buds and newly open flowers white, second day peach, deepening to reddish-rose on the third day. Again, Cheiranthus mutabilis, buds and newly opened flowers yellow deepening after a day or two into reddish-brown.

Take also the Forget-me-Not with its exquisite pink buds and its turquoise-blue flowers. Two species puzzle me very much, viz., Muscari moschatum, buds purple dying off to pure clear yellow; and the so called "Prophet Flower," Arnebia echioides, buds yellow, flowers open yellow with five brown spots, which disappear after the second or third day. Perhaps these are the exceptions, so numerous in all branches of research, which do not prove the rule.

For the benefit of future students in this wide subject of floral colouring I submit the following chromatic scale or gamut, beginning at the lowest



Fig. 13.—Cattleya Loddigesii: rosy-lilac and cream-coloured flowers. (see p. 108.)

and most common colour, and ascending to the highest and rarest note in the scale:—

Colour Scale.

Green (blue and yellow mixed)—1, yellow, white (= absence of colouring pigment), flesh, rose; 2, red, red-purple, purple (=red and blue mixed); 3, blue.

I do not say that this colour scale is correct, and simply give it here for what it is worth, believing myself that it represents the manner in which colours vary or may vary in seedling plants generally. I am particular in saying seedling plants, because I am fully persuaded that no real advance or progression is made except by seed; but this scale supposing it to be an approximation to the truth, proves pretty conclusively that what we call "sports" in such genera as Azalea, Camellia, and Chrysanthemum, are, in reality, reversions (*i.e.*, the return, so far as form and size or colouring is concerned, to a previous state of existence).

I wish to point out that green (blue and yellow), and yellow alone, are the only two colours never absent from flowers of all kinds; green is always present in the calyx (even when it afterwards changes to white and pink, as in Clerodendron); yellow always in the stamens. Some Orchids, as Angræcum, open green and change to white, and finally die off yellow. White flowers, such as Snowdrops, Snowflakes, and some Orchids, are often spotted with green—probably a reminder that the flowers were wholly green long ago—a hint which applies with equal force to the golden Ismene and Urceolinas of Peru, and to the green-tipped crimson Fuchsias and Coburgias, and Bomareas and Alströmerias, of the New World.

In conclusion, we may glance at those changes of colouring-matter in portions of plants developed in darkness, such as Rhubarb or Seakale, Endive, or fruits plucked full-grown but green, which, as is well known, colour in the dark after they are plucked from the tree. This question of floral or vegetable colour would be one of the most interesting and important that a young and ambitious chemist could take up and work out, and it is one which will not, I trust, be much longer neglected. *F. W. Burbidge.*

Plants and Their Culture.

Seasonable Hints for the Greenhouse.—A few of the largest of the Calceolarias which may have filled their pots with roots should receive a shift, care being taken to ascertain that they are free from aphides before re-potting, by having them fumigated lightly for several nights in succession. A portion of the old stock of Fuchsias should now be pruned and placed in heat of 60° by night, to give an early supply of cuttings the plants raised from these being very useful throughout the summer for conservatory decoration. Some Mignonette should now be sown, using small pots and good, but not over-rich compost, which must be firm; Ten week Stocks and varieties of Rhodanthes may likewise be sown. Soft-wooded Heaths that have done flowering should be cut back before top growth commences, and be placed in a slightly warmer house to encourage them to break; also plants of Solanums and Salvias which may be wanted to supply cuttings.

Forcing-house.—Roots of Lily of the Valley will now force freely in a brisk bottom-heat, and they should be kept moist, the crowns being covered with cocoa-nut fibre, and the flower-spikes to be well advanced before removing the plants to a cooler temperature. A few plants of Azalea mollis introduced every ten days or so according to the demand, will come on quickly; some of A. indica should be brought forward, choosing at this season the early flowering varieties. Lilac, Charles X., Gueldres Rose, Deutzia, and Spiræa japonica, should now be brought forward in small quantities; and also that useful decorative plant, Convallaria polygonatum (Solomon's Seal), Dielytra spectabilis, and Staphylea colchica. Tea Roses that have been started into growth in a cool house should now be gently pushed on, and when they are forming their buds give them the assistance of a good fertiliser. Keep the forcing-house at an even temperature—60° by night and 70° during the day—the flowers will be much finer and more lasting than when forced too quickly.

Seed Sowing.—The supplies of flower seeds having been procured for the ensuing season, an early opportunity should be taken to sow a small quantity of the following seeds. Amaryllis, if sown early and the seed obtained from a good strain, will yield a fair percentage of good varieties, and make considerable growth during the year. A sowing of Gloxinias and tuberous rooted Begonias should be made to take the place of the older bulbs of previous sowings which will be found upon examination to have become exhausted. A small pinch of that useful free-blooming plant, Impatiens Sultani, should now be sown, the main sowing being made in about one month from the present time—if sown too early the seedlings are apt to go off from damp in dull or foggy weather. Grevillea robusta should be sown, the seeds of this plant germinating very slowly. The seeds should be sown in small well-drained pans or pots, the soil being made firm and plenty of sand mixed in it. Cannas, if sown now, prove very useful as conservatory decorative plants. The seed pots should be placed in strong bottom-heat and kept moist. The young plants often come up irregularly, and it is, therefore, advisable to draw out the young plants as they appear, and pot off singly into small pots carefully shading from the sun for some time, the young leaves readily getting scorched. Acacia lophantha is likewise a very pretty plant for the conservatory, and it is very easily raised from seed sown at this date. A pinch of Celosia plumosa seed may be sown if required at an early period, a larger quantity being sown in March to give successional plants. Celosias are valuable plants when well grown, and ought to receive careful treatment through the earlier stages of their growth. Campanula pyramidalis and C. p. alba are very useful for many purposes if grown in pots. A small quantity of seed should be sown and placed in gentle heat, the seedlings as they appear being removed to a cooler place near to the light. *G. Wythes, Syon House, Brentford.*

The Orchid Houses.

When the repotting of the Masdevallias and Odontoglossums is finished, give the same attention to the other kinds growing in the cool-house. The leafy Dizas of the D. grandiflora section are best repotted in October, but where that has not been done, they should at once be repotted, unless they are in good sound condition, and capable of remaining as they are until the autumn. Peat, sand, and living sphagnum moss, suit them best. There is a large class of Oncidiums which are only safe in the cool-house or in a very well regulated intermediate-house; I refer to the Oncidiums of the O. concolor, O. crispum, O. prætextum, O. Marshallianum, and O. dasystyle section. These in baskets or on rafts are strictly cool-house plants, their treatment differing from Odontoglossums only in their being kept tolerably dry when not growing. Lælia monophylla, too, is a cold-house plant, requiring just the same treatment as Sophronites, and Oncidium cucullatum and its varieties; and O. Phalænopsis, require the same treatment as Odontoglossums, and, like them, keeping moist all the year. These, with any of the plants of the Oncidium macranthum section requiring repotting should be attended to. O. macranthum, if potted into well-drained pots with fibry peat, does not require repotting every year, as it blooms better if it is undisturbed until its condition show that it requires a shift. Watering overhead should be carefully avoided.

The temperatures for the month of February should be (degrees Fahrenheit):—Warmest house, 65° to 70° by day, 60° at night; intermediate-house, 60° to 65° by day, 55° at night; cool-house, 50° to 55° by day, 45° at night. *James O'Brien.*

The Flower Garden.

General Work.—The unusual amount of foggy weather that has for a long time prevailed is having a direful effect on bedding plants in cold frames. Of course in heated pits the exclusion of damp is an easy matter by firing and ventilation in the day time. In unheated pits the only course to be pursued is to remove every vestige of decayed matter as often as possible, and as a preventive against the spread of mildew scatter sulphur freely about the walls and floors. Verbenas and Violas are the plants which suffer most from damp, but picking them over frequently, and the application of sulphur scarcely ever fails to save them. Tender bedding plants now require strong heat to start them into growth for the production of cuttings. The old stock-plants of Alternanthera, Coleus, and Iresine, should be destroyed as soon as they have produced the batch of cuttings, and from these cuttings the entire stock required should be propagated, because old plants do not make anything like the same free growth which spring-struck plants do. The following are amongst those that should now be propagated, provided good cuttings are to be had:—Heliotrope, Ageratum, Petunia, Lobelia, and Pelargonium. The last named strike best in a dry warm atmosphere, and without the covering of propagating glasses or sashes. All the others require a moist warmth and should never be allowed to flag even whilst being put in as cuttings.

Bedding Violas.—Taking into account the length of time these plants continue in full flower, their hardiness and ready increase, I think that Violas may head the list of bedding plants. I have lately lifted a quantity of old roots from the borders, split them up and planted them in their summer positions. Young plants would, of course, have been preferable, but as circumstances hindered autumn propagation and by planting them out permanently thus early I expect that they will turn out quite as well as the young stock now in cold frames and which will be planted out early in April. Good bedding varieties which grow and flower freely here in the south are very scarce. I have tried scores of them at different times, and about a dozen varieties are all that have thriven sufficiently well to be worthy of being classed as good bedders. The only kinds we now use are Mrs. Grey and Countess of Hopetoun, white; Blue Bell and Archie Grant, blue; elegans and lilacine, lavender colour; and Hardwick Yellow. These have never failed us, but have grown and flowered profusely in all weathers. A good depth of rich soil is indispensable to their well-being, and this we never fail to afford them.

Ranunculus.—Summer bedding is assuredly the cause of these plants being so little grown at the present time, their season of flowering ending at a time when bedding plants are just beginning to make a display. But this I look upon as being a cogent reason for growing them, for any flower garden to be worthy its name should have a succession of flowers in the beds and borders for as long a time as our climate admits of, and personally I would as soon think of doing away with summer bedding as I would of giving up the growing of Ranunculuses. Given a moderately stiff loam, at least 18 inches in depth, a liberal allowance of well decayed manure, and careful planting of the roots with the claws downwards at a depth of 2 inches from the surface, and there need be no further anxiety as to whether they will do well or not. They are sure to do so if the rhizomes be sound at the time of planting. The Turban and Giant Double Persian are the only two sections which we grow here, and these in mixture, because of the inconvenience of keeping named varieties separate. Moreover, a mixture of the varieties looks best in the beds, and if the flowers are wanted for cutting—for which purpose they are invaluable—it is a very easy matter to select the colours desired. Plant now in rows 8 inches apart 2 inches deep, and allow 5 inches between each root and if the soil be stiff, or works at all unkindly, sift a little lighter soil for the filling in of the drills. It is purely a matter of taste as to whether they are planted in beds, for the greater convenience of cuttings, or in small colonies of from nine to eighteen roots in the mixed flower borders. The latter way gives most trouble in regard to preparing the soil, but there is no doubt that this is the most natural way to arrange them.

Anemone (tuberous-rooted).—The foregoing note on the Ranunculus applies to these in every particular except that they should be planted 3 inches beneath the surface and be given an inch more space between each root. Their season of flowering may be prolonged almost indefinitely by planting, at varying intervals between October and the end of February. If planted later than this they seldom flower well. We usually plant them in the beds of Roses, in clumps of about nine tubers each, or near to the front part of herbaceous borders. The single varieties are the handsomest as border flowers; but if required for use as cut flowers—and especially if they have to be packed to go a long distance—the doubles are much to be preferred.

Hollyhocks.—We discontinued growing these plants some half dozen years ago, because they were

attacked for two or three seasons in succession by what is known as the "Hollyhock disease." But a friend in the neighbourhood having continuously grown them without being troubled with the disease I sought his advice, and followed his instructions, and as a result thereof a better display of this flower than was here last season could not be found. My friend attributed the disease (rust he calls it) to bad treatment of the plants,—a check of any kind, particularly drought, brings on the rust immediately. The plants are best raised from cuttings, and none but stout, vigorous off-shoots should be put in; give each cutting a small pot to itself, and plunge them in a hotbed of leaves, and as soon as struck stand them on top of the bed till the roots have got well hold of the soil. Pot on as occasion requires, for under no circumstances should they be allowed to get pot bound. Harden off gradually, and plant out not later than the middle of April in soil of the richest character—but the manure used should be well decayed. Mulch the plants as soon as planted with manure of some kind, thoroughly rotted cow manure being the kind most to be preferred. To the faithful carrying-out of these particulars our success last year was due. Old plants that have been left to winter in the ground should be kept mulched for another month; then on removal, add fresh soil and manure without disturbing the roots more than can be helped, and they will grow and flower as well as the young plants. *W. Wildsmith, Hockfield, Winchfield.*

FRUITS UNDER GLASS.

OLD GRAPES.—All Grapes in late houses should now be cut and the shoots on which the bunches hang inserted in bottles nearly filled with clean soft water. In taking the bunches to the Grape-room, be careful to avoid bruising the berries or rubbing off the bloom. It is a good plan for one person to cut the fruit and others to carry it away, those carrying taking two in each hand, the hands grasping the butt ends of the shoots as they overlap, these being lightly grasped. The bottles should be got in readiness betimes, and by having one man to take the bunches from the carriers and put the stalks in the bottles, the work is soon despatched. The bunches should be cut with as much of the wood attached as possible, and cut-in to within 2 inches of a good bud. A clean cut can be made afterwards. A great deal has been said about some rooms not keeping Grapes well, and in many cases the rooms have been blamed without cause, but the fact lay in the Grapes not being properly ripened—a great point—for, given a sweet cool, dry room, with a temperature 40° to 45°, without artificial heat, Grapes will keep. A room which we have here answers the purpose well; it is 30 feet by 10 feet, by 10 feet high, hollow brick walls, 18 inches thick, a boarded floor raised 2 feet above the ground level, plastered walls and ceiling, the ventilators near the top, double doors, and a 2-inch flow and return hot-water pipe, for applying heat when necessary, which is very seldom. There is a loft above, which has a span-roof, slated, double felted, and boarded underneath. The fruit room below maintains a generally uniform temperature. We usually cut and bottle Grapes the first week in January, and the Muscats keep well until the middle of April—Lady Downes until the middle of May. The bottles are suspended from hooks in the ceiling, and from the centre, and side stages. Grapes in bottles should be carefully looked over for damaged berries every week, for one bad berry left would soon spoil a bunch.

Pruning.—All Vines not pruned should be done as soon as the fruit is cut; the glass washed; and if insects are feared, rub off the loose bark and paint with 6 oz. of Gishurst and half a pint of lemon oil to the gallon of soft water, well rubbing in with a brush. Take off the surface-soil of the border down to the roots, give a sprinkling of Thomson's Vine manure, finishing off with loam to the proper level. If necessary, give the border a good watering before applying the top-dressing, and a gentle one afterwards. The walls should now be colour washed, and the pipes painted with lampblack and oil to give all a tidy appearance. It is well known how the roots of plants are attracted to the sides of pots. I find a good plan to encourage the roots of Vines to the surface is to get some flat boulder stones and lay them on the border immediately under the pipes, close to the front, for about a yard wide; these keep the border solid, and it is astonishing how soon you find the thin white thread-like roots, herring-bone fashion, spread under the stones. Before using the stones, the pipes being close to the border, we could not get the roots up, it was so dry and loose. A mere dusting of Thomson's manure on the surface and lightly watered in on a hot sunny day has a marvellous effect. The stones above-mentioned are gathered off the land here, where they are so numerous as to be a nuisance. They are flat and kidney-shaped like a fluke Potato. Sites being prepared for Vine borders should have at least a foot of drainage with a bottom sloping to the front, where there should be a drain to carry off the water; a good concrete bottom is better in all cases, and it is indispensable in cold, damp, clayey situations.

Pines.—Plants selected to fruit in May and June should be kept at a temperature of 60°—65° at night according as the weather is cold or mild, the minimum being adhered to in the former case. A rise of 10° may be permitted before giving air in the morning. The bottom-heat may not exceed 90°, and the air of the house or pit should be kept genial and moist by damping the walks, walls, and beds, in dull damp weather, affording less moisture, otherwise condensation will take place on the glass, and drip will afflict the plants, especially when the roof is low and flat. Water those that are dry with water at 80°, but be not too liberal with it till the embryo fruit is seen, when a little guano or Thomson's manure put on the soil and washed in will assist the fruit to push up.

Fruiters swelling off their fruit should have top-heat of 70° and bottom-heat of 95°, keeping a moist atmosphere, but avoiding steaming from the evaporating troughs on the hot-water pipes. Water with some stimulant when watering is necessary, but be very careful towards the ripening stage, withholding water altogether when the first trace of colour is observed, any inattention in this respect being followed by decay at the heart.

Succession Plants.—These should still be kept cool, 55° at night and 70° by day with sun-heat, bottom-heat being kept at 78°, and at this temperature do not be too lavish with the water, but simply afford water when it is absolutely needed, and before doing so examine the plants individually before giving any. Any plants plunged in beds heated by hot-water pipes will need to have more attention than plants plunged in a bed of leaves. Now is a good time to prepare for the next month's potting by placing some dry turf under cover to be picked over, the fibry part only being retained; a quantity of crocks of different sizes, also washed pots, and charcoal broken to the size of a Hazel-nut. These materials can be stored in some warm shed, so that when the time comes advantage can be taken of a fine day to do the potting. Bottom-heat beds where only tan or leaves are used can be filled and turned over so as to exhaust the rank heat, and avoid the danger of a premature start to fruit by unduly exciting plants brought from cooler quarters.

Cucumbers.—The period from the middle of the month of December to the end of February is the most trying time for this plant. A night temperature of from 65° to 70° should be kept up, rising in the day from 70° to 75°, allowing a rise with sun-heat of 5° or 10°, giving air on all favourable occasions for an hour or so before shutting up with sun-heat about 1 o'clock. Syringe the plants and the walls of the pit at this time more or less liberally, according to the weather, and using tepid water slightly warmer than the air of the house. Afford water at the root when necessary, and vary the waterings with soot-water or clear sheep's dung-water. Keep a bottom-heat of about 85°; the Cucumber being a moisture and heat-loving plant, it is a mistake to keep it too cool or dry, the result being poor, hard-skinned, distorted fruit, with a bitter flavour. Pay constant attention to and take off all male blooms and clusters of fruit, preserving just sufficient to keep up the supply. Top-dress as soon as the roots appear—not too thickly, with chopped turf and fresh horse droppings of the same temperature as that of the bed; and as the light and sun-heat increase the plants will soon begin to grow, when stopping and tying must be attended to, and the older leaves removed. Plants growing in dung-beds will have had a severe time time of it during the late fogs and general absence of light. Examine the bottom heat, and if it is declining take down two or more sides of the bed on a quiet day, replacing them with three parts leaves and one stable dung, or, what is better, use leaves only. A heap of these materials should always be kept thrown up in readiness for such work. Raise the new linings to the level of the frame, and cover them with a foot of bad hay or some such dry material. I find it a good plan thus to protect the beds in very windy weather; for it is astonishing the power the wind has in cooling beds when unprotected. In thinning out shrubberies and plantations tie the evergreens, such as Laurels, Fir branches, &c., into long faggots, making the bundles quite 6 feet long, tying them securely with three withes, these stood close together on their ends against the hot-bed, protect not only the bed but the lights from storms. Afford a little ventilation at the back of the frame under each light, so that steam may escape; and look out for slugs, laying a few heaps of fresh grains from a brewery, which have a wonderful attraction for these creatures.

A few Cucumber seeds should be occasionally sown, in case of loss. Cover up the frames securely with hay, with mats over them, to protect from frost. In making fresh beds for planting out from the seed frame, follow the directions given in December, putting a mound of soil under each light; insert a bottom-heat stick in each frame. *W. Bennett, Rangemore, Burton-on-Trent.*

THE HARDY FRUIT GARDEN.

SEASONABLE HINTS ON BUSH FRUITS.—If vacant spaces among Gooseberry and Currant bushes have been made good and the pruning finished scrape the soil from beneath the bush to the depth of 4 inches, to allow of top-dressing being put on, and where caterpillars were troublesome last season it should be taken away and charred with the garden refuse. Give the bushes a good dusting over with lime and soot mixed, also the surface soil about the stems, as a means of getting rid of any larvæ which may have been left, and as a preventive of the loss of the buds by birds. All bushes in a bearing state should have a thorough dressing of rotten manure carefully forked in between the rows and about the roots. Light well drained soils, which quickly become a complete network of roots, should be forked over just deep enough to bury the manure and weeds, placing plenty of manure under the bushes, covering it with soil from the alleys. Deep heavy soils, enclosed or sheltered by high walls, I am in favour of turning up deeply every year, using for the work a three-tined fork. This both helps to sweeten the soil, and the crop of fruit is considerably improved thereby. Mutilation of the roots must be avoided, and if a little fresh loam and brick-rubbish can be obtained and worked in about the roots, an improvement in the growth and fruitfulness of the bushes will soon be observed. Cuttings of strong healthy young shoots may still be made, although this is best done in October; 18 inches in length is about the proper length, and the buds below ground must be cut out, to prevent suckers growing, leaving half a dozen at the top to form the head. Plant firmly in a rather shaded position, and if not allowed to become shrivelled for want of moisture, they will root with certainty.

Standard Apple Trees.—Any of these left unpruned should be attended to without delay. The head of the tree is better when kept fairly open in the middle. If the shoots have been selected to form the head of the future tree, which should be about five in number, and these have pushed forth very strong growth, shortening back to an outside bud to 10 or 15 inches in height should be practised. Trees with weak stems may be pruned more closely than this for two years or longer, so as to give the stem more time in which to thicken. The varieties Cornish Gilliflower, Yorkshire Beauty, &c., which fruit principally at the points of the shoots—especially the first-named—must be sparingly pruned. Any suckers springing up around Apple trees should be removed, and the trees staked and secured, and the labels made good where necessary.

Large neglected trees full of unfruitful wood should have a thinning out, removing most of the branches which cross and interlace. If pruning be done annually much finer fruit will be the result. Trees in a stunted condition should receive a dressing with strong cow manure and soil, first removing 6 inches of the top soil before applying the manure; a thorough soaking of the soil about the trees with rich farmyard manure water is of much benefit in exhausted soils. If the trees are much infested with moss it should be scraped off with a piece of hoop-iron. Give the bole and principal branches a scrubbing with brine, or soap suds and paraffin, and syringe the smaller ones with a lime-wash. Shorten back to the desired height trees intended to be grafted. *H. Markham, Mereworth Castle, Kent.*

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W. RICHARDS, 41, Wellington Street, Strand, W.C.

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY,	JAN. 28	Imported and English-grown Lilies, at Protheroe & Morris' Rooms.
TUESDAY,	JAN. 29	Nursery Stock and Greenhouse Plants, from Sample, at Protheroe & Morris' Rooms. Greenhouse Plants, &c., at the City Auction Rooms, by Protheroe & Morris.
WEDNESDAY,	JAN. 30	Lilium auratum from Japan, Roses, Fruit Trees, Border Plants, and Bulbs, at Stevens' Rooms. Lilium auratum and other Bulbs, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.
THURSDAY,	JAN. 31	Imported Orchids, from Mr. F. Sander, at Stevens' Rooms.
FRIDAY,	FEB. 1	Barvins Park Collection of Orchids (second portion), at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—38°.9.

Lily Disease.

FOR some years past Lily growers have been distressed by the occasional onset of a disease which comes on suddenly in late summer and speedily ruins their plants. The appearances presented are most distressing, and so similar, in some of its stages, to those caused by the Potato disease—and, moreover, occurring under like atmospheric conditions—that it was quite natural to suppose it to be caused by a fungus of somewhat similar character, and this indeed is true.

The disease was first studied by Mr. BERKELEY, who detected a fungus figured and described in these columns as Ovularia elliptica, 1881, vol. xvi., p. 340, which he considered as probably allied to Peronospora. Mr. WORTHINGTON SMITH, also, in our columns, August 18, 1888, p. 184, figured the plant, calling it Peronospora elliptica, he having seen, as he tells us, indications of zoospores. Mr. SMITH, as we also know, at one time placed the plant under the genus Polyactis.

But these tentative or conjectural opinions have to give way to the more definite evidence obtained by the careful cultivation of the fungus by itself, under appropriate conditions, and the consequent study of the life history of the plant in all its consecutive stages. It is a very interesting but a very perplexing fact that many plants, especially fungi, are so different in different stages of their growth that they may be, and, indeed, are very frequently considered as separate plants. It is only by keeping the plant under regular consecutive observation, and by instituting vivisection experiments that its real history and its multitudinous phases become unravelled. This is work for the specialist and the expert. It is impossible to suppose that the ordinary gardener could ever find time to devote to such minute and difficult enquiries, but as there is no cure for an unknown disease, so he ought to be proportionately grateful to those who, by demonstrating the real nature of a disease, thereby afford direct, or at any rate indirect, evidence of the means to be adopted to prevent the access or spread of the malady, if not to cure it.

Professor MARSHALL WARD, in the recently published number of the *Annals of Botany*, has given us details, accompanied by numerous illustrations, of his researches into the life-history of this particular fungus, and of the conclusions at which he arrives. It will startle some people not conversant with the results of modern research to hear what that conclusion is. Most people who pay attention to the plants around them are familiar with one or more of the fungi commonly called Cluster Cups (Peziza). Nothing could well be more unlike Cluster Cups than the white or bluish, microscopic moulds; nevertheless, DE BARY, FRANK, and others have, in certain cases, clearly traced the whole sequence of events from the thin threads of mould, with bud spores of various character, to the small or large formless lumps of hard spawn known as "sclerotia," and eventually into Cluster Cups. Mr. WORTHINGTON SMITH, in describing in our columns a disease in Anemones, gave a good illustration of these phenomena (vol. i., 1887, p. 712.)

Mr. MARSHALL WARD'S paper is an admirable example of the present style of investigation, not content with superficial examination and outward comparison, but observing, piecing together, testing, experimenting, eliminating what is found irrelevant or incorrect, verifying, and finally stating his conclusion.

Unless prepared to repeat the whole process of what we may term criminal investigation for themselves, critics have hardly the right to pronounce an opinion on such matters—that is, if they are satisfied with the competence of the observer and the general excellence of his methods—both points upon which no one who knows the author and who reads this remarkable essay can entertain a doubt. Professor WARD'S evidence, however, is, after all, not quite complete; his induction leads not to demonstrative certainty, but only to the highest degree of probability. We have the life-history of the plant revealed to us by cultural expedients and actual experimental insulation, in all save its last stage—that of the Cluster Cup. When that is found the chain of evidence will be complete; at present, that link has not yet been recognised, but no one who reads Professor WARD'S paper can entertain any reasonable doubt as to what the nature of that link will be.

Incidentally we may note as of great interest, as showing how these fungi effect their work of destruction, the details given concerning the mode of production and action of the ferment, by the operation of which they are enabled to dissolve away, and disorganise the tissues of the Lily or other plant, and avail themselves of their contents for purposes of nutrition. The history now detailed shows that the chief reliance of the cultivator must be upon destruction of diseased plants, strict hygiene, and methods of prevention, of which culture under glass is one. For our own part, although we have not tried it, we should expect good results to follow from spraying the affected foliage with a weak solution of sulphate of copper in water immediately the disease becomes apparent. The exact strength must be ascertained by experiment beforehand on some *corpora vilia* that are but lightly esteemed in comparison with choice Lilies. As the fungus grows in the interior of the plant this remedy could only be partial, but it would destroy or prevent the formation of bud-spores (conidia), and so save some plants and protect others from the assaults of the fungus.

We now append Professor WARD'S own summary of the results obtained by him:—

"Commencing with the description of the external symptoms, disease-spots, &c., I then show that the fungus always found in their tissues is a Botrytis (of the form now called Polyactis). The spores, cultivated in suitable media, give rise, after germinating in a characteristic manner, to a copiously branched and septate mycelium [spawn], with well-marked and easily-recognised morphological features, and which presents some physiological phenomena of much interest and importance.

"Some of its branches form cross-connections by a process so like conjugation, that it is difficult to avoid applying that term to it; their conjugation is preceded by an attraction for one another, which is shown by mutual deflections of the growing hyphæ [spawn-threads]. Certain of the free branches develope into the curious 'organs of attachment,' which glue themselves to solid bodies in much the same way as the tendrils of Ampelopsis, and develope in response to a similar irritability to contact. These organs, as well as the tips of other hyphæ, secrete relatively large quantities of a ferment, and I have shown that in culture-media this cellulose-dissolving ferment may accumulate to such an extent that the hyphæ can no longer contain it, and it causes dissolution of the cellulose at the tips of the hyphæ, and consequent extrusion of the protoplasm and ferment in the form of drops. The details of accumulation of the ferment, so far as they could be traced by the microscope, are given, as also some interesting reactions, methods of staining preparation, &c.

"The development of the Botrytis heads, or sporophores, and conidia [bud-spores] is given in detail, as well as some observations on the rate of growth of the hyphæ. Then follow some observations of considerable interest on the passage of the hyphæ in and through the cellulose cell-walls of the Lily. By means of special cultures it was found possible to observe, step by step, the actual piercing of the cellulose by the tip of the fungus-hypha, and its further growth in the walls; it results from these observations that the tip of the hypha in contact with the cellulose, probably in consequence of the irritation of contact, excretes relatively large quantities of ferment substance and dissolves its way into the cell-wall, swelling up the cellulose and feeding upon the product of solution, and causing destruction of the tissues by isolating the different cells as if they had been boiled.

"I have also obtained from large pure cultures of the fungus in sterilised flasks solutions which produce the same swelling and dissolution of the cellulose as those met with in chamber-cultures, containing sections of the peduncle, leaf, ovary, &c., of the Lily, and their cell-walls and middle lamellæ undergo solution in a few hours when placed in these aqueous extracts of the fungus. Since the swelling, &c., does not occur if the extract is previously boiled for from two to five minutes, the evidence is all but conclusive that the changes are due to the ferment referred to. Considerable success was obtained towards obtaining the ferment pure, by precipitation from the extracts with alcohol. In conclusion of this part of the paper I describe the phenomena of infection, and the details of the parasitism of the

fungus, discussing the reasons for the disease being at one time sporadic, and at another epidemic, in its attacks."

Royal Horticultural Society.—According to the new regulations for the Fruit and Floral Committees, these latter will recommend awards to be made to very superior seedlings or novelties, or to recently introduced, re-introduced, or very rare objects, or to highly decorative plants, according to their merits. In the case of plants commonly grown from seed every year, the award will be made to the strain and not to individual plants.

Ealing District Gardeners' Society.—At the weekly meeting of this Society, on the 15th inst., an interesting lecture was given by Mr. Richard Dean upon the florist's Tulip, under the title of the "Life History of a Flower." The introduction consisted of a history of the introduction from Turkey to Europe, a glance at the Tulipomania, and the culture of the Tulip in this country as a florist's flower. Commencing with its propagation by seed, time and method of planting, the preparation of the bed, and the soil and general cultivation were dwelt upon.

Brussels Chamber of Horticulture.—A society has been established in Brussels consisting of the commercial horticulturists of Brabant, and having as its aims the co-operation and mutual advantage of the subscribers in matters relating to business, the progress and diffusion of horticulture, the organisation of meetings and exhibitions, the discovery of new outlets for trade, and similar objects. The yearly subscription is 5 francs, and the Society is governed by a committee of five elected for five years, and for the present composed of MM. Lucien Linden, President; Fr. de Backer, Vice-President; Paul Buquet, Secretary; Joseph Story, Assistant Secretary; and Louis de Langhe, Treasurer. Meetings will be held on the first and third Mondays in each month at half-past 7 in the evening. Communications should be addressed to M. Fr. de Backer, 46, Rue d'Aremberg, Brussels.



Fig. 14.—A view in the botanic garden, durban.

Gardeners' Royal Benevolent Institution.—Mrs. Elizabeth Kimber, a gardener's widow, eighty-four years of age, is desirous, on her election, of thanking all of those who so kindly assisted her by their votes to obtain the pension of the above Institution.

The Empress Frederick.—On her visit to Sandringham last week, the Empress Frederick, with her three daughters, the Prince and Princess of Wales, with the young princesses, Prince Victor and George, visited the Lily Nursery, Dersingham. The proprietor, Mr. Jannoch, had the honour of showing his visitors some 20,000 Lilies in all stages of development. The Princess of Wales, in particular, seemed much interested in the way Lilies are grown and forced here. On their return to London (January 21) Mr. Jannoch's two eldest daughters had the honour of presenting the Empress with a magnificent bouquet, composed of Lilies of the Valley and Eucharis, and the Princess of Wales with one composed entirely of Lilies.

Henry Vilmorin.—Under this familiar name, as expressive of the general esteem felt for him on this side of the Channel, we are glad to announce the fact that M. Henry L. de Vilmorin has been elected President of the Botanical Society of France for the present year.

National Chrysanthemum Society.—The provincial show for 1889 of the above Society will be held in conjunction with the annual show of the Hull Society on November 21 and 22.

Botanic Garden, Durban.—Our illustration (fig. 14) represents a view in these gardens, which have for many years been under the care of Mr. J. Medley Wood, and to whom we are indebted for the photograph and for the interesting details which follow:—"In some parts of the midlands and uplands of Natal and Zululand Aloe ferox is frequently met with, and is one of the commonest species of its genus; in height it is only exceeded by A. dichotoma or A. Bainesii, but the latter species are

arborescent, bearing tufts of leaves at the ends of their branches, and often attaining a large size. A. ferox, however, though reaching 10 to 15 feet in height, has a simple stem, which, when undisturbed, is frequently clothed to the base with the dried and stiffened leaves; these leaves are used by the natives in the manufacture of the snuff of which they are so fond, and are sold for this purpose at most of the Kaffir stores in town; in fact, a native does not consider his snuff to be complete without a proportion of the ashes made by burning the leaves of the plant. A year or two ago, one or two bales of these dried leaves were sent to England, presumably for sale to tobacco manufacturers; but, on their arrival, being classed as Aloe leaves, they found their way to the wholesale druggist, and were most likely eventually destroyed as being of no value. It will be seen from the illustration that the stem of the specimen is kept quite clear of old leaves by the natives employed in the gardens. From this plant the larger portion of the Natal Aloes is procured, though in some districts, no doubt, other species are used and the juice mixed, the result being, I have reason to believe, an inferiority in the drug. In the background of the cut is seen what is known as the Giant Encephalartos, a photo of which is, I believe, in the Kew Museum. This plant, when brought from Kranskloof, a few miles from Durban, had a trunk 15 feet high, but in planting in our loose sandy soil, some feet had to be sunk beneath the soil to give it steadiness, but still it has fallen considerably from the perpendicular. The species is known as E. caffra, and it is very seldom that specimens are found even equalling this in height, though I have heard of one which was said to measure 20 feet, and two years ago I saw in Zululand a clump consisting of three stems, the smallest of which was at least 15 feet in height, the other two a little more. The seeds of these plants are hollowed out with much care by the natives who use them as snuff-boxes, which they carry in a hole made in the lobe of the ear, but since the introduction of brass boxes of European make they are very seldom seen. The remainder of the plants in the group are imported Yuccas, Agaves, Fourcroyas, &c., surrounded by indigenous bush, the tree, whose stem appears behind the Encephalartos being Chætacme Meyeri."

A NEW HORTICULTURAL ASSOCIATION.—The gardeners of Reading and the district have recently formed a mutual improvement association, and the first meeting in connection with it was held last November. On Monday, the 21st inst., a large and representative meeting was held at the above-named place, the President, W. J. PALMER, Esq., J.P., presiding. Mr. W. WILDSMITH, Heckfield Gardens, read a paper on "Mutual Improvement Associations as applied to Gardeners and Gardening." Mr. J. POUND, Jun., 10, London Road, Reading, is the honorary secretary.

CHAMBRE SYNDICALE OF GHENT.—At the monthly meeting held on Monday, the 14th inst., the following awards were made:—

First-class Certificates.—To Lycaste Poelmani, from M. L. Poelman-Maenhout; to Cypripedium villosum albo marginatum and C. Canhami var. pourpre, from M. Moens; to Dendrobium Brymerianum, from M. L. Desmet-Duvivier; to Odontoglossum Harryanum var., from M. A. Peeters, of Brussels; to Catasetum Bungerothi, from M. Léonard; to Cypripedium Stonei Hyeanum, and to C. Ashburtoniæ expansum, from M. J. Hye-Leysen.

Commendations for Novelty.—To Begonia Monsieur de Lesseps, from M. L. Desmet-Duvivier; to Cypripedium Williamsi, from M. G. Vincke-Dujardin; and to Oncidium chœrophorum, from M. Léonard.

MASDEVALLIAS.—We have received from Miss FLORENCE H. WOOLWARD, of Belton, Grantham, the following:—"To those of your readers who are collectors of the genus Masdevallia, it may be interesting to know that a long-proposed illustrated monograph of the genus is now commenced, and that Part I, will shortly be ready. The Marquis of LOTHIAN, at whose expense the book is undertaken, has long contemplated a work of the kind, and drawings of about fifty Masdevallias have been made by myself from his collection, Newbattle Abbey, Dalkeith, I also lithographing the plates for the work. It is proposed to include coloured plates of about 100 species, with accurate descriptions of each, the latter to be written by Mr. R. A. ROLFE, of the Herbarium, Kew, with short additional notes by the Marquis of LOTHIAN. The book will be issued in ten parts, each part to contain ten coloured plates, with descriptions. The size of the work is royal folio, and the price of each part will be £2. Part I. will probably be ready in a few weeks, when circulars will be issued."

MILTONIA VEXILLARIA.—A marvellous piece of this was offered at Messrs. J. C. STEVENS' Rooms, 38, King Street, Covent Garden, W.C., on Thursday, the 24th inst., and knocked down at 60 guineas. Its bright rose flowers were perfect in form, and the lip had an intensely dark blotch on the base, from which a drop-like pendant of the same colour extended down the lip.

MR. A. H. SMEE.—We learn that this gentleman has been elected on the Merton and Wallington Division of the Surrey County Council.

PINE-APPLES.—A correspondent writing of the cultivation of the above in the West Indies, states that, "When grown for fibre the plants should be set in a shady situation inside a wall on the side of a house where the sun cannot get at them. The new growths attains a length of 2 feet in about ten days, when they are cut and soaked in water for several days. They are then spread out on boards and scraped with broken earthenware to remove the skin. If the plants are grown for the sake of their fruits they are planted in the full glare of the sun, when the leaves attain only a few inches in length. Pines bloom about April, and are ready for picking about September."

PRINCIPLES OF PHYSIOLOGICAL BOTANY AS APPLIED TO HORTICULTURE AND FORESTRY.—Under this title Professor GOODALE is publishing a series of articles in *Garden and Forest*.

ST. ANDREW'S UNIVERSITY.—We learn from the *Dundee Advertiser* that, under the direction of Mr. WILSON, the lecturer on botany, a botanic garden is being established in connection with this University.

CYPRIPEDIUM.—The first part of M. GODEFROY'S publication on this genus has just been issued. The text has been elaborated by Mr. N. E. BROWN. The coloured illustrations are from the pencil of Mdlle. JEANNE KOCH, and are as faithfully executed as they are beautifully reproduced. We shall revert on another occasion to this sumptuous publication.

BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.—We extract the following details relating to horticulturists from an article (one of a series) by Messrs. JAMES BRITTEN and G. S. BOULGER in the current number of the *Journal of Botany*, and which shows how useful this index will be to future historians of horticulture and botany:—

"GOOD, PETER (d. 1803): d. Sydney, June, 1803. Kew gardener. Sent in 1796 to Calcutta. Accompanied Brown on Flinders' Voyage, 1801. Salisbury, Parad. Lond., t. 41; *Gard. Chron.* 1881, II. 568; Hooker, Fl. Tasmania, cxiv., *Goodia*, Salisb.

"GORDON, GEORGE (1806—1879): b. Lucan, Co. Dublin, 25th Feb. 1806; d. 11th Oct. 1879. A.L.S., 1841. At Chiswick from 1828. Assisted Loudon in 'Arboretum,' 'Pinetum,' 1858. Herbarium of Conifers at Kew, Pritz. 126; Jacks., 140; R.S.C. II., 945 (Nos. 3 6); *Gard. Chron.* 1879, II. 569.

"GORDON, JAMES (d. 1780).—Nurseryman, of Mile End, 1750—1776. Worked for Lord Petre and Dr. Sherard. Correspondent of Linnæus. Introduced *Ulmus americana* (1752), *Sophora japonica* (1753), and *Ginkgo* (1754). Pult. II. 241; Linn. Letters, I. 93, 254; Rich. Corr. 390; Loudon, 'Arboretum,' 78, 82; Phil. Trans. XL. 520. *Gordonia*, Ellis.

"GORRIE, WILLIAM (1812?—1881).—Gardener. Contributed to Mag. Nat. Hist. 1828. Described Grasses in Morton's Cyclop. Agriculture. R.S.C. II., 948; Trans. Bot. Soc. Edin., XIV., 298."

It will be seen that the Index in question contains a condensed summary of the life career and works of the several persons mentioned together, with bibliographical and other references, in a very condensed form, but readily intelligible to students.

STOCKTAKING FOR THE MONTH AND YEAR ENDING DECEMBER 31, 1888.—Including the exports, with which we are not here concerned, the figures given in the present return are of an astounding character as showing the immensity of our commerce and the ubiquity of the British "bagman." There being no necessity for our dilating on the value of these figures *en bloc*, we proceed to briefly record such of them as concern many of our readers, contained in the "summary of imports" for December last, as follows:—

	1887.	1888.	Difference.
	£.	£.	£.
Total value of imports	31,173,973	37,940,625	+3,766,652
§ II.—(A.) Articles of food and drink—duty free	11,736,903	12,457,038	+720,135
(B.)—do., dutiable	2,231,852	2,490,995	+256,143
§ VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	7,920,803	10,200,838	+2,280,035
§ VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	2,468,058	2,844,192	+376,134
§ IX.—Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,814,855	1,685,365	129,520

The following are a few items from the various sections, in which most gardeners are concerned:—

		1887.	1888.	Difference
§ II. Fruit:—				
Apples, raw	bush	300,409	877,309	+576,900
Unenumerated, raw ...	,,	72,884	26,282	—46,602
Onions	,,	326,107	355,633	+29,226
Potatos	cwt.	114,655	108,610	—6,045
Vegetables, raw, unenumerated	Value	£31,349	£43,200	+£8,831

The next table is taken from the "summary" for the year, and is built up on the same lines as that for the month of December: no further explanation is required:—

	1887.	1888.	Difference.
	£	£	£
Total value of imports	361,935,011	386,582,026	+24,647,015
§ II.—(A.) Articles of food and drink—duty free	116,959,379	124,281,097	7,359,738
(B.)—do., dutiable ...	25,780,979	24,958,798	—822,181
§ VI.—Raw materials for textile manufactures...	77,838,508	80,468,675	+2,630,167
§ VII.—Raw materials for sundry industries and manufactures..	33,396,046	36,722,501	+3,326,455
§ IX.—Miscellaneous articles	13,131,318	14,018,458	+887,140

NEW USE FOR CABBAGES.—According to *Science Gossip* a Birmingham firm, in order to supply carbon filaments for the popular incandescent electric lamps, is about to enter into their manufacture from Cabbage leaves. We read that "large quantities will be required, and tenders will be invited from the greatest growers!" This is a new industry for our agriculturists.

MRS. MERRIFIELD.—A recent number of *Nature* contained an interesting review of several recent works on Algæ—German, Swedish, and English—from the pen of this lady. The same number included an announcement of her death on the 4th inst., in her eighty-fifth year, so that the article in question—a critical review—was penned only a few days before her decease.

RYE-GRASS.—Dr. FREAM has done good service by demonstrating in the *Journal of the Royal Agricultural Society* the valuable qualities of this grass in permanent pasture, but which had been aspersed by various writers in the teeth of facts which as it would seem were patent to any observer.

LAXTON'S PEAS.—We learn that Messrs. HARRISON & SONS, of Leicester, have purchased the entire stock of Peas—crosses and selections—from the well known hybridiser, Mr. T. LAXTON, of Bedford, and that some of these excellent Peas, which have been tested at the Royal Horticultural Gardens at Chiswick, will shortly be introduced to commerce.

TREE REMOVAL.—Several trees 40 feet high have been removed from a wood into the park of Mr. BLUNDELL MAPLE'S seat at Childwickbury. The trees were conveyed on a "capstan" trolley, and the watering of them is done by a MERRYWEATHER "Valiant" fire-pump, which takes its supply from a source a mile distant, and distributes it over the tops of the trees.

PUBLICATIONS RECEIVED. *Chrysanthemums and their Culture.* 4th Edition. By E. MOLYNEUX. (London: 171, Fleet Street, E.C.)—*British Uredineæ and Ustilagineæ.* By C. B. PLOWRIGHT, M.R.C.S., F.L.S. (London: KEGAN PAUL, TRENCH & Co, Paternoster Square).—*Botanische Jaarboek. Eerste jaargang,* 1889. (Ghent: J. VUYLSTEKE, Koestraat. 15.)—*National Footpath Preservation Society: Fourth Annual Report.* (London: 42, Essex Street, Strand, W.C.)—*The Book of the Farm.* By H. STEPHENS. 4th edition. By J. MACDONALD. Division II. (Edinburgh and London: W. BLACKWOOD & SONS.)

NURSERY NOTES.

PLANTS IN FLOWER AT MR. B. S. WILLIAMS', HOLLOWAY.

IN spite of the ungeniality of the weather in London, many plants are beginning to flower here, the show-house being gay with the colours of Dutch bulbs, Lilac, &c.

In an intermediate-house we observed two valuable winter-flowering Begonias. B. sempervirens carminata gigantea is good in foliage and free to flower, but like many another plant, liable to lose its unopened flower-buds in foggy weather. B. Gloire de Sceaux has rose-coloured flowers, and an abundance of them at this season; the leaves have bronzy-green tints, and the whole plant has a general resemblance to Begonia discolor.

Many young plants of Luculia gratissima were observed, which had flowered well earlier in the winter; Jasminum gracillimum is getting a popular plant, and chiefly because of its being the best of the Jasmines to produce winter blossoms freely. The old, though not well known Burchellia capensis with orange-coloured tubular flowers in terminal corymbs is another winter bloomer deserving of general cultivation. It is a free bloomer, and its colour is not common at this season among hardwood plants. The proper place for it is with the warm-house Rhododendrons, that is, where the night temperature is from 50° to 55°, and that of the day at this period of the year 10° higher than that.

Of Rhododendrons of the section just named, several were in flower, but no wealth of bloom was seen, all blooms being sacrificed to bouquet-making at this season. R. Taylori is still one of the best, at least being old and in quantity it is much in evidence.

A few good Cyclamen and Primulas were seen, and still many pitchers decorated the plants in the Nepenthes-house, one, the most remarkable, being N. Excelsior × (Raffiesii × Hookerii), an improvement on each parent. The pitcher has long suspending stalks, and is of considerable size, with a green ground-colour variegated with bright brown. It is remarkable more for its large transverse diameter than for its depth.

Of Orchids in flower, we observed in the various houses Odontoglossum sceptrum, luteo-purpureum, blandum, a rare and delicate species; baphicanthum, a good spike; Harryanum, a few crispum, and a few others; the sweet-scented Dendrobium endocharis, small growing and good for a basket; Lycaste costata, a white-coloured flower with just a tinge of green in it, and of free-blooming habit; Masdevallia polysticta, a valuable species at this time of the year; the prevailing colours are white, olive-green, and purple.

Many species and varieties of Cypripedium were in flower, of which we noted down Harrisianum vivicans, nitens, Fytchianum, Hartwegianum, Sedeni-candidulum, politum, Williamsianum, a very fine flower, with delicate browns and greens in its various parts; Meirax, tonsum, fine imported plants; Sallieri, very like to nitens. A few large pieces of Cœlogyne cristata, Cattleya Trianæ, Lycaste Skinneri, were also in bloom.

Calamus ciliaris is a charming Palm, with soft hairy stems and leaves, the latter of a lively green, and much divided. One of the best table plants, a Carludovica, provisionally named elegans, is also a handsome, small growing Palm, bringing true leaves from the first, and easy to propagate by offsets in the manner of Rhaphis flabelliformis. The Crotons and Aralias seem very well done at this nursery, and the stock is large and varied.

COLONIAL.

PLANT BEETLES.

SINGAPORE.—We are here suffering very much from the attacks of two kinds of small chafers. One is about the size of Phyllopertha horticola, and attacks Amherstias, Saracas, Bauhinias, Acalyphas, Palms, and many other plants. Both are quite invisible during the day, but at night the whole plant swarms with them. When you beat them into an umbrella they fly off briskly, and are very hard to catch. Can you suggest any method of destroying them? They bite the leaf into holes, so that the skeleton only is left. *H. N. Ridley, Botanic Garden, Singapore.* [We learn from Mr. C. Waterhouse, of the Natural History Museum, that the beetles in question are species of Adoretus and Apogonia. Perhaps some entomological reader will kindly suggest a remedy. ED.]

PLANT PORTRAITS.

BORONIA HETEROPHYLLA, *Revue Horticole*, January 16.

CODIEUM THE CZAR, *Illustration Horticole*, t. 70.—A fine form, with the coloration of the old C. pictum.

COMPARETTIA FALCATA, Orchidaceæ, Mexico, *Lindenia*, t. 163.

CYPRIPEDIUM CROSSIANUM, *Illustration Horticole*, t. 72.

NEILLIA TORREYI, *Garden and Forest*, January 2.—A dwarf Spiræa, with three-lobed foliage and dense clusters of small white flowers arranged along the sides of the branches.

ODONTOGLOSSUM RADIATUM, Orchidaceæ, New Granada, *Lindenia*, t. 162.

ONCIDIUM FORBESI, Hook., var. maxima, Lind. et Rodigas, Brazilian Orchid, *Lindenia*, t. 164.

ONCIDIUM ORTHOTIS, *Illustration Horticole*, t. 69.—A curious species, with small flowers with lance-shaped yellow sepals and petals, barred with brown, and a cordate acuminate lip with warts on the disc. The column has two erect ear-like processes. Vestiges of abortive flowers appear on the branches of the inflorescence.

OSTROWSKYA MAGNIFICA, *Illustration Horticole*, t. 71; *Gardeners' Chronicle*, July 21, 1888, p. 65.

ROUPELLIA GRATA, *Illustration Horticole*, t. 68—See *Gardeners' Chronicle*, Sept. 29, 1888.

SOPHRONITIS GRANDIFLORA, Lindl., Brazil Orchidaceæ, *Lindenia*, t. 161.

VRIESEA FULGIDA ×, *Illustration Horticole*, t. 67. A hybrid between V. incurvata and V. Duvallii.

THE CHINESE PRIMROSE.

THE season at which this charming plant produces its flowers renders it very valuable in our gardens, and its value is much enhanced by the ease with which it is grown and propagated. The Chinese Primrose was introduced to this country about 1820 from Chinese gardens. The original introductions were from two sources and different in character, one set having relatively small flowers and smooth-edged petals, while the other set had indications of the crenated edge and wavy margin which characterise so many of the best varieties of the present day.

Within the last few years we have for the first time gained a knowledge of the wild plant, which was found on dry calcareous rocks, exposed to full sun in the gorges of Y-Chang in the province of Ho Pe, Central China, by the Abbé Delavay,* and also by our countryman Dr. Henry. Good specimens from the latter gentleman are preserved in the Kew Herbarium, and they show that the plant has a creeping and branched rootstock about the thickness of a swan-quill with small, stalked leaves, most of which are roundish and lobed, while others are elongate, as in the Fern-leaved section. The flowers are small, have a distended, 5-lobed calyx, varying a little in form, destitute of cresting, a light pink corolla, with a yellow eye, each petal notched, but not fimbriate. The outlines at fig. 16, obligingly communicated by M. Franchet, show sufficiently for our purpose the leaf petal and calyx of the wild Chinese plant, while figure 15 shows a flower of a cultivated plant which has so nearly reverted to the original condition that we may take it as an illustration.

There are several points of interest here to be noted:—first, the locality where the plant grows—on hot, dry, limestone rocks, with little or no moisture (unless, perhaps, in the crevices). We certainly should not try to grow Chinese Primroses under those conditions. This affords another illustration of the fact that the best gardener is not he who attempts servilely to copy Nature, but he who knows best how to make the most of the plant under altered conditions.

Next, the fact may be noted that the plant is a true perennial, with a woody stock not unlike that of the so-called tree Violets. We prefer to treat the plant as an annual, and we get better results in the way of flowers.

It is also interesting to note, that although there is now such a wide range of variation in this one species, yet that all this variation is the result of changes in the individuals of one species only. We have, indeed, only just become acquainted with the wild plant; it has not been introduced into our gardens, and there is no other at all like it. True hybridisation, then, or the crossing of distinct species, has had no part in the remarkable variation met with. In the tuberous Begonias, on the other hand, first individual plants belonging to two species were crossed; then the hybrid offspring was again crossed with another species, and so on. No wonder that there is variation among them. But, although there is no hybridisation proper in the Chinese Primrose, yet the arrangements of the flower are such as to favour cross-fertilisation, the pollen of the long stamens from the "thrum-eyed" flowers acting more perfectly on the stigma of the long-styled or pin-eyed flowers,

* See Primula Conference Report, p. 191, *Journal* of the Royal Horticultural Society.

or *vice versâ*, so that there may be a good deal of cross-breeding between different individuals. These variations are, of course, sought after and encouraged by the raiser; thus, the white-flowered Snow Drift begins to flower in November or earlier, while the "Giant Crimson," sown at the same time, does not expand its blossoms till nearly three months later.

We have already alluded to the cross-fertilisation necessitated by the different lengths of the stamens and styles, or by the different periods at which those organs respectively are matured and ready for action. Close fertilisation, resulting from the interaction of stamens and styles of equal length, but both short, results in the production of a shortened truss not well thrust up above the leaves. A whole batch of one variety was shown us in Messrs. Sutton's nursery at Reading in confirmation of this statement, all with short stamens and styles, and all with the flower truss placed on a stalk, which, relatively to others, did not lengthen, but allowed the flowers to nestle among the leaves. Darwin's notion that cross-fertilisation secures a more vigorous constitution and a more perfect maturation of the plant, is supported by these observations. Another observation is of great interest; it concerns the "eye," or mouth of the corolla-tube; usually this is yellow in colour, and either nearly circular, or star-like, radiating into five or six pointed or obtuse lobes. In some cases the edge radiates irregularly into a sort of "flame" surrounding the eye. Obviously the size of the eye varies much, and it is noted that when the eye of a particular seedling becomes very small cross-fertilisation is then difficult, and the plant itself is apt to be lacking in vigour. If the eye, on the other hand, is relatively too large it is apt to become green, and the whole flower shows a tendency to assume a leafy condition, as if the processes of vegetation were enhanced at the expense of those of reproduction.

Among other curious corelations which have been observed at Reading are the fact that a blue flower has not yet been produced on a green stem, but only on those with reddish stalks—a fact which seems to show that the blue is derived from the stalk, and mixes with the pink of the petal to produce those slate or lavender-coloured flowers which are called blue by courtesy. Again, the offspring of single white flowers on dark stalks reproduce the parental form and colour; but the offspring of double white flowers on a dark coloured stalk do not come true, but produce flakes and bars of purple on the white ground. The difficulty of procuring seed of the best double blue varieties is so much greater than with most others that very little is obtained, and a consequent high price is asked for such seed. Facts of which these are illustrations add zest to the work of the raiser, and generate an interest in the mind of the intelligent cultivator beyond the appreciation of the flowers for their beauty sake alone.

Adverting now to Messrs. Sutton's varieties as a whole, they are evidently not only of superior "strain"—a strain obtained by the careful observation and utilisation of such facts as those just recorded, but they are beautifully grown. The plants are of medium size, as even as Lettuces in a market garden, with bold healthy foliage, with the stalks not too long, many-flowered, well raised trusses, and flowers of large size, good substance, and clearly defined brilliant colours.

All this vision of beauty is created in about seven months. Seed is sown at intervals from February to June, so as to secure a succession. The seeds are sown on the surface of the soil (leaf-mould, loam, and sand) in pans, and placed in a temperature of 50°—65° for some three weeks. When the seedlings have germinated—which they do at rather irregular intervals—the young plants are placed near the glass, but are not exposed to direct sunlight; afterwards they are pricked out, shifted into thumb-pots, and ultimately into 48's with good drainage, potting firmly, and growing the plants on without undue forcing, but without a check—the last point being essential to full success.

CLASSIFICATION OF VARIETIES.

The following arrangement of the varieties will apply, of course, to the productions of any grower, and is adopted for convenience sake, and as being more practically useful than a more strictly scientific grouping would be. The most obvious and most definite characters, or points of distinction, are—first, the singleness or doubleness of the flowers; next, the form of the leaves, roundish, oblong, or "Fern-leaved, and "crested." Lastly comes the colour of the flower. Here much indefiniteness comes in, because hardly two people, if any, appreciate colours in the same way; the tints, moreover, merge one



FIG. 15.—CHINESE PRIMROSE, CULTIVATED FORM, WHICH HAS NEARLY REVERTED TO THE ORIGINAL TYPE.

into the other, they vary according to the age and condition of the plant and the light under which they are seen, and moreover they cannot be adequately expressed in words that shall convey the same definite meaning to all readers. All the varieties now enumerated were seen and comparatively examined at the same time, so as to equalise matters as much as possible, but only those who live among the plants, and watch them from day to day, can acquire anything like an adequate knowledge of the colour, or indeed of any of the characteristics of the plant. In the following enumeration we confine ourselves to those differences which are likely to concern the florist and amateurs. With all the flowers before us at one time, the colours seemed to us to fall into the following main groups, (disregarding numerous transitional tints): — 1, red or dull crimson; 2, rosy-lilac passing to bright crimson; 3, pink or light rose; 4, striped or flaked; 5, "blue," or, rather, bluish-lilac; 6, white, including



FIG. 16.—THE WILD CHINESE PRIMROSE: A, B, LEAVES OF TWO FORMS; C, PETAL; D, E, F, VARIOUS FORMS OF THE CALYX.

snow-white, ivory-white, white with a faint flush of yellow or rose or lilac, &c. We have not given the dimensions of the leaves, as they naturally vary according to circumstances. The fancier naturally prefers relatively short leaf-stalks, which give a compact habit to the plant; the height of the foliage in the following varieties is stated by Messrs. Sutton to be about 6 inches in Nos. 24, 31, and 32, to 5 inches in Nos. 4, 7, 11, 12, 20, 26, 33; about 4 inches in Nos. 1, 2, 3, 5, 8, 9, 10, 13, 15, 16, 17, 19, 21, 22, 23, 25, 27, 28; about 3 inches in Nos. 6, 14, 18, 29 and 30. The degree of lobing of the margin and the shape of the lobes differ considerably in different varieties, but it would be hopeless to convey an adequate idea of such differences in words; the same may be said as to the calyx. The trusses are simple or branched tier above tier, and either raised above the foliage by the lengthening of their scape, or this stalk is so short that the lowest flowers of the truss are on a level with the foliage, and so appear to rest upon it. Of course the details here given are only indicative of tendencies. To grow these plants up to Messrs. Sutton's standard the cultivator must grow them as well as Messrs. Sutton do, but even they could not guarantee that the seedlings from the present strain would infallibly be as good as the parent stock, but they take every care that, so far as they are concerned, it shall be the same, or if not better.

A.—SINGLE FLOWERED VARIETIES.—Nos. 1—19.

I. Leaves Rounded, Flat.

Flowers Red to Dull Crimson.—Nos. 1 and 2.

1. *Reading Scarlet.*—Habit strong, much branched. Leaves, stalk, and under surface reddish. Truss pyramidal. Calyx . . . Corolla 1¾ inch across, crimson; limb flat, petals broad, 3-lobed; lobes deeply crenate, flattish, overlapping. Eye ½ inch across, well defined, sub-pentagonal, yellow; anthers projecting (thrum-eyed). This free-flowering variety began to bloom in November, and was still in good condition early in January, in spite of fogs and gloomy weather.

2. *Improved Chiswick Red.*—Habit compact. Leaf-stalk and under surface reddish. Truss pyramidal. Corolla 1¼ inch across, circular, flat, crimson, edges irregularly crenate flat. Eye ⅜ inch across, 5-angled, yellow; anthers included (pin-eyed). A neat flower, of good form and colour, but deficient in size

Flowers Rosy-lilac to Crimson.—Nos. 3—7.

3. *Special Hybrid.* — Robust. Leaf-stalk and lower surface reddish, section of leaf-stalk approaching that of the Fern-leaved varieties. Truss well raised above the leaves. Corolla nearly 2 inches diameter, rosy-lilac, circular, lobes crumpled crenate. Eye ⅜ inch across, 5-sided, yellowish, surrounded by a narrow zone of white; anthers protruding.

Under the same name are enumerated temporarily various forms which we believe have not yet been sufficiently fixed to warrant their being definitely named. As they vary one from another, we have here taken them as we found them, and sorted them into their places accordingly.

4. *Advance.*—Habit strong and compact. Leaf-stalk and lower surface reddish. Truss pyramidal, resting on the foliage. Corolla 1¾ inch across, flat, deep rosy-lilac, 5—6 petalled, lobes crumpled, coarsely crenate; eye ⅜ inch across, yellow, obscurely 5—6 angular, anthers included. A very handsome variety.

5. *Superb Red.*—Vigorous. Stalk and lower surface of leaf reddish. Truss pyramidal, resting on the foliage. Corolla 1¾ inch across, flat, lobes crenated; eye nearly 1 inch across, greenish-yellow, 5-lobed, lobes obtuse; anthers included.

Remarkable for its finely developed eye.

6. *Ruby King.*—Compact. Leaf-stalk and lower surface of leaf reddish; bouquet-like truss; corolla 1½ inch across, flat, rich rosy-crimson; eye nearly half an inch, greenish-yellow, edged with brown, obscurely 5-angled; anthers included. A very beautiful variety.

7. *Giant Crimson.*—Habit vigorous but compact. Leaf-stalk and lower surface reddish; truss raised above the foliage; corolla nearly 2 inches across, disc flat, lobes wavy, bright violet-crimson; eye ⅜ inch across, yellow, edged with pale brown, 5-angled; anthers included. Remarkable for its large size and substance.

Flowers Pink or Light Rose.—Nos. 8 and 9.

8. *Reading Pink.*—Moderately vigorous, spreading. Leaf-stalk and lower surface of leaf green; truss compact; corolla nearly 2 inches across, flat, circular, rose-pink with whitish spots; petals deeply lobed, lobes slightly wavy crenate; eye, 5-lobed, lobes roundish yellow; anthers included. A very charming variety.

9. *Special Hybrid Rose.* Vigorous and compact. Stalk and lower surface of leaf reddish; truss pyramidal: corolla exceeding 1½ inch across, of good substance, lobes wavy, uneven, deep rose; eye ½ inch, yellow, sub-angular, with a faint edging of brown.

Flowers Bluish-Lilac. No. 10.

10. *Reading Blue.*—Moderately vigorous, spreading. Leaf-stalk and under surface of leaf reddish; truss raised about 2 inches above the foliage; corolla 1½ inch across, uneven, wavy, blueish-lilac; a small white spot on each side of each of the five or six petals or deeper lobes of the flower. Eye open, 5—6 angular, yellowish, nearly ½ inch across; anthers included.

Flowers White, or nearly so.—Nos. 11—14.

11. *Special Hybrid.*—See note to No. 3. Vigorous and branching. White. Stalk and under surface of leaf reddish; truss compact, raised about 2 inches above the foliage; corolla nearly 2 inches across, 6-petalled; white, flat, edges bold and wavy, crenate; eye ½ inch across, 6-lobed, lobes pentagonal, pointed; anthers included.

12. *Pearl.*—Vigorous and spreading. Stalk and lower surface of leaf green; truss compact, well raised above the foliage; corolla nearly 2 inches across, flat, lobes regularly and finely crenated; eye ½ inch, greenish-yellow, 5-angled, lobes pointed; anthers included. Differs from the preceding in its smaller and greener leaves, flatter and more finely lobed.

13. *Giant White.*—Vigorous, but compact. Leaves small, stalk and under surface green; truss 3 inches above the foliage; corolla 1¾ inch across flattish, of good substance, white flushed with pale rose, lobes wavy, coarsely crenate; eye more than ½ inch across, yellow, 5-lobed, lobes rounded not pointed. A very handsome variety.

14. *Special Hybrid.*—See note to No. 3. Strong. Leaves small, 3 inches long, stalk and lower surface green; truss compact, 2 inches above the foliage; corolla 1½ inch across and upwards, flat, lobes wavy, edges regularly crenate; eye nearly ⅜ inch across, canary-yellow, circular, flamed or radiating at the edge, not lobed; anthers included. Remarkable for its large eye, the lobes of which are flamed.

II. Leaves Oblong (Fern-leaved), Flat.—Nos. 15—30.

Flowers Red.—No. 15.

15. *New Scarlet Fern-leaved.*—Vigorous and spreading. Leaf-stalk and lower surface reddish; truss pyramidal, resting on the foliage; corolla 1¾ inch across, circular; petals rosy-carmine, 3-lobed, lobes crenate; eye ½ inch across, 5-angled, yellow. Tube less than half the length of the limb, cylindric, slightly dilated at the top; anthers protruding. A variety with flowers of good shape and substance, and of rich colour.

Flowers Rosy-Lilac.—No. 16.

16. *Rosy-lilac Fern-leaved.*—Vigorous and spreading. Stalk and lower surface of leaf green; truss pyramidal, resting on the foliage; corolla-limb 1½ inch across, circular, flattish, pale lilac; eye angular, greenish-yellow; anthers included.

Flowers Flaked.—No. 17.

17. *Gipsy Queen.*—Strong and spreading. Leaves very dark red; truss branching, its base 2 inches above the leaves; flowers 1½ inch across, circular, flat, white, flaked with rose, some pure white, of good substance; eye ½ inch across, yellowish, obscurely angular, anthers included.

Flowers Bluish.—No. 18.

18. *Blue Fern-leaved.*—Vigorous, spreading. Leaf red on the under surface; truss compact; corolla 1¾ inch across, flattish, lilac, with white spots at the base of the petals; eye markedly angular, greenish-yellow, ½ inch across. A free-flowering variety.

Flowers White.—No. 19.

19. *Purity.*—Vigorous and spreading. Leaves red on the under surface, regularly and finely cut; truss branching, raised above the foliage; corolla 1¾ inch across, flat, lobes uneven, crumpled, edges crenated; eye ½ inch across, pentagonal, yellow, anthers included.

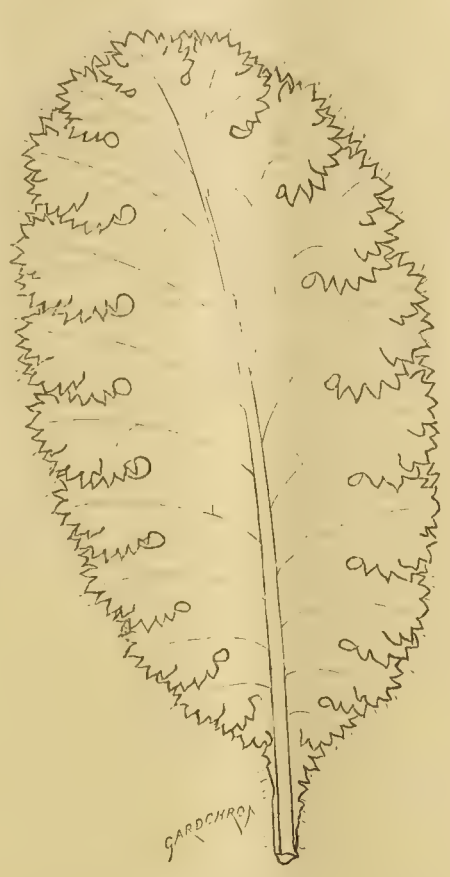


FIG. 17.—CHINESE PRIMROSE: A NEW TYPE OF FOLIAGE, OBLONG, BUT CRESTED.

B.—DOUBLE FLOWERED VARIETIES.—Nos. 20—33.

I. Leaves Rounded, Flat.

Flowers Red to Dull Crimson.—Nos. 20 and 21.

20. *Improved Double Carmine.*—Vigorous and compact. Leaf-stalk and under surface reddish; truss pyramidal; corolla 1¼ inch across; limb deep flesh-coloured, circular, regular; lobes imbricate, crenate; supplementary petals five, erecto-patent, horn-like, convolute, coloured on the outer surface; anthers small opposite the petals, spreading, not connivent; tube thrum-eyed.



FIG. 18.—THE OLD DOUBLE WHITE CHINESE PRIMROSE, STILL GOOD FOR CUTTING.

21. *Double Scarlet.*—Vigorous and compact. Stalk and under surface of leaf reddish; truss pyramidal; corolla 1⅜ inch across, rich carmine; limb flat, circular, of firm substance; petals imbricate, crenate; supplementary petals erect, horn-like; anthers small, spreading, projecting; tube thrum-eyed.

Flowers Rosy-lilac.—No. 22.

22. *Double Hybrid.*—Vigorous and compact. Leaf roundish, red on the under surface; truss pyramidal corolla limb 1½ inch across, flattish, deep rosy-lilac; supplementary petals erect, tube thrum-eyed, anthers protruding.

Flowers Pink or Light Rose.—No. 23.

23. *Double Rose.*—Moderate and compact. Leaves green; truss pyramidal; corolla circular, flattish, 1½ inch across; pale rose-pink; supplementary petals forming rounded tufts. Anthers protruding. A very pretty variety.

Flowers Flaked.—No. 24.

24. *Double Carnation-flaked.*—Moderate and branching. Leaves reddish; truss pyramidal, 2 inches above the foliage; flowers nearly 1½ inch across, circular, of good form and substance, crenulate; petals all white, or flaked with pale violet; anthers projecting.

Flowers Blue,—No. 25.

25. *Double Blue.*—Moderate and spreading. Leaves reddish; base of truss 2 inches above the foliage; corolla 1½ inch across, deep lavender blue, very double, lobes coarsely crenate; anther 6—7, protruding.

Flowers White—Nos. 26 and 27.

26. *Double White.*—Moderate branching. Dark stem, leaf-stalk and lower surface red; truss pyramidal, 2 ihches above the foliage; flower 1¾ inch across, pure white, very full, lobes flattish, evenly crenated; stamens 6, spreading.

27. *Double White, light stem.*—Strong and compact. Leaf-stalk and lower surface green; truss pyramidal, 2 inches above the foliage; corolla more than 1½ inch across, flat, white flushed with rose, 6-lobed, crenate.

II.—Leaves Oblong (Fern-leaved), Flat.

Flowers Pink or Rose.—No. 28.

28. *Double Rose, Fern-leaved.*—Moderate and spreading; leaves green; truss pyramidal; flowers 1½ inch across; corolla circular, deep rose, coarsely crenate.

Flowers Blue.—No. 29.

29. *Double Blue, Fern-leaved.*—Strong and spreading. Leaves red; truss compact, 2 inches above foliage; corolla 1½ inch across, slaty-blue; anthers spreading. See also No. 33.

Flowers White.—No. 30.

30. *Double White, Fern-leaved.*—Strong and spreading. Stalk and under surface of leaf green, stalk boat-like in section; truss compact, 2 inches above the foliage; flowers 1¼ inch across, circular, white, flushed with rose, very full, lobes undulate, regularly and somewhat coarsely crenate.

III. Leaves Crested.—Nos. 31—33.

Flowers Bluish.—No. 31.

31. *Moss-curled Lilac.*—Moderate, spreading. Leaf roundish, reddish; lobes lobulate and curled at the edge; truss branching; flowers 1¼ inch across, very pale lilac or bluish; petals flattish, not much lobed; anthers projecting.

Flowers White.—Nos. 32 and 33.

32. *Moss-curled White.*—Moderate, spreading. Leaves rounded, stalk and lower surface pale green; lobes multilobulate; lobules projecting, crested, overlapping; truss branching; flowers 1⅛ inch across, white; petals rounded, flat, finely crenate.

33. *Double White Fern-leaved, Crested.*—Strong and spreading. Leaves Fern-like, oblong, pale green, lobed, lobes multilobulate, raised, crested, overlapping one another; truss branched; corolla flat, even, recurved, 1¼ inch across, white, flushed with

rose; petals rounded, scarcely lobed, rather finely toothed at edge, partially double, extra petals erect, short; eye somewhat circular, radiating at the edges. This is remarkable for its oblong leaves (see fig. 18), which are crested, as in the other moss-curled varieties, all of which have hitherto had roundish foliage.

HOME CORRESPONDENCE.

☞ *Correspondents will greatly oblige by sending early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

CALLAS FROM SEED.—Generally speaking, I believe it is not considered profitable to attempt raising these plants from seed; small offsets being preferred. This conclusion must be arrived at, however, after unsuccessful attempts with bad seed, for where the seeds are good the result is everything that could be desired, and far more than many would ever expect. A simple statement that Callas may be grown from seeds to produce fairly good spathes in less than twelve months, may at first sight appear somewhat startling, though its accomplishment is nevertheless a fact. Near where I am writing may be seen a batch of some 1400 or more fine plants, showing quantities of flowering-spikes, from plants which are as yet barely twelve months old, some of the plants, the earliest and best-flowered when about ten months old, since which time the percentage has steadily increased; so that when they reach their first anniversary the great majority will have already yielded good flowers. I say "good flowers" that your readers may not regard them as puny and valueless, which may be imagined from the fact that they are now bringing a return of 6*d.* each in Covent Garden at the present time, and returned double this sum at Christmas time. This batch of seedling Callas are being grown by Mr. Milne, a nurseryman of New Hamwton, Middlesex. The seed was sown during January and February of last year, and according to the testimony of Mr. Milne, almost every seed must have germinated, during which stage it lifted the soil bodily in large flakes, thus showing its vigour and extreme vitality. From the time when they were first potted from the seed boxes they have been kept growing steadily, and when sufficiently large accorded a more liberal treatment, with the results above indicated. I have had the privilege, from time to time, to see them, and note the progress they have made, and which must now be clear to all. To make this a profitable undertaking two things are essential; firstly, seeds of undoubted quality; and secondly, a course of liberal treatment throughout. It is worthy of note, by the way, that the whole of this batch appear to be without the slightest variation. There are other things to be seen here of exceptional merit, such as Tree Carnations, Gardenias, Pot Roses, in season; Maidenhair Ferns, Cucumbers, Tomatos, and the like, all being grown in bulk for market purposes. I may also add that Mr. Milne is one of those men who believe in friction, believing that gardeners of all grades benefit considerably by rubbing their opinions together, and any one interested in the subject of these notes will be made welcome by the proprietor. *E. Jenkins.*

THE ROYAL HORTICULTURAL SOCIETY AND THE LINDLEY LIBRARY.—In the review of the arrangements of the Society in regard to shows, meetings of committees, &c., for the current year, mention is made of the Lindley Library as being rich in horticultural and botanical works available for the use of the Fellows. But valuable as this privilege is, I fear there are comparatively few who will be able to take advantage of it, as I find that on the days when most Fellows are likely to be present—namely, on the committee-meeting days—it is, except from 10 to 12 noon, occupied by the Council, during which time all the other Fellows are excluded—indeed, the two hours is, I was informed, conditional; that is, only, if the rooms were not required for other purposes. It will, therefore, be evident that provincial Fellows, and others desirous of consulting the books on its shelves, must make a special journey to London on a day when the Society has nothing else to offer the visitor, at least in London. This arrangement appears to me to be very unsatisfactory, in fact, except to metropolitan Fellows, the library is little else than a white elephant. It may be argued that the rooms are as much for the use of the Council as for the accommodation of the library, but if viewed in that light; then I say much smaller and less expensive rooms would be ample for the Council only. Moreover, as the Council has an excellent room available at Chiswick, if those rooms, with the library, cannot be used for the purposes of the Council, without interfering with their own legitimate uses, then the sooner the Council betakes itself to its own rooms in the Society's gardens at Chiswick, the better for all concerned. I also note in the Schedule of Arrangements, p. 3:—"Books may be borrowed, under certain regulations." And here it might be interesting to know what the regulations are. Another matter—as there is no printed catalogue (omitting that huge hybrid sort of production located in the room) how are the Fellows to know what the library contains? I think a small catalogue, such as is to be found in many other libraries, would be of immense use, as without such a list I fail to see how distant Fellows are to know whether or not the books they desire are in the library. Such a list would not cost much; at all events, there should be no difficulty in producing the same at a cost considerably under a shilling to each Fellow, if necessary. I venture to think there are few who would mind paying a few pence for such a useful instrument. *F. R.*

AN EARLY QUEEN WASP.—I was much surprised on the 20th inst. to find a queen wasp on full wing in the open air, and which I captured. I have, for upwards of twenty years, taken a great interest in the habits of the wasp, but have never before seen one on the wing so early in the year. Should the present mild weather continue it may induce many more wasps to leave their winter quarters, and upon the return of cold weather, which we are almost sure to have, it would prove disastrous to their welfare, as the home for the night would not be selected with as much care as was their winter home, when they left the nests in autumn. But their loss would be the fruit grower's gain. Perhaps some of your many readers may have seen a similar unusual occurrence in other and warmer parts of the country. *J. Bansor, The Rookery, Pendleton, Manchester.*

FIG TREES.—In the colder parts of Britain Figs are seldom grown on open walls, because the young fruits are destroyed by frost, and even the shoots and main branches are killed in very severe winters. Protection of the trees without unnailing them entirely is seldom of any avail in very hard winters, and leads to expectations which often become illusory. By unnailing the branches and laying them close in on the soil at the foot of the wall, covering up snugly with a foot of Oak or Beech leaves, and over this some Fern to keep the former in place, the Fig will go unharmed through the hardest weather. The covering may be taken away when milder weather sets in, at intervals up to the end of March, when the last part of it must be removed, and the tree re-fastened to the wall. This mode of protection may not be dispensed with even in our inland southern shires. *Brown Turkey.*

VIOLETS AND FOGS.—Hoar frosts and fogs work fearful havoc with the foliage of Violets in metropolitan districts. Possibly these evil agents do harm to these hardy flowers wherever prevalent, but the London fogs are notoriously laden with London smoke, soot, sulphur, and other elements, which render fogs peculiarly harmful to vegetable life. The frequency and density of fogs about London seem to be increasing, a somewhat alarming matter for all engaged in the production of winter flowers; and especially of double Violets. These latter seem to be more amenable to fog influences than almost any other flowering plants, regularly hardy; for even now throughout this district large breadths of what were in the autumn strong plants promising to bloom with great profusion in the spring, have now not a green leaf left upon them; and but for evidences of breaking up again from the base of the plants, it might be assumed that the breadths were totally destroyed. This damage is to be seen in its worst aspects in all the Neapolitan section, such as Neapolitan, Marie Louise, Comte de Brazza, white and blue, &c., all of which not only succumb absolutely out-of-doors, but are with difficulty preserved even in frames. On the other hand, the old double strain of Violets, having dark stout leafage and shorter stems, with the crowns close to the soil, seem to withstand fogs much better. The old King of Violets, dark blue, and the Fragrantissima, white, so far are in very good condition; some of the strongest in the leafage being destroyed, but the crowns remain intact. This fact indicates that, for all ordinary outdoor purposes, not only are these old kinds the best, but also that raisers of double Violets should take from them rather than from the more tender Neapolitan strains, which are admirably suited to warmer climates, will not withstand our cold, foggy climate. When there is a very continuous run of hoar frost and fogs single Violets suffer severely also, but so far this winter they have not been materially injured. *A. D.*

BOUVARDIAS.—I send you a few sprays of Bouvardias just to show what a large quantity of bloom can be cut in the winter season from these winter-flowering plants. It may be stated that the flowers were cut from plants which have flowered three times this season. The first were cut for the Yarmouth Flower Show, which was held on August 30, and the third lot of blooms are now going off. When I say that they bloomed three times I do not mean that the head of bloom was pinched out and then the same shoot threw out the usual side shoot which then flowered, but my plants were treated in the following way:—After undergoing a good period of rest under the greenhouse stage, they were brought forth and placed in one of the Melon houses, watered, pruned and started into growth; and when the shoots had got about an inch long they were shaken out and repotted according to their sizes The soil used was loam, leaf-mould, a little cowdung, and plenty of coarse sand, with a few half-inch bones added (the last-named material the Bouvardias are very partial to). The plants were still kept in this house until they were fairly well rooted and had been pinched twice; then they were removed to a house with a lower temperature (50°), in which house they were grown until the last week in May, and were then planted out on a south border. Watering and pinching the shoots were performed as often as required, and they grew very luxuriantly until they were taken up for repotting—an operation which has to be performed very carefully so as not to injure the roots. I may mention that some of the plants were taken up on August 16, and the remainder in the last week in September. They were then placed in a shady house for a few days, and after this they were grown in a temperature about 60°, with the exception of a fortnight between each blooming period when they were placed in a cooler house and water was witheld; and on again placing them in heat they broke again very strongly from the half-ripened wood and bloomed very freely. *Alfred Bishop, Westley Hall Gardens Bury St. Edmunds.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

January 15.—Present: Mr. Pascoe, in the chair; Messrs. Morris, McLachlan, Oliver, Wilson, Michael, Müller, Dr. M. T. Masters, and the Rev. G. Henslow, Hon. Sec.

Orchid Bulbs Attacked by Insects.—Mr. Morris drew attention to an insect found to attack Orchids at the Botanical Gardens, Trinidad. The injury is done chiefly at night. This Orchid "bug" is considered by Mr. Distant to be an undescribed species of Eccritotarsus, which he purposes describing in a forthcoming number of the *Entomological Monthly Magazine* as E. exitiosus. Mr. McLachlan suggests that any remedies found effective in the case of mealy-bug would be effective in this case as well. In America he says they prefer Paris green, a cheap form of arsenic, for the treatment of insect pests.

Icerya Purchasi (Maskett), *Plate of.*—Mr. Morris also exhibited a plate of this insect, shortly to appear in the *Kew Bulletin*, illustrating its characters and life-history. It is known as the "Cottony Cushion Scale," and is one of the most destructive pests. It attacks equally the Acacia, Orange, and other plants, and has caused great damage to the Orange groves of California and Florida. It is fully described in the report of the Entomologist, U.S. Dep. of Agric., 1886, p. 474, seq.; also by Maskett in his account of the scale insects of New Zealand, pl. xix,, p. 104. The insect does not appear to have been introduced into plant-houses in this country as yet. It is, however, a pest that English horticul-

turists would do well to look out for, and to treat at once should it make its appearance. Mr. McLachlan observed that it had been thought by some to be identical with the old Sugar-cane pest, T. sacchari.

A Lime with Contorted Branches.—With reference to the tree sent to the last meeting by Mr. Swailes of Beverly, he writes in addition—"I have to-day looked over the growth of a few scions I took off the tree in the spring and grafted, and find that they all show the same peculiar contorted growth, which I should imagine would be permanent."

Fraxinus monophylla fasciated.—Mr. Swailes also sent a fine specimen of a fasciated branch from this tree. The Ash, as is well known, is peculiarly liable to this affection. It was remarked by Mr. O'Brien that in the last season the common Ox-eye Daisy was frequently fasciated. With regard to this affection becoming permanent, Dr. Muller said that it has been repeated for two years in Weigela. Dr. Masters had noted the constancy of it in Lilium speciosum and many other plants, Mr. Oliver in Larkspurs at Kew; lastly that the synanthic condition of the flowers of Mr. Henslow reminded the committee of the fact Tomato was a species of fasciation perpetuated by seed. The actual cause appears to be somewhat obscure, though the somewhat vague expression of hypertrophy might partially account for it.

Disa lacera Tubers Withstanding Frost.—Mr. O'Brien exhibited several tubers of this South African Orchid, which appeared to be perfectly sound, having been twice hard frozen in the soil.

Capture of Winter Moth.—Mr. G. F. Wilson exhibited a method of catching this moth, which was most effective. He observed that the *Agricultural Gazette* of October 15, 1888, recommended that in neighbourhoods where the winter moth was abundant a ring of cart-grease and Stockholm tar, or of cart-grease alone, should be daubed round the stems of fruit trees, near the base. Last year his Apple trees at Wisley had their leaves eaten by caterpillars; he therefore tried tying a strip of the green scrim of the Willesden Paper Co. round the bottom of the stems, and smeared this with cart-grease. This was done in November and December. The strip exhibited by Mr. Wilson was covered with wingless females, interspersed with several winged males, proving the effectiveness of the method adopted.

LINNEAN.

JANUARY 17.—W. Carruthers, F.R.S., President, in the chair. On behalf of M. Buysman, of Middleburg, Mr. B. D. Jackson exhibited a series of careful dissections of Nymphæa cœrulea, collected by Dr. Schweinfurth in Egypt.

Mr. D. Morris exhibited specimens of drift fruit from Jamaica, where he had collected no fewer than thirty-five different kinds, brought by the Gulf Stream from the mouths of the Orinoco and Amazon. Although the species exhibited had not been determined with certainty, it was believed to be probably Humiria balsamifera, And. (the flower of which is figured by Eichler, *Flora Braziliensis*, vol. xii., part 2, 4320, pl. 92, fig. 1), but the fruit undescribed. It was commonly known in French Guiana as Bois rouge, and from it was obtained a gum used medicinally and burnt as incense.

Mr. T. Christy exhibited a material felted from Manilla Hemp, and waterproofed, very strong and light, and particularly useful for surgical bandages, for which purpose it was highly recommended by army surgeons.

Mr. F. Crisp exhibited some specimens of agate so curiously marked as to lead to the erroneous supposition that they enclosed fossil insects and crustacea.

A paper was then read by Mr. J. G. Tepper on the natural history of the Kangaroo Island Grass Tree (Xanthorrhœa Tateana). This tree grows abundantly in Kangaroo Island, South Australia, in poor gravelly and sandy soil, intermixed with ferruginous concretions, and attains a height of from 6 to 14 feet, with a diameter of 6 to 18 inches, and a floral spike of from 10 to 19 feet. It is thus a most conspicuous plant, and lends a peculiarly weird aspect to the country it occupies. Its rate of growth is described as very slow, old settlers having remarked but little change in individual trees after thirty years' observation. The most remarkable feature in the structure of the stem is the formation of a dense ligneous central core immediately above and connected with the roots, exhibiting numerous annular zones traversed by transverse (medullary) fibres. The flowers are borne in a dense spike upon a smooth peduncle. Individually they are inconspicuous, of a whitish colour, and develope a strong odour and abundant nectar during the warmer part of the day, when they are visited and fertilised by hymenopterous insects, the most remarkable being a large metallic-green carpenter bee (Xylocapa), which tunnels out cells in the dead flower-stalks. The meeting adjourned to February 7.

BOTANICAL OF EDINBURGH.

JANUARY 10.—The Society met on the 10th inst. at 5, St. Andrew Square, Dr. Wm. Wilson, Vice-President, in the chair. The following papers were read:—

1. "Observations on the wood of certain Resin-producing trees." Part III. By A. Gellatly, Curator, Museum of Science and Art.

2. "Note on the Fertilisation of Aspidistra elatior by Slugs." By John Wilson, B.Sc.

3. "On Temperature and Vegetation at the Royal Botanic Garden." By R. Lindsay, Curator.

1. *Observations on the wood of certain Resin-producing Trees.*—The timber of Dalbergia cultrata was found to contain, like that of other species of this genus with dark duramen, a comparatively high percentage of resinous matter. From Sal (Shorea robusta), another Indian timber, a considerable amount (namely, 10 per cent.) was obtained. From a rather heavy specimen of the well-known Lignum vitæ as much as 30 per cent. of resinous matter was extracted. Purple-heart, the colour of which is so sensitive to light when freshly cut, contains only a small amount of resin; Tulip wood yields a larger quantity, and Myall wood (Acacia homalophylla) gave about 13 per cent. of resinous extract.

2. *Note on the Fertilisation of Aspidistra elatior by Slugs (John Wilson, B.Sc.)*—Irrespective of what may have been observed by Delpino, Hildebrand, and perhaps others (a matter to be afterwards considered), I wish to lay before the Society a few observations of my own by way of showing that slugs are the agents responsible for the pollination of this species. The flowers of this very common decorative plant rise from a subterranean rhizome, and open above the surface; their bases, however, often being to some extent sunk in the soil. In older plants the rhizomes may be above ground. Protection is afforded by a series of bracts. The hue of the interior of the perianth is brownish-purple, the upper inner edges of the lobes being orange. The outside is freely spotted with purple. The stigma roofs over the whole throat of the flower, and is dingy reddish-purple. It is deeply sulcate, the eight sulci radiating with considerable regularity from the centre. They terminate at the centre in small hollows or tunnels, which, having usually yellow areas at the endings, are suggestive of having been carved out by slugs. (The same remark applies to the orange margins of the perianth.) The elevated radii of the stigma have two parallel grooves and a central (intermediate) ridge. This ridge corresponds with the single groove in the face of the segment opposite. But these have no apparent significance with respect to the matter in hand. The stamens are situated beneath the radiating ridges, and project nearly horizontally from the wall of the flower. The sunk portions of the stigma are at first (like the ridges) rigid, and no entrance into the flower can then be made; the incurved margins are, in fact, glued to the perianth. In a certain time, dependent on success of fertilisation and other causes, the margins of the stigma between the ridges become flaccid and free, and permit a creeping visitant to descend. The whole stigma has been noticed to assume a leathery flexible consistence a few hours after the flower has been cut. The interior of the flower is extremely smooth and glassy, being just such a spot as a slug might find pleasure in exploring. At an early stage, before the interior is accessible, the pollen, which is very abundant and powdery, is shed, and falls to the bottom of the cavity. A slug passing along cannot fail to become coated with it. Finding exit, and proceeding to a fresh flower, the slug will pry about the sulci of the stigma and deposit the pollen there. The epidermis of the grooves is rendered detentive by the papillæ, a few cells high, universally distributed there. The number of raphides in the cells of the inner faces of the perianth and the surface of stigma is worthy of remark. My belief that slugs were the agents in the fertilisation of this species was strengthened by finding a few flowers with their slimy visitants inside. I experimented with the slugs, but did not demonstrate anything beyond this, that they creep about the grooves in quest of a hole, and when they find it (although very small, and even artificially formed) they descend by it into the cavity of the flowers. I hold the above to be a striking instance of cross-fertilisation.

3. *Progress of Vegetation at the Royal Botanic Garden, Edinburgh, December, 1888.*—The past month of December has been remarkable, like the preceding month, for the extreme mildness of weather which prevailed. The thermometer was at or below the freezing point on thirteen occasions, the aggregate of frost registered being 57° only, as against 132° for December, 1887. Not since 1883 has there been so mild a December. The lowest readings occurred on the 11th, 24°; 19th, 26°; 27th, 26°; 30th, 17°; 31st, 24°. The lowest day temperature was 32° on the 30th, and the highest, 57°, on the 3rd. No snow and comparatively little rain fell. Not a single plant came into flower on the rock garden during December, other than those previously recorded. The total number of species and marked varieties of alpine and dwarf-growing herbaceous plants, which have flowered in the rock garden during the past year, amounts to 1542, being 134 more than during 1887. This result has been attained by the addition of new plants to the collection from various sources, more than from any favourable circumstances connected with the weather of the past year. The largest number of species came into flower during May and June. Number of species which flowered each month during 1888:—January, 24; February, 29; March, 24; April, 137; May, 367; June, 430; July, 276; August, 140; September, 48; October, 19; November, 8; December, 0: total, 1546.

Obituary.

JOHN SOUTHGATE.—The death of John Southgate, Esq., of Selborne, Leigham Court Road, Streatham, which took place on the 13th inst., was the result of injuries received in a carriage accident a few days previous. Mr. Southgate was well known as a lover of Orchids, having got together a choice collection which, under the able management of his gardener, Mr. Salter, took a prominent position. Owing to failing health, a short time ago Mr. Southgate disposed of nearly the whole of his Orchids; the collection being well known, many of the plants realised good prices.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending Jan. 21, is furnished from the Meteorological Office:—

"The *weather* has been unsettled and rainy in Ireland and the greater part of Scotland, but in England, although the sky was generally cloudy or overcast, the rainfall has been slight. Fog was occasionally experienced in various parts of England.

"The *temperature* has been slightly below the mean in 'England, E.,' and about equal to it in 'England, S.,' but in all other parts of the kingdom it has been above the normal. In 'Ireland, S.,' and 'Scotland, W.,' the excess has been 4°, and in 'Scotland, E.,' 5°. The highest of the maxima (which were recorded on the 18th) varied from 50° to 55° over England, and from 55° to 56° in Ireland. Over Scotland, where the thermometer was very high during the early part of the day, readings between 55° and 58° were registered. The lowest of the minima occurred on somewhat irregular dates, and ranged from 26° in 'England, S.,' to 33° in 'England, N.W.,' and the 'Channel Islands,' and to 34° in 'Scotland, W.

"The *rainfall* has been more than the mean over Ireland and in 'Scotland, N.,' but less in all other districts.

Bright sunshine has been more prevalent than it was last week over Great Britain, but less so in Ireland. The percentage of the possible amount of duration ranged from 4 in 'Ireland, N.,' to 21 in 'Scotland, E.'"

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree — a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				
		ACCUMULATED.			
	Above or below the Mean for the week ending Jan. 21.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1889.	Below 42° difference from Mean since Jan. 1, 1889.
Principal Wheat producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	3 above	11	25	+ 3	— 26
1. SCOTLAND, E. ...	5 above	12	30	— 5	— 23
2. ENGLAND, N.E. ...	2 above	6	28	— 13	— 8
3. ENGLAND, E. ...	1 below	0	36	— 20	+ 32
4. MIDLAND COS. ...	1 above	6	23	— 22	+ 31
5. ENGLAND, S. ...	0 (aver.)	4	30	— 24	+ 18
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	4 above	20	9	— 3	— 35
7. ENGLAND, N.W....	2 above	8	20	— 18	— 15
8. ENGLAND, S.W....	1 above	25	12	— 17	+ 11
9. IRELAND, N. ...	3 above	26	8	— 8	— 5
10. IRELAND, S. ...	4 above	36	8	+ 1	— 1
— CHANNEL ISLANDS	1 above	26	3	+ 10	— 18

DISTRICTS.	RAINFALL.			BRIGHT SUNSHINE.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 1, 1889.	Total Fall since Jan. 1, 1889.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1889.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	3 more	11	2.3	10	10
1. SCOTLAND, E. ...	4 less	10	0.9	21	17
2. ENGLAND, N.E. ...	4 less	10	0.9	14	9
3. ENGLAND, E. ...	3 less	8	0.7	13	11
4. MIDLAND COS. ...	1 less	8	0.7	14	13
5 ENGLAND, S. ...	5 less	8	0.6	14	15
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	5 less	11	2.6	17	10
7. ENGLAND, N.W....	5 less	7	0.6	15	14
8. ENGLAND, S.W....	8 less	8	1.1	27	24
9. IRELAND, N. ...	3 more	13	2.4	4	11
10. IRELAND, S. ...	2 less	11	3.1	10	19
— CHANNEL ISLANDS	4 less	10	1.3	23	39

MARKETS.

COVENT GARDEN, January 24.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

TRADE is very quiet, prices remaining unaltered.
James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2 0	1 0	Grapes, per lb.	0 6	2 6
— Canada and Nova Scotia, per barrel	5 0	12 0	Lemons, per case	12 0	21 0
Cobs, 100 lb.		100 0	Pine-apples, Eng., lb.	1 6	2 0
		110 0	— St. Michael, each	2 0	8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	5 0	...	Mustard and Cress, punnet	0 4	...
— French, bundle	18 0	...	Onions, per bunch	0 5	...
Beans, Jersey and French, per lb.	1 6	...	Parsley, per bunch	0 8	...
Beet, red, per dozen	1 0	2 0	Peas, French, per lb.	1 0	...
Carrots, per bunch	0 6	...	Potatos, per cwt.	4 0	5 0
Cauliflowers, each	0 3	...	— kidney, per cwt.	4 0	5 0
Celery, per bundle	1 6	2 0	— new French, lb.	0 6	...
Cucumbers, each	1 0	...	Rhubarb, bundle	0 6	...
Endive, per dozen	3 0	...	Seakale, punnet	2 6	...
Green Mint, bunch	1 0	...	Shallots, per lb.	0 6	...
Herbs, per bunch	0 6	...	Spinach, per bushel	4 0	...
Leeks, per bunch	0 4	...	Tomatos, per lb.	2 0	...
Lettuce, per dozen	1 6	...	Turnips, per bunch, new	0 5	...
Mushrooms, punnet	1 6	...			

POTATOS.—Beauty of Hebron, 80*s.* to 100*s.*; Imperators, 70*s.* to 90*s.*; Dunbar Regents, 110*s.*; do. Magnums, 120*s.*; and York Magnums, 100*s.* per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Ferns, in var., doz.	4 0	18 0
Arum Lilies, p. doz.	9 0	15 0	Foliage plants, various, each	2 0	10 0
Azaleas, dozen	24 0	42 0	Ficus elastica, each	1 6	7 0
Cyperus, per dozen	4 0	12 0	Hyacinths, dozen	9 0	12 0
Dracæna terminalis, per dozen	30 0	60 0	— Rom. doz. pots	9 0	10 0
— viridis, per doz.	12 0	24 0	Lily-of-Val., doz. pts.	18 0	30 0
Erica hyemalis, doz.	12 0	24 0	Marguerites, doz.	6 0	12 0
— caffra, dozen	6 0	12 0	Palms in var., each	2 6	21 0
— gracilis, dozen	8 0	12 0	Pelargoniums, scarlet, per dozen	6 0	9 0
Euonymus, in var., per dozen	6 0	18 0	Poinsettias, dozen	9 0	15 0
Evergreens, in var., per dozen	6 0	24 0	Primulas, per dozen	4 0	6 0
Epiphyllums, doz.	18 0	30 0	Solanums, dozen	9 0	15 0
			Tulips, dozen pots	6 0	9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutillons, 12 bun.	3 0	6 0	Mignonette, 12 bun.	2 0	4 0
Arum Lilies, 12 blooms	4 0	8 0	Narcis., paper-white, (French), 12 bun.	2 0	6 0
Azaleas, 12 sprays	0 9	1 0	— double, 12 bun.	1 6	3 0
Bouvardias, per bun.	0 9	1 6	Pelargoniums, 12 spr.	1 0	1 6
Camellias, 12 blms.	3 0	6 0	— scarlet, 12 spr.	0 6	1 0
Carnations, 12 blms.	2 0	3 0	Poinsettias, doz.	4 0	9 0
Christmas Roses, 12 blooms	0 6	1 6	Primulas, dbl., 12 sp.	1 0	1 6
Chrysanthemums, 12 blooms	0 6	3 0	Roses, Tea, per doz.	2 0	6 0
— dozen bunches	4 0	12 0	— coloured, dozen	2 0	4 0
Eucharis, per dozen	3 0	6 0	— red, per dozen	1 0	2 0
Gardenias, 12 blooms	15 0	30 0	— Safrano, dozen	2 0	4 0
Heliotropes, 12 spr.	0 6	1 0	Sofrano (Fr.), doz.	1 0	3 0
Hyacinths, Roman, 12 sprays	1	1 6	Stephanotis, 12 spr.	12 0	15 0
Lapageria, 12 blooms	1 6	3 0	Tuberoses, 12 blms.	2 0	4 0
Lilac, white Fr., bun.	3 0	7 0	Tulips, 12 blooms	1 0	1 6
Lily-of-Val., 12 spr.	0 9	1 6	Violets, 12 bunches	1 0	1 6
Marguerites, 12 bun.	3 0	6 0	— dark, Fr., bunch	1 6	3 0
			— Parme, Fr., bun.	5 0	7 0
			Wallflowers, 12 bun.	6 0	2 0
			— French	1 0	3 0

SEEDS.

LONDON: *Jan.* 23.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that a quiet but firm tone characterises the trade for field seeds. As regards red Clover seed, offerings from France have of late fallen off very much, whilst American cables firm quotations. Rather more inquiry has this week come to hand from the country. Meantime values all round keep steady. Winter Tares are in improved request. Spring Tares are thus far too dear. English Canary seed is now remarkably cheap. In Hemp seed the tendency is downwards. Peas and Haricots move off slowly on former terms. Rape seed is wanted. Mustard unaltered.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending January 19 :—Wheat, 30*s.* 2*d.*; Barley, 27*s.*; Oats, 16*s.* 4*d.* For the corresponding week in 1888: — Wheat, 30*s.* 11*d.*; Barley, 30*s.* 2*d.*; Oats, 16*s.* 1*d.*

FRUIT AND VEGETABLES.

SPITALFIELDS: *Jan.* 23—Very good supplies of all kinds of farm and market garden produce. Trade still very slow, the following being the quotations:—English Apples, 2*s.* 6*d.* to 5*s.* per bushel; do., 1*s.* 6*d.* to 2*s.* 6*d.* per half-bushel; American do., 6*s.* to 10*s.* per barrel; Brussels Sprouts, 1*s.* to 1*s.* 6*d.* per half-sieve; Greens, 3*s.* to 4*s.* per tally; Cauliflowers, 1*s.* per dozen; Broccoli, 10*d.* do.; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; Cabbages, 1*s.* 6*d.* to 2*s.* 6*d.* per tally; Savoys, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Spinach, 1*s.* to 1*s.* 3*d.* per bushel; Parsnips, 8*d.* per score; Beet-roots, 8*d.* per dozen; Turnips, 1*s.* 6*d.* to 2*s.* per dozen bunches; Parsley 2*s.* to 2*s.* 9*d.* do.; Carrots, 1*s.* 6*d.* to 1*s.* 9*d.* do.; forced Rhubarb, 1*s.* to 1*s.* 6*d.* per dozen bundles; Horseradish, 1*s.* to 1*s.* 4*d.* per bundle; Celery, 6*s.* to 11*s.* per dozen dozen; Endive, 1*s.* 6*d.* to 2*s.* per dozen; English Onions, 4*s.* to 4*s.* 6*d.* per cwt.; Dutch do., 2*s.* 9*d.* to 3*s.* 3*d.* per bag; Belgian do., 2*s.* 9*d.* to 3*s.* do.; pickling do., 3*s.* to 4*s.* 6*d.* do.; Carrots, 18*s.* to 32*s.* per ton; Mangels, 16*s.* to 18*s.* do.

STRATFORD: *Jan.* 22.—This market has been well supplied with all kinds of produce during the past week. Good trade at undermentioned prices:—Cabbages, 2*s.* 6*d.* to 3*s.* per tally; Savoys, 2*s.* to 3*s.* do.; Greens, 1*s.* 6*d.* to 2*s.* per dozen bunches; Carrots, household, 24*s.* to 34*s.* per ton; do, cattle feeding, 20*s.* to 23*s.* do.; Mangels, 15*s.* to 20*s.* do.; Swedes, 16*s.* to 18*s.* do.; Apples, English, 3*s.* to 7*s.* per bushel; do, American, 6*s.* to 14*s.* per barrel; Watercress, 6*d.* per dozen; Celery, 6*d.* to 1*s.* per roll; Carrots, 2*s.* to 3*s.* per dozen bunches; Turnips, 2*s.* 6*d.* to 3*s.* do.

POTATOS.

BOROUGH AND SPITALFIELDS: *Jan.* 22. — Rather larger supplies, and prices occasionally in buyer's favour, though hardly perceptible in quotations. —Regents, Scotch, 80*s.* to 120*s.*; English, 65*s.* to 95*s.*; Hebrons, 70*s.* to 115*s.*; Magnum Bonums, 60*s.* to 120*s.* per ton.

SPITALFIELDS: *Jan.* 23.—Quotations:—Hebrons, 70*s.* to 100*s.*; Regents, 70*s.* to 110*s.*; Magnums, 60*s.* to 100*s.*; Imperators, 70*s.* to 95*s.*; Champions, 55*s.* to 70*s.* per ton.

STRATFORD: *Jan.* 22.—Quotations:—Scotch Regents 80*s.* to 100*s.*; do., Magnums, 70*s.* to 110*s.*; do., English, light soil, 60*s.* to 80*s.*; do., dark soil, 60*s.* to 75*s.*; Elephants, 65*s.* to 85*s.* per ton.

Imports.—The imports into London last week consisted of 225 boxes from Malta, 6 from St. Michaels, 166 boxes and 44 cases from Auckland.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime old, 120*s.* to 145*s.*; do., good second, 80*s.* to 110*s.*; do., inferior, 40*s.* to 70*s.*; Hay, prime meadow, 120*s.* to 130*s.*; do., new, 80*s.* to 102*s.* 6*d.*; inferior, 50*s.* to 70*s.*; straw, old, 42*s.* to 48*s.*, new, 50*s.* to 44*s* per load.

NOTICES TO CORRESPONDENTS.

ANTS: *J. H. C.* Certainly, ants. Scatter a little powdered carbolic acid in their runs, if you can do so without injury to the plants.

ARALIAS: *C. M.* A. elegantissima and A. Veitchi do best, and are more readily increased by grafting on A. reticulata.

BOOKS: *H. Oldfield.* Thomson's *Gardener's Assistant* would be the best book for you.

CORRECTIONS.—In "Names of Plants," last week, p. 89, for "Hexacentris missouriensis," read "mysorensis;" and for "Retinospora squarrosa," read "Cryptomeria elegans."

INCOME TAX: *R. F. R.* You may appeal to the Assessor of Queen's Taxes, and if your books show a smaller income than that at which you are now assessed, you may obtain an abatement—next year.

MIRABELLE FOR HEDGES: *F. W.* You can get plants from the nurseries. Cut down to within about 1 foot of the ground the second year after planting, and induce low growth by subsequent pruning, &c.

NAMES OF FRUIT: *J. H. J.* 32, Brabant Bellefleur, 33, Mère de Ménage; 39, Colonel Vaughan; 61; unknown; 9, decayed.—*Hafodunos.* 1 (large pale Apple), Large Yellow Bough; 2 (orange flushed), Blenheim Orange.—*J. H. J.* (*second lot*). 37, Rosemary Russet; 49, Downton Pippin; 48, Braddick's Nonpareil; 23, Alfriston; 15, Golden Winter Pearmain.

NAMES OF PLANTS: *B. S. O.* 1, Nandina domestica; 2, Centropogon Lucianus; 3, Amaryllis reticulata; 4, Lælia anceps; 5, Cœlogyne cristata; 6, Lycaste Skinneri.—*C. B.* 1, Salvia Heerii; 2, S. rutilans (the Pineapple scented Salvia); 3, Pelargonium unknown; 4, a double Chinese Primrose: we cannot name the variety; 5, Abutilon vexillarium.—*W. H. D.* 1, Helleborus niger Scoticus; 2, a valueless seedling; 3, Helleborus orientalis var. abchasicus.—*A. B.* 1, Cratægus pyracantha; 2, Cotoneaster microphylla; 3, Picea (or Abies) excelsa, Spruce; 4, Thuia (or Biota) orientalis var.; 5, Thuia (or Retinospora) pisifera; 6, Retin-

ospora pisifera.—*H. J. C.* 1, Bartsia trixago; 2, Molucella spinosa; 3, Statice Thouini; 4, Styrax officinalis; 5, Anthyllis tetraphylla.—*Cobdown.* Eriostemon salicifolius, Dendrobium nobile.—*J. T. M.* Limatodes rosea.—*K. & B.* Calanthe vestita var. igneo-oculata.—*A. Read.* Hæmanthus natalensis.—*W. C. & S.* Adiantum elegans, probably.—*J. M. L.* All good varieties of O. Rossi which have not received names. Scarcely two of any importation are quite alike.

ORCHID: *E. W. W. E.* A fusion of two flowers side by side—Siamese twins.

PARADISE AND DOUCIN STOCKS: *R. J. W.* The English Paradise, or the stock under this name in the English nurseries, is probably derived from a seedling Apple of a surface-rooting nature. It differs somewhat from the surface-rooting Apple called "Doucin" on the Continent. There are several varieties of so-called Paradise stocks, but the "Doucin" is most commonly used on the Continent and also in England. *T. F. R.*

RASPBERRIES NEWLY PLANTED: *An Old Subscriber.* Cut them over at 2 or 3 inches high.

SCIENTIFIC COMMITTEE: *X.* We do not believe the procedure was meant as an insult, though in the abstract it certainly is so. Other Societies pay freely for corresponding services rendered, but at the Royal Horticultural Society you must render the service and pay too.

CATALOGUES RECEIVED.

JOHN DOWNIE, 144, Princes Street, Edinburgh, N.B.—Garden Seeds.

R. H. POYNTER, Castle Green, Taunton—Seed List.

R. NEAL, The Nurseries, Wandsworth Common, London, S.W.—General Seed List, &c.

W. P. LAIRD & SINCLAIR, 73, Nethergate, Dundee—Vegetable and Flower Seeds.

W. SMITH & SON, 10, Market Street, Aberdeen—Seeds, Plants, &c.

SMITH & SIMONS, Howard Street, St. Enoch Square, Glasgow, N.B.—Seeds, Plants, and Implements.

DICKSONS & Co., 1, Waterloo Place, Edinburgh, N.B.—Garden Seeds.

WILLIAM ROSSITER, Paignton—Vegetable and Flower Seeds.

PENNY PACKET SEED COMPANY (BIDDLES & Co.), Loughborough—Seed List.

H. DEVERILL, Cornhill, Banbury—Seeds, Potatos, &c. [Seeds.

THOMAS SIBBALD, Market Place, Bishop Auckland—

FREDERICK GEE, Riverford House, Biggleswade, Beds.—Seeds.

BARR & SON, 12 and 13, King Street, Covent Garden, London, W.C.—Flower Seeds; also Hardy Perennials, &c.

VAN VELSEN BROTHERS, 5, Wagenweg, Haarlem, Holland—Dutch and Cape Bulbs.

THOMAS DAVIES & Co., Wavertree Nursery, Liverpool—Seeds. [—Seeds.

THOMAS IRBIE & SONS, 137, High Street, Ayr, N.B.

RICHARD CLEAVER, 47, Bore Street, Lichfield—Seeds.

BROWN & WILSON, 10, Market Place, Manchester—Garden Seeds.

JOHN PERKINS & SON, 52, Market Square, Northampton—Seeds.

HARRISON & SONS, Leicester—Seeds.

SAMUEL FOX ARMITAGE, Nottingham—Seeds.

JOHN PEED & SONS, Roupell Park Nurseries, Tulse Hill, London, S.W.—Seeds, &c. [Seeds.

WM. KERR, Dumfries, N.B.—Seed Potatos and Farm

JARMAN & Co., Chard, Somerset—Seeds.

ARTHUR ROBINSON, 8, Leadenhall Street, London, E.C.—Seeds and Requisites.

M. CUTHBERTSON, Rothesay, N.B.—Seeds and Herbaceous Plants, &c.

WILLIAM REID, 8, Hadden Street, Aberdeen, N.B.—Garden Seeds, Gladioli, &c. [Bulbs.

JNO. JEFFERIES & SON, Cirencester — Seeds and

STRACHAN & THOMSON, 145, Union Street, Aberdeen—Seeds and Florists' Flowers.

GEO. COOLING & SONS, Bath—Seeds and Sundries.

WILLIAM RUMSEY, Joyning's Nursery, Waltham Cross, N.—Seeds, Potatos, &c. [1889.

KELWAY & SONS, Langport, Somerset—Manual for

COMMUNICATIONS RECEIVED.—W. P.—W. W.—G. N—H. M. W.—K. P. T. & Co.—N. E. Br.—F. H. W.—G. M.—F. S. & Co.—J. L. (next week).—J. H.—M. L.—C. B.—J. H. J.—W. H. D.—F. R.—J. H.—W. C.—A. W.—E. J.—W. M. B.—E. M.—W. Scott (no flowers have reached us).—J. E. Fearn.—W. B.—J. S.—R. D.- A Gardener.—W. W.—M. W.—A. D.—W. H.—F. A.—N. E. B.—W. B.—J. D.—P G.—W. E.—J. W.

The Best Main Crop Wrinkled Pea.

OAKSHOTT AND MILLARD'S "EMPEROR WILLIAM."

From Mr. W. POPE, *Head Gardener to the* Right Hon. the EARL OF CARNARVON, *Highclere Castle*, 1888.—"Emperor William is a first-rate Pea, cropping very heavily, pods of good size, handsome, and well-filled with large sweet Peas."

Price 3*s*. 6*d*. per quart, of most leading Seedsmen, or direct from

OAKSHOTT AND MILLARD, Seedsmen to the Queen, Reading.

To the Trade.

H. AND F. SHARPE'S Wholesale CATALOGUE of VEGETABLE SEEDS for 1889 has been forwarded to their customers. if those who have not received it will kindly inform them another one shall be sent.

Seed Growing Establishment, Wisbech.

W. GORDON, Immense stock of ORCHIDS; best value and cheapest house in the Trade.

The best cut of ORCHID PEAT in commerce; selected turves, 1 bushel, 2*s*., 3 bushel sack, 5*s*., carriage forward.

LILIES, Enormous Importations, Silver Banksian Medal, Silver Medal, National Chrysanthemum Society, 1888.

LILIUM AURATUM, Imported Bulbs, 4*d*., 6*d*., 9*d*., 1*s*., each; 20*s*., 30*s*., 50*s*., 60*s*. per 100. Home-grown bulbs, 9*d*., 1*s*., 1*s*. 6*d*., 2*s*. each. Special Trade quotation for quantities.

JAPANESE MAPLES, Silver Banksian Medal.

" TREE PÆONIES, 7 First-class Certificates.

" IRIS, most gorgeous, 4 First-class Certificates.

CATALOGUE of the above on application to The Nurseries, Amyand Park Road, Twickenham.

100 ALPINE and HERBACEOUS PLANTS, 25*s*. Descriptive CATALOGUE, Illustrated, with Cultural Notes, 72 pages (containing much interesting information). Post-free, 9*d*.

STANSFIELD BROS., Southport.

TREES and SHRUBS for the Sea Coast. CATALOGUE free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

EUONYMUS (Green).—50,000, all nice bushy well-grown Specimens, 9 to 36 inches, £1 to £10 per 100.

J. J. CLARK,
Goldstone Farm, Brighton.

PRIMULA OBCONICA (crop 1888) for Present Sowing, per packet, 6*d*. and 1*s*. Large Trade packets, 2*s*. 6*d*., 5*s*., 10*s*. 6*d*., and 21*s*. each. Primrose, Old Double Crimson Pompadour: see coloured plate in the *Garden*, Oct., 1888, and also Hartland's "Year Book" of Seeds for 1889. Magnificent plants, 15*s*. per dozen, 1*s*. 6*d*. each. Helianthus plenus, new double quilled or Hartland's "Soleil d'Or," a new plant to English gardens, the flowers very double, more orange in tone than yellow, and quilled after the manner of a Cactus-Dahlia. As a perpetual blooming plant has few equals, plants in size resembling Clumps of Lily of the Valley, 2*s*. 6*d*. each, post-free. See Hartland's "Year Book" of Rare Seeds for 1889. Post-free.

W. BAYLOR HARTLAND, Seedsman, Cork.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE'S Special Priced LIST of SEED POTATOS has been sent out. It comprises all the finest varieties in cultivation, including several novelties. The quality is very fine, and the prices will be found extremely low.

Seed Growing Establishment Wisbech.

MAIDENHAIR FERN. — Bunches always ready. Terms cash.

TUDGEY, Home Farm, Walton-on-Thames.

ENGLISH YEWS, 3, 4, 5, and 6 feet.

BOX, Green, 3, 4, 5, and 6 feet.
" Variegated, 3, 4, 5, and 6 feet.
PINUS AUSTRIACA, 3, 4, 5, and 6 feet.

All well furnished, and finely rooted. Many thousands.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

100,000 HARDY HEATHS.—The present is a most suitable time for planting these beautiful plants, which can be supplied as follows:—

An assortment of 10 varieties,				16*s*. per 100.
"	"	20	"	18*s*. "
"	"	30	"	20*s*. "
"	"	40	"	22*s*. "

If less than fifty plants are ordered, price 3*s*. per dozen. Special quotation per 1000, and Descriptive CATALOGUE may be had free on application to

JAMES SMITH AND SONS, Darley Dale Nurseries, near Matlock.

SANKEY'S "MARKET POT," or LONG TOMS, the best "Garden Pot" for Bedding Plants and Market Work. The 3-in. Market Pot holds as much soil as an ordinary 3½-in. pot, thus saving half an inch in room for each pot. Five sizes, 3 in., 3½ in., 4 in., 4½ in., and 4¾ in.; no rims, nearly upright, an inch to 1½ inches deeper than usual, very strong and much lighter in weight—the very pot for Market Growers; great economy in room and weight. Largest Stock in United Kingdom.

RICHARD SANKEY AND SON, Bulwell Potteries, Nottingham.

CARSON'S PAINT

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OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.

1 Cwt., and Oil Mixture, Free to all Stations.

Liquid Non-Poisonous Paints for Inside of Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

LA BELLE SAUVAGE YARD, LUDGATE HILL, E.C. BACHELOR'S WALK, DUBLIN.—*Discount for Cash.*

ORCHIDS.—Clean, well-grown plants, at low prices. Specimen Orchids a specialty. Price LIST free.

JAMES CYPHER, Exotic Nurseries, Cheltenham.

DAHLIAS.—Pot Roots, all the best varieties—Show, Fancy, and Pompons—from 4*s*. 6*d*. per dozen; Cactus and Decorative, 6*s*. per dozen; very beautiful new Decorative Duhlia of 1888, Sidney Hollings, 2*s*. 6*d*. each. Trade Supplied.—HUMPHRIES, Nurseryman, Chippenham.

BEGONIA SEED and TUBERS.—BOX'S varieties are the best, as testified by all purchasers. Both quality and quantity. SEED from latest novelties of Singles, mixed colours, small packets, 6*d*.; larger packets, 1*s*. and 2*s*. 6*d*. Collections, 4 separate colours, 1*s*. 6*d*.; 8 ditto, 2*s*. 6*d*. Of Doubles, small packets, 10*d*.; larger packets, 1*s*. 6*d*., 2*s*. 6*d*., and 5*s*. Collections, 4 separate colours, 1*s*. 6*d*.; 8 ditto, including white and yellow, 2*s*. 6*d*.; double orange, very extra, 2*s*. 6*d*. and 5*s*. per packet. TUBERS, unnamed Singles, to colour superior to named sorts, 12 or more distinct colours, for pots, per dozen, 9*s*., 12*s*., 18*s*., and 24*s*. per dozen; for bedding, 40*s*. and 50*s*. per 100; mixed colours, 28*s*. per 100. Unnamed Doubles, very superior, 6 or more colours, per dozen, 24*s*., 36*s*., 48*s*.; mixed colours, 15*s*.; choice, to name, from 24*s*. All post-free. Full LIST on application.

JOHN R. BOX (for 10 years J. Laing's sole Partner), Seedsman and Begonia Grower, Croydon.

CŒLOGYNE CRISTATA, with bloom-spikes well grown, at reduced prices.

Trustees of the late J. STEVENSON, Timperley, Cheshire.

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SKELETON LIST—Names and Prices—also all Outdoor Stock, Gratis.
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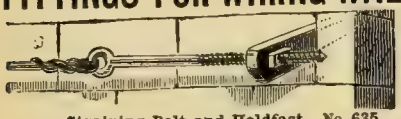
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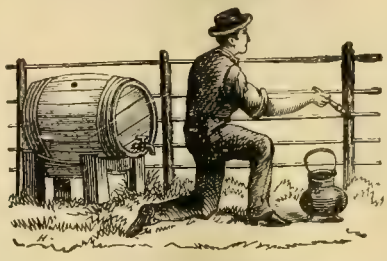
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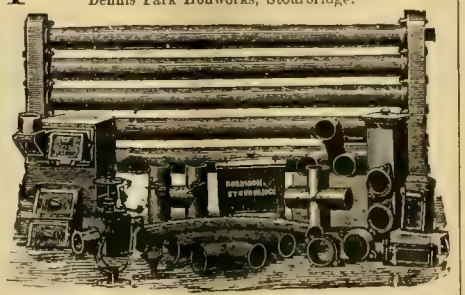
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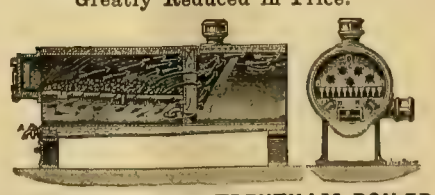
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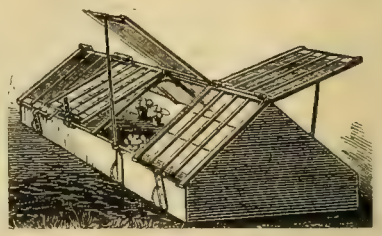
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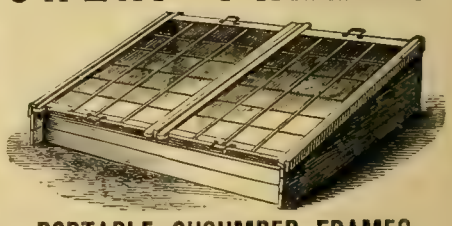
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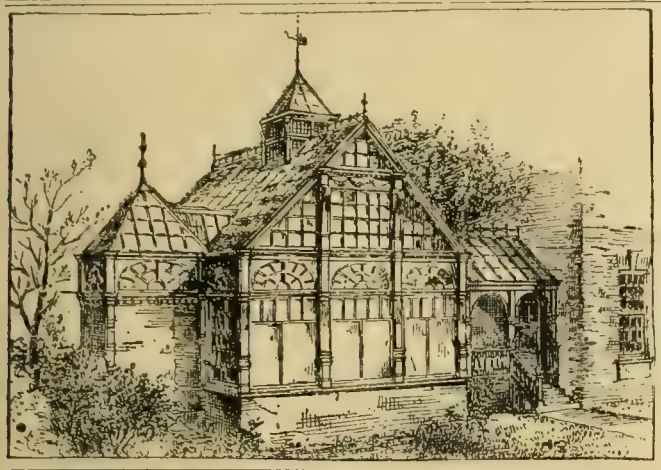
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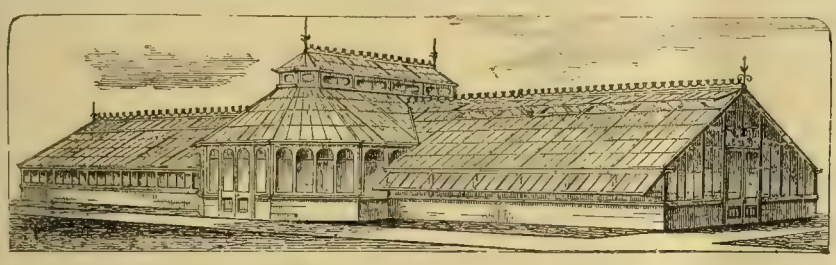
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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

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TO LARGE PLANTERS of THORN QUICKS.—1 to 1½ foot, 9s. per 1000, £40 per 100,000; 1½ to 2 feet, 11s. per 1000, £50 per 100,000; 2 to 2½ feet, 13s. per 1000; 2 to 3 feet, 15s. per 1000; 3 to 4 feet, 18s. per 1000.
GARLIES MITCHELL, Nurseryman, Stranraer.

MAIDENHAIR FERN.—Bunches always ready. Terms cash.
TUDGEY, Home Farm, Walton-on-Thames.

ORCHIDS.—Clean, well-grown plants, at low prices. Specimen Orchids a specialty. Price LIST free.
JAMES CYPHER, Exotic Nurseries, Cheltenham.

BIRMINGHAM PRIMULAS.—Exhibitors and judges know well that Birmingham Primulas have been for many years, and still are, far ahead the best known; and the varieties Marquis of Lorne, Princess Louise, The Queen, Emperor, Lady R. Churchill, Pope's Blue, all raised by our foreman, Mr. Rose, are still the best known, and, where exhibited, win. No others have a chance. They have won every prize at Birmingham for many years, except where debarred from competition. Gentlemen, who have not seen a Birmingham Primula Show, we shall be pleased to send a few blooms, on receipt of 3 stamps for box and postage. Mixed Packets of all the best sorts, 5s.; Ditto, small packet, 2s. 6d.; or separate, if required, at 2s. 6d. to 5s. per packet.
POPE AND SONS, Nurserymen, &c., King's Norton Nurseries, Birmingham.

NAMED DOUBLE TUBEROUS BEGONIAS.—Of these we have a magnificent Collection, and can supply cheaper than any other noted firm. CATALOGUE free on application.
MORLEY AND CO., Preston.

LAPAGERIA ROSEA.—Large Plant for Sale, in 20-inch pot, covering large space.
J. CHITTY, Florist, Mark House Road, Walthamstow.

SELECTED SEED POTATOS.—The best varieties for table use. The best varieties for exhibition. Delivered free. Lists Post-free on application.
DICKSONS (*Limited*), The Royal Seed Warehouse, CHESTER.

SEND FOR New Illustrated CATALOGUE of Conservatories, Greenhouses, Garden Frames, Propagators, post-free, for 6 stamps, deducted from first order.
CHARLES FRAZER, Palace Plain Works, Norwich.
Great Reduction in Prices.

1,100,000 GARDEN POTS, 3½ in. diam., in stock, ready for immediate delivery; carriage and breakage free on £10 orders; half carriage on £5. Acknowledged by the trade to be the best pots manufactured. Largest Stock and Largest Manufacturers in United Kingdom.
RICHARD SANKEY AND SON, Bulwell Potteries, Nottingham.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

PASTUPLANTA, the best Artificial Manure. It enriches the soil with the fertilisers drawn from it by plants; no unpleasant smell; admirably adapted for all pot plants. In bags: 112 lb., 19s.; 56 lb., 11s. 3d.; 28 lb., 6s. 9d.; 14 lb., 4s.; 7 lb., 2s. 3d. In tins, 1s. each. Sole Manufacturers, PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

NICOTINE SOAP.—An effectual eradicator of all insect pests affecting plants, without injury to foliage. Jars, 1s. 6d., 3s., 5s. 3d.; Tins 15s. 6d., 25s., 95s.
All Seedsmen and Florists.

SALES BY AUCTION.

Norbiton.—Monday Next.

ABSOLUTE CLEARANCE SALE of the remaining NURSERY STOCK, by order of the Executors of the late Mr. T. Jackson. Important to Fruit Growers.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Park Road Nursery, Norbiton, 10 minutes' walk from the Norbiton Railway Station, on MONDAY NEXT, February 4, at 1 o'Clock precisely, the remaining NURSERY STOCK, consisting of an assortment of Shrubs, 3000 Currants and Gooseberries, 700 Apples, Plums, Pears, and Cherries, Laurels, Poplars, Limes, &c.

On view this day. Catalogues of the AUCTIONEER, 67 and 68, Cheapside, E.C.

Monday, February 4,

Also on TUESDAY, Feb. 5; WEDNESDAY, Feb. 6; FRIDAY, Feb. 15; TUESDAY, Feb. 19; and WEDNESDAY, Feb. 20.

The BARVINS PARK COLLECTION of ESTABLISHED ORCHIDS.

UNRESERVED SALE of the Second and Third Portions of this extensive COLLECTION, by order of the Proprietor, who is leaving the neighbourhood and selling the Estate.

Important to the Trade and Large Buyers.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on the above-named days, at half-past 12 o'Clock precisely each day the Second and Third Portions of this extensive COLLECTION of ESTABLISHED ORCHIDS, without the least reserve, comprising several thousands of plants, mostly for the cool-house, including a large quantity of ODONTOGLOSSUM ALEXANDRÆ, in various sizes, all unflowered, and principally selected from Messrs. Shuttleworth, Carder & Co.'s importations of the broad-petalled Pacho variety.

The Plants will be on view the mornings of Sale. Catalogues forwarded, free by post, on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Tuesday Next.

Named CARNATIONS and PICOTEES in Pots, Standard and Dwarf ROSES, FRUIT TREES, EVERGREENS, CAMELLIAS, and AZALEAS, from an English Nursery.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, NEXT, February 5, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Thursday Next.

5000 LILIUM AURATUM, splendid Bulbs, just received from Japan; also an unusually fine collection of ENGLISH-GROWN LILIES, including a large number of exceptionally large Bulbs; Japanese IRIS, and various Hardy Bulbs.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on THURSDAY NEXT, February 7, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Eltham, Kent.

Important and further CLEARANCE SALE of valuable and unusually well-grown NURSERY STOCK, in consequence of the Expiration of the Lease.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executrix of the late Mr. J. W. Todman, to SELL by AUCTION, on the Premises, the Eltham Nursery, Eltham, Kent, 1 mile from Eltham Station, on THURSDAY, February 7, and two following days, at 12 o'Clock punctually each day without reserve, a further portion of the remarkably well grown NURSERY STOCK, now in capital condition for removal, including 5000 Evergreens and Conifers in various sizes, for effective planting; 4000 Green Hollies, 2 to 8 feet; 4000 Aucubas, 2 feet; 7500 Laurels, 2 to 4 feet; 5000 Privet; 20,000 Fruit Trees; 2000 Gooseberries and Currants; 13,000 Forest Trees; 2000 Roses, and other Stock.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.—Without Reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 8, at half-past 12 o'Clock precisely, without reserve, by order of Mr. F. Sander, a grand importation of DENDROBIUM FREEMANNI. The plants are in splendid order, and are well set with buds for flowering. This species has not been imported for many years, and a finer and more brilliant Dendrobe does not exist. Every plant received is offered.

Also a superb lot of the very rare and handsome DENDROBIUM HOOKERIANUM, rarely seen in collections; a grand lot of other IMPORTED ORCHIDS, such as Cypripedium insigne, from a new district; and a Dendrobium found near Nobile, probably new; together with a superb lot of ESTABLISHED ORCHIDS in FLOWER and BUD.

On view morning of Sale, and Catalogues had.

Friday Next.

CHOICE IMPORTED ORCHIDS.
CYPRIPEDIUM BELLATULUM.
VANDA AMESIANA.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, February 8, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., a very large quantity of the very lovely CYPRIPEDIUM BELLATULUM, well described in *Gardeners' Chronicle*, January 5, as a noble distinct Cypripedium and a grand novelty; VANDA AMESIANA, from a new locality, may possibly prove to be a variety, as the plants appear to attain an unusually large size, and one specimen was seen by collector with just on 600 individual buds on eight flower-spikes, and he is of opinion, it is the grandest Vanda known; also fine plants of VANDA CŒRULEA, CŒLOGYNES, and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

Tuesday, February 12.

ONCIDIUM MACRANTHUM, a magnificent consignment to hand, in splendid condition.

MESSRS. PRTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, February 12, by order of Mr. Charlesworth.

Tuesday, February 14.

SALE by SAMPLE.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SAMPLE SALE will take place as above, for which they will be glad to receive notice of Entries as early of possible.

Central Auction Rooms, 67 and 68, Cheapside, London, E.C.

Wednesday & Saturday Next—(Sale No. 7862 and 7865).

500 Choice Named Standard and Dwarf ROSES; Pyramid, Standard and Dwarf-trained FRUIT TREES, to name; Hardy Ornament 1 EVERGREENS, SHRUBS, and CONIFERS; Home-grown LILIUMS, in great variety; CARNATIONS, PICOTEES, and other Border Plants; LILY OF THE VALLEY Crowns, HEMEROCALLIS, LILIUM LONOIFLORUM, HYACINTHUS CANDICANS, and other roots from Holland; DUTCH BULBS for present planting, SPIRÆA JAPONICA, and other Hardy Roots.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY, February 6 and 9, at half-past 12 o'Clock precisely each day.

On view mornings of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7863.)

CHOICE ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 7, about 250 Lots of Choice ESTABLISHED ORCHIDS, including many rare species and choice varieties chiefly in Flower and Bud.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7863.)

IMMENSE IMPORTATIONS from JAPAN.

10,000 grand Bulbs of LILIUM AURATUM, also L. A. MACRANTHUM, L. A. RUBRO-VITTATUM, and L. A. PICTUM; 1000 L. KRAMERI, L. CORIDION, L. CONCOLOR, L. LEICHTLINII, L. BATEMANNIÆ, L. TIGRINUM, L. ELEGANS SANGUINEUM, and other BULBS, from Japan, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 7.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7863.)

IMPORTED ORCHIDS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 7, at half-past 12 o'Clock precisely, Imported and Established ORCHIDS, in great variety, from Messrs. Shuttleworth, Carder & Co.; also fine Imported pieces of CYMBIDIUM AFFINE, C. LOWII, DENDROBIUM BINOCULARE, CŒLOGYNES, &c.; new and rare DISAS, SATYRIUMS, LISSOCHILUS, and other South African ROOTS.

On view morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will include in his SALE by AUCTION, on WEDNESDAY, February 13, at his Great Rooms, 38, King Street, Covent Garden, W.C., some fine DUPLICATE PLANTS from a well-known Private Collection, chiefly in flower and bud.

Further particulars in next advertisement.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS IN FLOWER AND BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 13, at half-past 12 o'Clock precisely, and he will be glad if gentlemen desirous of entering plants for this Sale will SEND LISTS NOT LATER THAN THURSDAY NEXT.

WANTED, in Kent, Surrey, or Hants, a small, compact NURSERY, with Dwelling-house. Glass must be in good condition. On Lease preferred.

State full particulars to W. M., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED TO RENT, small NURSERY or GARDEN with Glass Houses.

Address J. W., 8, Wade Lane, Teddington.

WANTED TO RENT, Several HOUSES, suitable for Growing Cucumbers, Tomatos, Cut Flowers, &c., for Market. No stock.

Full particulars to G. H., Wilton, North Walsham, Norfolk.

FOR IMMEDIATE DISPOSAL, good SEED and FLOWER BUSINESS, chiefly cash. Satisfactory reasons. Good Dwelling-House attached.

SEEDSMAN, 41, Wellington Street, Strand, W.C.

To Nurserymen, Florists, and Others.

TO BE DISPOSED OF, the Lease and Goodwill, with Possession, of 5 acres of NURSERY and ARABLE GROUND, fully stocked, together with Cottage, Buildings, Greenhouses, and Pits, and 12 acres of open Ground adjoining, near Windsor, Berks. Capital required, £450; or Partnership arranged.

Apply to E. P. NEWMAN, Market Gardeners' Agent, Uxbridge, W.

To Market Gardeners, Florists, Nurserymen, &c.

HAMPTON-ON-THAMES.

FOR SALE, choice FREEHOLD LAND, in Acre Plots, suitable for above. Rich Garden Soil with gravel and sand sub-soil. The land is considered by the Trade the finest near London for Grape and other Market Products.

Apply, SECRETARY, Estates Investment and Villa Farm Company, Estate Office, Tangley Park, Hampton-on-Thames.

TO BE LET, with immediate possession, a NURSERY, well-known in Berkshire as the "Craven Nursery." It is situated near the important market town of Newbury; it comprises DWELLING-HOUSE, six GREEN-HOUSES, one large SPAN PIT, and five smaller PITS, and usual apertances necessary for a Florist, Nurseryman, and Seedsman Business, together with 4 Acres of good LAND, all compact.

Apply for Particulars to the present proprietor, FRED. JOHNSON, Craven Nursery, London Road, Newbury.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

SEEDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

SUPPLY

VEGETABLE AND FLOWER SEEDS

of the best quality at moderate prices. Free by Rail or Parcel-post.

Descriptive Priced LIST on application.

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

CHRISTMAS ROSES.—12 distinct varieties of this fine, hardy, winter-flowering plant for 12*s*.

HEPATICA ANGULOSA, 3*s*. per doz, Single Blue, 2*s*; Double Blue, 18*s*.; Single Pink, 3*s*.; Double Pink, 2*s*.; Single White, 3*s*. One flowering-plant of each free by post for 2*s*. 9*d*.

MORRISON BROTHERS, Nurseries, Aberdeen.

CHRYSANTHEMUMS to and from all parts of the Globe. By far the best collection of new and old varieties in commerce. Descriptive Catalogue with Cultural Directions by E. Molyneux and C. Orchard. Acknowledged in Europe and America as the best Descriptive Catalogue. Price 6*d*.; free to customers. Awarded 3 Medals and 20 First-class Certificates. I never exhibit for prizes in competition with Gardeners or Amateurs. Open to purchase new varieties of merit.—R. OWEN, F.N.C.S., Floral Nursery, Maidenhead.

TO THE TRADE.—Madam Crousse, Alice Crousse, &c., Ivy GERANIUMS. Several hundreds Vesuvius, Raspail, Queen of Whites, and a good pink, 10*s*. per 100, good strong plants, out of stores; some fit this year for 48's. Open to an offer to a large purchaser.

C. JOHNSON AND CO., Tangley Park Nursery, Hampton.

FOR SALE, TREE FERNS—Two DICKSONIAS, splendid trees, and a few large PALMS.

VAUX AND CO., Tredegar Nursery, East Dulwich Road, Peckham, S.E.

THE EARL of SHREWSBURY'S Head Gardener says:—"WE GATHERED CARTER'S LIGHTNING PEA TEN DAYS BEFORE FIRST AND BEST." Price, in sealed packet, 2*s*. 6*d*. per pint; post-free, 2*s*. 9*d*., from 237, High Holborn, London.

FRESH SPHAGNUM MOSS, 5*s*. per bag; Hardy FERNS, numerous varieties, 15 distinct, 1*s*. 6*d*.; 20 Large Growing Varieties, 2*s*. 6*d*.; 50, 5*s*.; 100, 9*s*.; 24 lb. hamper botanically named. Carriage paid.

JOHN BURNS, Church Terrace, Kendal.

EUONYMUS (Green).—50,000, all nice bushy well-grown Specimens, 9 to 36 inches, £1 to £10 per 100.

J. J. CLARK,
Goldstone Farm, Brighton.

Gladioli, Dahlias, Begonias, and Miscellaneous Hardy Plants for Spring Planting.

ANT. ROOZEN AND SONS' Special Spring CATALOGUE of the above for 1889, containing all the new Varieties, is now ready, and will, as usual, be sent post-free, on application to themselves or their Agents, Messrs. MERTENS & CO., 3, Cross Lane, St. Mary-at-Hill, London, E.C.

GIANT ASPARGUS.—Grand clumps for Forcing; 2*s*. dozen, 15*s*. per 100, £7 per 1000.

WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

20,000 GOOSEBERRIES.—Best Market sorts. All nice clean, healthy, and well-rooted plants of the following varieties:—Warrington Red, Whitesmiths' Crown Bob, &c., at 12*s*. 6*d*. per 100, £5 per 1000, For Cash with Order. Sample dozen, 2*s*. 6*d*.

Packing free.

JOSHUA GREENACRE, Stone Hills Nurseries, Norwich.

LARGE SHRUBS and CONIFERÆ.—Aucuba japonica, 1½ to 2 feet, 30s. per 100; do., 2 to 2½ feet, 40s. per 100. Berberis aquifolia, 1½ to 2 feet, 12s. per 100; Box tree, 1½ to 2 feet, 12s. per 100; 2 to 3 feet, 20s. per 100. Cotoneaster Simonsii, 3 to 3½ feet, 10s. per 100; Deutzia crenata, flore-pleno, strong, 4s. per dozen; Escallonia macrantha (pots), strong, 24s. per 100; Grislinia littoralis, 1½ to 2 feet, 35s. per 100; Honeysuckle (strong), 8s. per 100; Irish Ivy, 4 feet, 6s. per 100; Laurel, common, 1½ foot, 6s. per 100; 2 feet, 10s. per 100; 3 to 4 feet, 16s. per 100. Colchic Laurel, 1 to 1½ foot, 12s. per 100; 2 to 2½ feet, 16s. per 100; 3 to 3½ feet, bushy, 20s. per 100. Portugal Laurel, 1 to 1½ foot, 16s. per 100; 1½ to 2 feet, 20s. per 100. Rhododendron ponticum, 1 to 1½ foot, 22s. per 100; 1½ to 2 feet, 30s. per 100; 2 to 2½ feet, 35s. per 100; 3 feet, 50s. per 100; 4 to 4½ feet, bushy, 80s. per 100. Abies Douglasii, 3 to 4 feet, 35s. per 100; 4 to 5 feet, 50s. per 100; do., 6 feet, 70s. per 100. Araucaria imbricata, 2 to 2½ feet, 30s. per dozen; 3 to 3½ feet, 48s. per dozen; 3 to 4 feet, 60s. per dozen. Cupressus Lawsoniana, 2½ feet, 20s. per 100; 3 to 4 feet, 40s. per 100. C. stricta, 2 to 2½ feet, 40s. per 100; 5 to 6 feet, extra fine, 18s. per dozen. C. erecta viridis, 1½ to 2 feet, 25s. per 100; do., 2 to 2½ feet, 35s. per 100. Picea Nordmanniana, 1½ to 2 feet, 30s. per 100; do., 2 to 2½ feet, extra, 40s. per 100. Retinospora plumosa, 18 inches, 25s. per 100; 1½ to 2 feet, 30s. per 100; 2½ feet, extra, 40s. per 100. R. squarrosa, 1½ foot, bushy, 30s. per 100; Thuia Lobbii, 1½ to 2 feet, 12s. per 100; 2 to 3 feet, 24s. per 100; 4 feet, 50s. per 100; 6 feet, 18s. per dozen. Thuiopsis borealis, 2½ to 3 feet, 8s. per dozen; T. dolobrata, 1 foot, 30s. per 100; 1½ to 2 feet, 12s. per dozen; 2½ to 3 feet (fine), 30s. per dozen.
GARLIES MITCHELL, Nurseryman, Stranraer.

Full of Useful Information—No Charge.
BARR'S 1889 SEED CATALOGUE, now ready. In addition to the usual valuable information, will be found special remarks on the Culture of the TOMATO and TOBACCO as INDUSTRIES, with a Special LIST of HIGH-CLASS POTATOS, handsome in form, pleasant in flavour, and bountiful croppers. CATALOGUE free on application to
BARR AND SON, King Street, Covent Garden, W.C.

SPECIMEN CONIFERS.—Trees for Avenues, Evergreens, and Forest Trees in great variety. CATALOGUE free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ASPARAGUS ROOTS in Scilly Isles.—12,000 strong, for forcing, 50s. per 1000.—Samples to be seen or obtained at BARR AND SON, 12, King St., Covent Garden, W.C.

Palms, Foliage Plants, Heaths, &c.
FRANCIS R. KINGHORN will be pleased to forward LIST of above with low prices. Leading decorative PALMS in all sizes, great quantities, and in finest health.
Richmond, Surrey; and 191 and 192, Flower Market, Covent Garden, W.C.

ANDRE LEROY'S Nurseries at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition at Paris, 1878.
Orders must be addressed to Messrs. WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2s. 6d. each; Beauty of Worcester, a magnificent purple, excellent for bedding, recently sent out by us, reduced price 2s. 6d. each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

BEGONIA SEED and TUBERS.—BOX'S varieties are the best, as testified by all purchasers. Both quality and quantity. SEED from latest novelties of Singles, mixed colours, small packets, 6d.; larger packets, 1s. and 2s. 6d. Collections, 4 separate colours, 1s. 6d.; 8 ditto, 2s. 6d. Of Doubles, small packets, 10d.; larger packets, 1s. 6d., 2s. 6d., and 5s. Collections, 4 separate colours, 1s. 6d.; 8 ditto, including white and yellow, 2s. 6d.; double orange, very extra, 2s. 6d. and 5s. per packet. TUBERS, unnamed Singles, to colour superior to named sorts, 12 or more distinct colours, for pots, per dozen, 9s., 12s., 18s., and 24s. per dozen; for bedding, 40s. and 50s. per 100; mixed colours, 28s. per 100. Unnamed Doubles, very superior, 6 or more colours, per dozen, 24s., 36s., 48s.; mixed colours, 15s.; choice, to name, from 24s. All post-free. Full LIST on application.
JOHN R. BOX (for 10 years J. Laing's sole Partner), Seedsman and Begonia Grower, Croydon.

To the Trade.
ONION SEED.—"Home Grown Seed." The past season's crop having been a failure, F. GEE is happy to say he has fine stocks of SUPERIOR BEDFORDSHIRE GROWN yearling Seed, "of his own growing," which he can highly recommend, and may be relied upon, whereas foreign Seed, which is being sold by many at a much cheaper rate, cannot be depended upon. The following kinds can be supplied for Cash:—
GEE'S IMPROVED BEDFORDSHIRE CHAMPION, very select Stock, fine, large, globular Onion, has grown 16 to 20 tons per acre, 7s. 6d. per lb.
" " WHITE SPANISH and NUNEHAM PARK, very fine Stocks, 7s. 6d. per lb.
Carriage or post free.
Special Terms for large quantities. Catalogues on application. Cheques and Post-office Orders made payable to FREDERICK GEE, Seed Grower and Merchant, Riverford House, Biggleswade, Bedfordshire.

Garden and Flower Seeds, Spring Bulbs, &c.
C. G. VAN TUBERGEN, Jun.,
Haarlem, Holland.
WHOLESALE CATALOGUE now ready, and may be had free on application to
Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

TREES and SHRUBS for the Sea Coast. CATALOGUE free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

100 ALPINE and HERBACEOUS PLANTS, 25s. Descriptive CATALOGUE, Illustrated, with Cultural Notes, 72 pages (containing much interesting information). Post-free, 9d.
STANSFIELD BROS., Southport.

To the Trade.
H. AND F. SHARPE'S Wholesale CATALOGUE of VEGETABLE SEEDS for 1889 has been forwarded to their customers. If those who have not received it will kindly inform them another one shall be sent.
Seed Growing Establishment, Wisbech.

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THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 2, 1889.

IGHTHAM MOTE.

[SEE SUPPLEMENTARY SHEET.]

WHILE the beautiful county of Kent claims by the richness of its soil and the varieties of its culture to be the garden of England, it is also rich in other things, specially in the records of the past. Some are interested in antiquities—well, we can point in St. Martin's at Canterbury to probably the oldest church in the kingdom, with the exception of Perranzabuloe, in Cornwall. Do we want to see magnificence in ecclesiastical architecture of past centuries? What more glorious example of it does England afford than the cathedral of Christ Church, Canterbury? Then, do we want to know about the castles wherein our forefathers played, I fear, too frequently a cruel game?—we can show them Richborough and Lymne, Rochester and Dover; and of our feudal lords, such residences as Penshurst, Leeds, Hever—the two latter with their moats and drawbridges, portcullis, and other means of offence and defence. But perhaps that which most interests us is "the domestic" architecture, when stucco was unknown, when contractors did not scamp their work, and when builders oftentimes, perhaps, unknowingly to themselves, were putting together buildings which were to excite the admiration of all succeeding ages—such houses, for instance, as Godinton Park, near Ashford, a lovely specimen of Tudor architecture, and in the Mote, Ightham—a piece of old English architecture that I have never seen excelled. While its memories are fresh upon me I would note some of its features, not to satisfy the readers of the *Gardeners' Chronicle*, but, like a critique on some valuable book, to induce them to see for themselves. It is not difficult of access.

Wrotham lies on the London, Chatham and Dover line to Maidstone, and flys can readily be obtained there. The drive of about 4 miles is through a richly wooded and pretty country of hill and dale, Hop gardens, orchards, and corn fields.

Ightham Mote is situated in a valley, and has a beautiful surrounding of wooded hills. Like many of our old houses it has passed through many vicissitudes, and like most it has been, through sale or marriage at times, in the possession of different families. Without dwelling on the times of the Conquest, when it, (as every old house is supposed to have done), became the possession of one of those sturdy warriors of William, who made short work of the properties which they found existing, and short shrift of their owners—we may come down to the comparatively recent times of about 300 years ago, when the property was sold to Sir William Selby, of Branston, in Northumberland, in whose family it has remained ever since. The father of the present owner bears a name which is not yet forgotten amongst lovers of natural history, as he published a book on *British Birds* which involved him in considerable losses, and crippled his means of living; he also published a volume on *British Forest Trees*.

Most of the moated houses one sees seem as if they had been built on an artificial mound, or that the mound or fosse had been dug out around them; but Ightham seems literally to be built in the water, out of which it rises sheer, and which is in some places several feet deep. The water is supplied, not by springs, but by a strong stream, which comes down from the hills above, first filling the stew-ponds, and then carried underground until it empties itself into the moat, so that there is the continual sound of rushing water, and lazy young gentlemen have been known to lay on their couches and fish out of the windows. On entering over the bridge into the house you seem at once transported into the home of some powerful landowner of the sixteenth century; there is nothing to mar the illusion, and when you enter the courtyard you quite expect some of the grand dames of the period to be seen at the windows.

On the walls of this yard many beautiful creepers —Clematis, Tropæolum, Solanum jasminoides, &c.— have been trained, Ferns revel in the shady nooks, and the whole has a beautiful gardenesque, but at the same time quaint old-world look, which is perfectly delightful. Here in the tower is a very old clock, very much out of time, and of which it is recorded that James Nasmyth, who used frequently to visit this place, tried his hand at repairing, but all in vain. "There, now —to think," quoth he, "that I have invented the steam-hammer, and cannot master this old timepiece." The hall, which occupies the place of the old chapel, is very beautiful; and as you go through the house and see its Jacobean chimney-pieces and its crypt and chapel of far older date, nothing strikes you as incongruous. It is now occupied by an American lady who must greatly rejoice in the old-world memorials around her.

Passing out over one of the three bridges to the grounds one is delighted to see that, except in a very small nook which is not much in sight, the old-fashioned style of gardening is still maintained. Very often it is otherwise. I call to mind, for instance, a beautiful Tudor house in this county which is vulgarised, and as far as possible its effect marred, by an odious arrangement of flat beds in the very worst style of the Victorian era, filled with scarlet Pelargoniums, yellow Calceolarias, &c. Looking up the valley you see where the stream rushes down, and immediately in front of you is the lawn, at the end of which are the stew-ponds where the fish used to be fattened for the table. On the right are terrace walks, the top one of which is hid by some tall plants of Yucca, in flower, at the time of my visit and Bocconia cordata, and such-like tall-growing plants planted in the borders; then these borders, as well as those on the right hand, are filled with either old-fashioned plants, or else some of the newer ones, such as Clematis Jackmanni, treated as our forefathers used to treat their plants, allowing them to grow more naturally than seems to be the taste of the present day, although the effect is quite delightful. Here and there are such things as the Japanese Bamboo to be seen; Conifers, too, although not in abundance, are evidently at home. There is one very fine specimen of the Silver Fir, of which I do not know the height, but should judge it to be above 100 feet.

In point of gardening, there is nothing sensational at Ightham—indeed, the modest amount of labour expended would hardly warrant it—but Mr. Ismay most thoroughly appreciates the character of the place, and would be the last to wish for anything that would destroy its almost unique character. *Wild Rose.*

New or Noteworthy Plants.

IXIANTHES RETZIOIDES (Fig. 19).

Many years ago, the late Dr. Harvey, in figuring this plant in his *Thesaurus Capensis*, t. 99, spoke of it as well worth introducing into England, but up till now this has not been done. It is a Scrophulariad of shrubby habit; the leaves are densely crowded, in ternary whorls, each leaf linear-lanceolate, toothed. The flowers are not unlike those of a Pentstemon, but bright yellow. Professor MacOwan, of the Botanic Gardens, Cape Town, in writing to us some time since, says:—

"I send you by this mail a pencil sketch of Ixianthes retzioides, one of the rarest of our Cape Western plants. It appears to have been gathered by our predecessors Ecklon and Zeyher, and long afterwards by the late Dr. Pappe, who died in 1862. Mr. Robert Templeman, a nurseryman here, who knows the showy plants of our flora very well, found a solitary plant in 1882 or 1883, and my colleague, Bolus, dropped upon the very same one some year or so afterwards, when it was almost destroyed by the cutting of a water-furrow. I have hunted for other examples every summer since. This year after my return from an unsuccessful raid, the farmer on whose property the locality is, found a small colony of the shrub, some examples being 5 feet high, and magnificently in flower. I secured a large quantity for distribution in our Herbarium Normale of Cape plants, and as Harvey's figure in the *Thesaurus Capensis* is taken from a depauperated plant, I have had this sketch (fig. 19) made to indicate the proper habit. It grows almost in the water, but in drier places becomes stunted and assumes exactly the habit represented by Harvey. The flowers are very numerous, and of a bright sulphur-yellow, like those of the old-fashioned Calceolarias. I shall return shortly to the spot and do my best to secure a good supply of seed in order that this fine thing may be introduced to cultivation. I expect the treatment suitable for Phygelius, a Scrophulariad which grows in much the same stations, will render it quite at home."

Arisæma Wrayi, *Hemsley*.*

This is rather an interesting species, belonging to a small group in which the leaves arise from one point of the tuberous rootstock, and the flower-stem from another point; and I believe is the first recorded species of that group that has flowered in European cultivation, as in all the other cultivated species, the peduncle arises from the midst of the leaves.

A. Wrayi is a native of Perak, where it was discovered by Mr. L. Wray, who sent dried specimens of it to Kew in 1884, and living tubers were received at Kew last year, one of which has just flowered. The pedate leaves are about two to three to each growth; the petioles are 9—15 inches long, of a pale green or greyish, beautifully mottled with whitish, irregular bars, and densely dotted with red; the leaflets are six to nine in number, 5—7 inches long, ¾—1¼ inch broad, on distinct petiolules ¼—1 inch long, narrow, lanceolate-acuminate, of a pale, somewhat whitish-green. Peduncle longer than the petioles, and coloured in a similar manner, with two to three membranous sheaths at the base, but without leaves. Spathe about 6 inches long; the tube is white at the base, passing into light green, with darker green nerves above, and has a broad spreading rim, similar to that of A. nepenthoides; the limb is broadly ovate-acuminate, and a little overarching, of a bright light green, with a white radiating area at the base. Spadix unisexual, the male only seen; the flowering part white, thickly mottled with purple; the anthers in clusters of three, shortly stipitate, whitish, with purple pores; the appendix is 9 inches long, tapering into a subulate, pendulous apex, of a green colour. *N. E. Brown, Herbarium, Kew.*

* Hemsley, in *Journal of Botany*, 1887, p. 205.

Satyrium membranaceum, *Swartz*.

To Mr. James O'Brien I am indebted for a living specimen of this pretty terrestrial Orchid, which is a native of the eastern parts of Cape Colony, such as at Grahamstown, Katberg, Somerset East, Port Elizabeth, &c., and although it was discovered by Sparrman about a hundred years ago, and is not a rare plant in the localities where it grows, it does not seem to have been introduced into European cultivation before; at least I do not know that it is anywhere recorded as having flowered in Europe previously. It is something in the way of S. carneum in general appearance, but the flowers are smaller, with much longer spurs. The leaves are two in number, and subopposite, spreading close to the ground. They are roundish in outline, and vary from 1½—7 inches in diameter. The flower-stem grows from 9 inches to over 2 feet high, and has several close-pressed membranaceous sheaths. The bracts are ovate-lanceolate acute, and ultimately reflexed. The flowers are numerous, in an elongated spike, they are about half an inch to three-quarters of an inch in expanse, and varying from a delicate pink to bright rosy-carmine, with a darker keel on the back of the galea, which is denticulate and reflexed at the apex, and has slender spurs ¾—1 inch in length; the odd sepal and petals are linear-lanceolate, subacute, the petals being denticulate or slightly fringed, the lateral sepals are broader and obliquely lanceolate.

It is a very attractive and desirable plant, which can be pretty easily distinguished from the allied species by the denticulate or somewhat crisply-fringed petals. The flowers of the specimen Mr. O'Brien sent me were entirely of a very delicate rose-pink colour, but probably their paleness was owing to the absence of sunlight, although their very delicacy was exceedingly charming. Mr. O'Brien writes that the plant "sent up its spike outdoors, and opened in a cold house," and as it was sent to me quite fresh just before Christmas it must be a tolerably hardy species; though with a little more dry heat and more sunlight than we had last year it will probably become more robust and more brightly coloured under cultivation than was the specimen sent to me.

As to the cultivation of these South African Orchids, concerning which Mr. O'Brien has published some notes recently in these columns, I think it cannot be too strongly urged that different species will probably be found to require different treatment; and the view that, because a plant is a Disa, or a Satyrium, or a Eulophia, or what not, it should, therefore, be treated in the same way as the other species of the genus to which it belongs, will be found to be a fallacious one. For their perfect cultivation, in all probability, the conditions under which they exist in Nature, cannot be too closely imitated, and for this purpose the collectors should give full information as to soil and habitats; while some grow in vegetable or alluvial soil, others grow in pure sand, and it can scarcely be expected that the same species will thrive equally well in both kinds of soil. Broadly speaking, it seems to me, that those species which come from Natal and Caffraria, or that grow in woods or by river sides in the Cape colony will be found to require a more or less loamy, or sandy-vegetable soil; and those that come from the lower coast region of the Cape Colony will require a very sandy soil; in some cases they grow in pure sand, which is sometimes white, at others ferrugineous; often the coarse sand is mixed with what appears to be a very

fine black vegetable mould, whilst those that come from the more interior regions, so far as my observations go,—and I am only able to judge from the soil which clings to the roots of dried specimens from these regions, and from what I have been told by Sir Henry Barkly, Mr. Bolus, and others,—often seem to grow in a ferrugineous, gritty clay, which seems composed of very coarse reddish sand, with a sufficient amount of clay to bind it together, though sometimes the clay seems to predominate. Again, it should be remembered that the seasons are the reverse of ours, the South African summer being our winter; also, that the rainy season of the coast region in the south-west of the Cape Colony is in winter, that is, during our summer; whilst in the interior region, and in the eastern districts, the rainy season is in summer, or during our winter. If I am wrong in these points, perhaps some of our South African friends will correct me. *N. E. Brown, Herbarium, Kew.*



Fig. 19.—Ixianthes retzioides: greenhouse shrub: flowers yellow. (see p. 136.)

Eomecon chionantha, *Garden*, Jan. 26, 1889.

A very interesting and beautiful Poppy-wort, recently discovered in Central China, with leaves in form like those of an Ivy-leaved Cyclamen, and an erect inflorescence like that of some Begonias. The individual flowers are nearly 2 inches across, and with four ovate or oblong-acute petals of a white hue. It has been found hardy at Kew for the last two winters. See also *Bot. Mag.*, t. 6871.

VIOLET CULTURE.

Violets are cultivated more or less in almost every garden in some way or other, but there are many, even among practical gardeners, who have little or no experience of their cultivation in a thorough manner, and to such, perhaps, a few notes may be of some use. I have grown Violets in what is considered the best way at the present day for a good many years, and have attained a considerable amount of success. Hailing from north of the Tweed, and never having resided any further south than the southern division of the county of Westmoreland, my experiences may be somewhat different to those who reside in the south, but I am convinced, partly from experience and partly from reading, that the method of successful cultivation of the Violet is pretty much the same all over the British Isles. For convenience I will divide my notes into sections, giving the varieties, the preparation of the ground, the period and manner of planting, what to do while growing, when to remove the tenderer kinds into frames, how to prepare the frames, and other necessary instructions. The list of varieties I will give are those that I have grown in bulk, and which, for giving a good supply of blooms ought to satisfy any one. There are a number of other varieties of which I have only grown a few, and of which I cannot, therefore, speak with authority.

Double Varieties.

Neapolitan.—Light lavender-blue. This I consider the sweetest of all Violets, and the most useful and profitable of any I have ever grown. I have picked blooms of it the last ten days in August, and could generally pick a bunch when dividing up the plants at planting out time some time in May.

Count Brazza, white (sometimes called White Neapolitan), I find rather more tender than that variety, and it has a shorter period of flowering. It is a very beautiful variety, and well worth growing. Swanley White is just another name for it.

Marie Louise.—Dark mauve, very large, free-flowering variety, which with me blooms as long as the Neapolitan, and is very sweet.

These are the double varieties I have grown in bulk, and all require to be put into cold frames for the winter and early spring months; it is utterly useless trying them outside. No doubt a few poor short-stalked flowers can be got from them, but they are a miserable sight, and I have seen them killed outright in some winters, and yet all the protection they require is, a cold frame, with a mat or two thrown over the glass in severe weather, but this will be treated in a section by itself further on.

Single Varieties.

Common Blue Russian.—A very free-flowering kind. It has a long period of blooming, and when well cultivated, the flowers are of a good size. It is the hardiest violet in cultivation.

Common White is a grand variety when well managed; it is quite distinct from any white or blue known to me. It has grand, robust dark green foliage, sometimes almost round. It has, too, a long blooming season.

The Czar, blue, is a large flower, not very prolific, yet it is very telling, and one can soon make a big bunch from comparatively few plants.

White Czar is a strong grower, but I am not enamoured of it, and would rather exclude it from my list, and grow a large stock of common white; still, it is worth growing, for the flowers are very pure in their whiteness. These are the single varieties I have

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grown largely; they are all thoroughly hardy, except White Czar, which I have not found to be so hardy as the others (it was nearly killed out with me last spring), but any one wishing plenty of flowers throughout the winter would do well to put some of the single kinds into frames. Owing to their foliage being so much larger than the double kinds, they will require to be planted much thinner, otherwise their foliage will be much more subject to damping—the great enemy of Violets in frames.

Perhaps a list of all the varieties in cultivation known to me may be useful, as some may have heard certain of them praised which are not mentioned in the foregoing list, and may want to try them:—

List of Varieties of Sweet Violets.

Double.

Neapolitan, light lavender-blue,
Marie Louise, darkish blue, or mauve, white eye.
New York, similar to Marie Louise.
Parma, pale lavender-purple.
King of Violets, dark indigo-blue.
Patrie, deep purple-violet.
Count Brazza, white—White Neapolitan.
Swanley White, very like Count Brazza.
Queen of Violets, white, tinted violet-rose.

Single.

Russian, blue, free-flowering, and hardy kind.
Common White, very free-flowering and hardy.
The Czar, blue, large flower, not very prolific.
White Czar, pure white, like above, except colour.
Victoria Regina, a grand flower, blue.
Wellsiana, blue, a new variety said to be very fine.
Odoratissima, very like Victoria Regina.
Argentiflora, white-tinged pink, has a long flowering season, strong perfume, said to be a first-rate variety.

The above list ought to satisfy any one, and although some of these varieties are strangers to me, I think they may be taken as the best in existence.

Cultural Directions.

The first consideration will be the preparation of the border or piece of ground where they are to be grown into strong flowering plants, to be afterwards lifted and planted into their flowering quarters for the winter and spring, be it frames or borders. Violets undoubtedly like a deep, rich, and rather free soil much better than a heavy soil. I have grown my plants for years on a border made up of turf to a depth of nearly three feet. It is well manured every year with good rotten manure, and turned up roughly with the spade for the winter, the manure being put on before digging. Before planting it, it is simply stirred and well broken with a fork, gently trodden, and made level and smooth with the rake. In planting I use a long narrow plank for the planter to stand on, so that no part of the ground is more trodden than another; this I consider a very important matter, especially if the weather at planting time be wet, as nothing thrives in a puddled soil.

As the planter proceeds he waters every two or three rows as he goes on, still standing on the plank. At any time during growth, when it is found necessary to give water, the plank is laid down, the waterer standing on it, and watering three or four rows on either side of him; also in weeding and taking off the runners, the same rule is observed, the plank being lifted on to the next division, and so on till finished. The foregoing is my practice in preparing the ground, but there will be many amateurs who will not be able to spare a large space in which to grow their plants, and who perhaps may not want to grow more than a dozen or two; but whatever number may be grown, or whatever space may be taken up, the ground should by no means be trampled on after the first preparatory treading, or at any rate not until some of the plants are beginning to flower, by which time the soil will be settled. Those who have the means and the will can easily make, or have made for them, a suitable border to grow their plants; others again from various causes, may have to do the best they can with the soil they have. If it be very heavy and clayey, wood-ashes, sand, or any gritty rubbish, might be mixed with it, and instead of using heavy, wet, cow-manure, I should recommend light stable manure to be dug in during autumn, and that the soil be left as rough as possible, so that the frosts of winter may get well into it, which will help to mellow and sweeten it by planting time.

Where the soil is light and sandy—indeed it may be altogether sand in some cases—I should then use cow manure as wet and heavy as I could get, and plenty of it too; I know of nothing better, and if a few barrow-loads of heavy soil could be obtained, I think a very good border might be made, but I do not recommend digging till well on in spring, say some time in March, putting in the manure at the same time; and at planting time instead of forking it up I would simply level it with the Dutch hoe, treading it down very firmly before planting. It will become necessary after a year or two to change the ground, cropping it with something else for a season. I am not prepared to say that Violets would not grow well in a shady situation, but I know that they like sun. I grow mine on a border facing the east; I have never grown them on a border facing the south, for fear that red-spider would be troublesome. I have therefore chosen the happy medium, and have not had any cause to regret it. *J. Heath, Sedgewick House, Milnthorpe, Westmoreland.*

(*To be continued.*)

LONDON TREES.

It will soon be time for the barbarians appointed to the task by the authorities (up to the present the Metropolitan Board of Works) to lop, top, and mutilate trees in London streets and open spaces according to the canons of taste in vogue. It is to be earnestly hoped, in the interest of that part of the community, whose taste for the beautiful has not quite become a quantity represented by x, that steps should be taken by the new men responsible for the department of open spaces in London, to hinder the barbarous work with saw and billhook. In my neighbourhood—a south-western suburb—to go no further—the young trees on the common were last year pruned in much the same fashion as a Currant bush, and which has been the rule since they were planted in 1885. The result is seen in little conical heads, full of small twigs, the general outline of a tree being a *fac simile* of those of a German toy. It is possible by banishing the "pruners" for all time that the trees would throw out vigorous branches—and grow into picturesque objects affording shelter from the rain and sun to the many young and aged persons who make use of the common and become a pleasant picture in a district rapidly gaining in importance. As proving what the soil of the district will do for Planes, one has but to observe the fine growth made by some Planes planted on the footpath near this common, some twenty years ago, and which have been consistently pruned occasionally. These thrifty trees afford shade to a pleasant promenade for a quarter of a mile, some of the trees are a little out of the perpendicular, but all the better for that, as the monotony of regularity is absent.

In regard to planting trees in towns the advice nearly always given is to plant Planes, which are excellent town trees, must be taken with a caution; the trees being strong growers, attaining a height of 70 feet. Some suburban authorities allow them to be planted in roads of no unusual width, and in such position the Planes in a short time shut out much of the small quantity of sunlight vouchsafed to Londoners, and this in the greater degree in summer-time, when a sunbath is of so great advantage, especially to children. The planting of forest trees in confined streets and in forecourts is a common sin of the town gardener, and instances of it may be seen by the hundred in any of the suburbs of London and other cities. It is a question if this is not a subject which the sanitary authorities should take up on public grounds.

It is true a mitigation of the evil is attempted, but the severe pruning the poor trees get in thus trying to make them fit unsuitable positions causes them to be anything rather than objects of beauty. It would be better to replace such trees by other species of smaller growth, and in some bad cases to have none.

Of suitable trees for street planting and for front gardens may be mentioned:—Gleditschia sinensis, Paulownia imperialis, Sophora japonica, Acacia inermis, A. Bessoniana, Weeping Willow, Thorns in variety, Catalpa syringæfolia, Mountain Ash, Almond, Amelanchoir botryapium, and Laburnum. [The Tulip-tree, Naples Alder, and many others might be cited. Ed.]

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT LYTHE HILL, HASLEMERE.

The Orchid-houses at this place are now looking very gay, although there are great demands for cut blooms. In the flowering-house Calanthes make a fine show, over 200 spikes of C. Veitchii, C. vestita, C. v. lutea, and C. Turneri being noticeable, some bearing thirty fully expanded flowers and others to open; mixed with these are Cypripedium Sedeni, C. Lawrenceanum, C. barbatum, C. b. nigrum, C. venustum, and C. Harrisianum, with Oncidium Krameri and Zygopetalum Mackayi, with a pleasing arrangement of Palms and Poinsettias at the back.

In the East Indian-house there is a fine lot of Phalænopsis (about thirty plants) in robust health, which are making growth and fine foliage this season. Mr. Evans informs me that some of the leaves were only 6 inches long last year, and they are now 14 by 4 inches, and with spikes 3 feet long; P. amabilis, P. Schilleriana, with good spikes and four branches; P. Stuartiana, and P. violacea are flowering freely; P. grandiflora and P. Luddemanniana are looking very promising; and a nice Vanda suavis with twenty-one pairs of leaves has two spikes of bloom (twelve blooms to each spike); V. tricolor suavis has a fine colour. There are also Odontoglossum Roezli and O. R. album, charming winter bloomers, with a most delicate scent; and also a fine plant of Angræcum sesquipedale with seven pairs of leaves and four blooms of pearly-white.

The Cattleya-house is made cheerful and gay with Cattleya Percivaliana, Lælias, Epidendrums, Cœlogyne cristata, C. ocellata, and some of the warmer-coloured varieties of Masdevallias and Calanthes.

The Odontoglossum-house is also gay, O. Alexandræ having good spikes with forty-four blooms. O. Pescatorei, Cymbidium eburneum, Sophronitis grandiflora, and Lycaste Skinneri; Maxillaria grandiflora, Odontoglossum Rossii majus, O. pulchellum, Masdevallia tovarensis, with 207 fully expanded blooms on. M. Veitchii, M. amabilis, and M. Lindenii Davisii complete the display here. The centre walk is edged with dwarf Poinsettias and Maidenhair Ferns. In the Dendrobium-house there may be seen a fine collection of healthy plants, and well set with buds, many just opening. *W. S.*

Angræcum hyaloides.

This little Orchid is one of the numerous introductions of Messrs. Low from Madagascar. It is one of the smallest and prettiest of its kind, and is interesting also for the contrast it affords to such of its allies as A. eburneum and A. sesquipedale. The leaves are only 2 inches long by ¾ inch broad, and from between the lower ones the numerous racemes are produced. A plant at Kew is now bearing twelve of these, each with from ten to twelve flowers. When spread out the flowers are half an inch in diameter, the spur being a little longer; all the parts are of a pure glistening white.

Saccolabium bellinum.

This is one of the most beautiful Orchids flowering during the winter season, and in the houses at the present time no other more quickly arrests attention. In the beauty of its individual flowers it is probably the finest Saccolabium in cultivation, the

only one I know approaching it being the rare S. bigibbum. S. bellinum produces its flowers in a compact head of from four to seven, each flower being about 1½ inch in diameter. The sepals and petals are oblong, and are yellow, thickly blotched with dark brown. The chief interest of the flower lies in the lip, which is saccate, the cavity being white, spotted with purple, and yellow at the base of the inner side; at the front and sides there is a kind of ledge 1 inch long by half an inch wide, which is covered with white, thread-like processes except on the centre, where it is marked by a patch of yellow. This species, an example of which is flowering now at Kew, should be grown in a basket of sphagnum and be suspended from the roof of the warmest house in a moist but not too shaded position. It is a native of Burmah, and was introduced in 1884.

Masdevallia polysticta.

Numerous as have been the additions made in late years to the smaller-flowered Masdevallias, this species holds its place as one of the best. It is very pretty, and during the dullest period of the year produces its racemes of seven or eight flowers in great abundance. At Kew several plants have been flowering for some weeks past. The sepals—of which the upper one is hood-shaped, and the lateral ones slightly reflexed—are broad at the base, suddenly narrowing into filiform tails, an inch in length. The broader portion is white, profusely dotted with dark purple, and the tails are olive-green, spotted with purple. The species is a native of Peru, and is figured in the *Botanical Magazine*, t. 6368. Its free-flowering properties and easy culture make it worth a place in every cool Orchid-house.

Cœlogyne lentiginosa.

Apparently this is not a well-known species, but it is, nevertheless, a very distinct and handsome one. The pseudobulbs are four-angled, about 4 inches high by half an inch in diameter, and bear two dark green coriaceous leaves. The flower-spikes are developed during January and February from the points of the young growths. The flowers, of which five or six occur on the scape, are 2 inches in diameter; in good varieties the sepals are of the brightest golden-yellow, the petals being smaller, and similarly coloured. The lip is three-lobed, the sides being crimson, and the front lobe yellow with a white margin. Grown in the warmest end of an intermediate-house, imported pieces soon develope into flowering plants. They should be potted in a compost of two-thirds peat to one of loam fibre and sphagnum. This species is a native of Tenasserim, and may now be seen flowering at Kew. *W. B.*

Oncidium Jonesianum var. flavens.

A very fine form with thick quill-shaped leaves, pendulous many-flowered racemes, each flower about 2½ inches in longest diameter, oblong flattish sepals and tepals, oblong obovate, greenish-yellow with yellow spots, anterior lobe of lip rounded, white. The variety was described in our columns by Professor Reichenbach, vol. iv., 3rd ser., 1888, p. 234, and is well figured in the *Orchid Album*, t. 360.

Comparettia falcata.

A dwarf epiphyte with long-stalked racemes of magenta coloured flowers, each oblong, about an inch in longest diameter, sepals and petals small, ovate-acute, lip with a short stalk expanding into a roundish anterior lobe deeply notched in the middle. From the base the lip proceeds a conical spur about the same length as the lip itself. The plant is a native of Peru, and is figured in the *Orchid Album*, t. 359.

Angræcum caudatum.

A very curious species, with flowers in racemes, each flower about 4 inches across, flat, stellate, with linear-lanceolate sepals and petals of a green colour, brown at the base, and a lip, the long-channelled stalks of which expand into a roundish white disc, suddenly prolonged in the centre into a long point, and having at the base a very long, slender, cylindrical spur. The front of the anther is also prolonged into a long beak like a bird's bill. It is figured in *Orchid Album*, t. 358.

Cattleya bicolor Measuresiana.

Flowers about 4 inches across, transversely oblong; sepals and petals olive-green, leaves destitute of side-lobes, so that the column is exposed; anterior lobe rounded, notched in the centre, fringed at the edge; disc rich magenta, with a white zone. A native of Brazil. *Williams, in Orchid Album*, t. 357.

Maxillaria grandiflora: a Dual Flower.

Mr. Sander sends us a flower of this species looking more like a double white Tulip or a small Magnolia than an Orchid. It is composed of fourteen parts instead of seven. We shall more quickly convey an idea of the state of affairs by describing it from within (the centre) outwards instead of in the usual fashion. There are, then, two perfectly shaped columns placed *vis-à-vis*, free above the middle, united beneath. Outside these comes a row of six whitish petals, regular in size, shape, and arrangement; then three more petals, and on the outside of all three sepals. The ovary is flattened and marked by eleven lobes. The interpretation, then, seems to be, that this is a composite flower, in which the actual number of parts (of two flowers) is not altered, but during growth the parts of one flower have, as it were, slid among and between the other: thus the two outer rows of three each belong to one flower, while the corresponding parts of the other flower are represented by the six petals now in a row, but which, in all probability, in the early stages of development, were in two rows. Lastly come the two columns. In most cases of synanthy the two flowers are in union side by side—oo; but in this the two are median, thus, $\overset{o}{o}$.

Dendrobium Calceolaria.

I have a plant of this Dendrobe in a 10-inch pot growing in a mixture of peat, sphagnum, broken charcoal, and potsherds, which made three very strong growths last seasons, the longest being 7 feet, and the the shortest between 4 and 5 feet long, and nearly as thick as my thumb. The night temperature of the house in which this, with other plants, was grown during the last few months, was from 60° to 65°, with 5° higher by day with fire-heat, and with sun-heat, 10°, a liberal distribution of tepid water in the house being given at closing-time. The plant has been kept on the moist side at the roots, and it flowers freely every year. I should like to know if the large growth made by this plant is uncommon, as I do not remember having seen such a fine growth before. *W.*

Nursery Notes.

THE TORRE AND BARTON NURSERIES, TORQUAY.

Torquay, with its suburbs of Babbacombe, St. Mary Church, Cockington, Ellacombe, &c., for several years past, has given great facilities to the building trade for speculation; mansions, villas, hotels, &c., have sprung up like mushrooms, at the same time opening up a considerable trade for the nurseryman, as the same characteristic manner of building detached residences in their own plot of land has necessitated the presence of the landscape gardener, and a large supply of trees and shrubs for embellishing the grounds.

One of the oldest nurserymen, if not the oldest, of Torquay, Mr. W. B. Smale, has this season become the proprietor of the triangular piece of land existing in the centre of Torre, about two minutes' walk from the Torre Station. For many years this land has been rented and kept as pleasure-grounds by the residents in the villas surrounding it, but this combination having terminated, the landlord determined to build. The acquisition of the land by Mr. Smale for nursery premises is no doubt the next best purpose which the residents would favour. Possession was taken at midsummer, and no time has been lost (indeed the weather has greatly facilitated building operations) to erect the various glasshouses, offices, &c., and lay out the ground not built on.

The principal entrance is from the south side, a central walk leading right through the premises. On the left side commodious and excellent offices are erected suitable for the various branches of the business; immediately behind is a large packing and potting-shed, at the end of which is the heating apparatus, fixed for supplying heat to all the glass structures, a "Rocheford" boiler being used, No. 2 size, very powerful, and doing its work satisfactorily. On each side of this block of buildings are lean-to houses running the whole length; those on the right side are used for Ferns and propagating-houses, on the left a cool greenhouse and stove department. In the greenhouse section were splendid batches of Primula and Smale's Cineraria—a splendid strain, dwarf, and with very fine flowers; Carnations Mrs. Joliffe, Mdlle. Carl, and others; Epacris in variety, Boronias, Bouvardias, President Cleveland' a new variety, being in excellent condition, and flowering well; pots of Lily of the Valley were produced thus early in very good style. The stove compartment contained a great variety of Palms and other foliage plants, suitable for decoration, comprising Kentias, Cocos, Dracæna terminalis, rubra, &c.; Crotons, Poinsettias, all showing signs of good culture. It may here be remarked that these nurseries are intended as show nurseries, being supplied from the Barton Nursery, where all the early stages of plant growing will be carried on.

On the right side of the centre walk is erected a fine show-house, 72 feet by 27 feet.

The outdoor portion of the grounds is occupied with herbaceous beds of Irises, Pæonies, Polyanthus, Narcissus, Violets, Pyrethrums, &c., while there are specimens planted of the various kinds and shapes of fruit trees, Roses, &c., to sell from, and to give their customers an idea of what they have to offer. Building has ceased for this season, but additions will be made in the future as required.

Roman Nurseries.—These were established in 1856 by the present senior partner of the firm, who, being then a young enterprising man, foresaw what scope Torquay would eventually open up. These are situate about a mile from Torquay, too far for these modern times. Now it is necessary to bring horticultural products to the people: hence the great reason for the acquisition of the Torre Nurseries. The various houses here are filled with very serviceable stuff for decorative sale purposes, and for cut flowers. Splendid batches of Smale's Cineraria were in bloom, as also a lot of Primulas, principally of the Fern-leaf section, but with a great variety of colours, fresh and healthy. Solanums were well berried, Azaleas and Camellias, well set with flowering buds, were looking very promising. A Luculia gratissima planted out at the end of the Camellia-house was opening a great profusion of flowers. Here large batches of Lilies of the Valley were opening their flowers, ready to be despatched to the new premises. Many other varieties of Orchids, especially the Cœlogynes, Cattleyas, Disas, &c., are well done. Anthurium Andreanum, one with nine spathes, were flowering freely, and would be of great service for cut flowers. Eucharis Mastersii is largely grown, it being most suitable for bouquet making. Several houses were devoted to the culture of Adiantum cuneatum and its species, which were looking very healthy. The houses, being situate on the top of a rising ground, water is supplied to them from the bottom of the outdoor nursery, a distance of a quarter of a mile, by one of Lehmann's engines, which will pump up 2000 gallons per day at a cost of 4*d*. The outdoor portion is filled with a great variety of the usual nursery stock, the soil evidently being most suitable to the growth of most kinds of trees and shrubs. A large quantity of Narcissus in variety has been planted this season—a flower which has become now so popular every nurseryman must grow it.

The seed and show premises in Union Street, Torquay, which Mr. Smale has for many years held on lease, have now been purchased by him, and simultaneously he has taken down the old premises, and erected in their stead first-class rooms for the carrying on of both his wholesale and retail seed business, provision being also made for a display of plants and the cut flower trade. All the work has been executed by Mr. Smale's workmen in a very substantial and thorough manner, another trait of the enterprising proprietor, who by so doing will save an after lot of expense and extras usually attending contract work. *Visitor.*

Messrs. Cutbush & Son, Highgate.

Daphne indica rubra, &c.—The cultivation of this plant has retrograded of late years, and it is rare to see the plant well done, unless at exhibitions. This fact may be due to the multiplicity of subjects flowering in its season, and to its requirements not being always well understood. Messrs. W. Cutbush seem to anticipate a revival of its cultivation, for we saw there, recently, a great number of small plants in vigorous health. There were observed a large number of Azalea Deutsche Perle, which is recognised now as being one of the best forcers, and the bloom when cut is very enduring.

The Pernettyas are beautiful winter-berried plants when grown as they are here. On some of the plants the berries were very thickly clustered together—so much so as to hide much of the foliage. The varieties with crimson, scarlet, white, and creamy-white fruits, are the most effective—a fact due to the contrast that exists between the colours of the leaves and the fruits.

THE AUSTRALIAN PITCHER PLANT.

Cephalotus follicularis is one of those interesting little gems which no real lover of plants could fail to admire. Although we note that it is over sixty years since it was introduced, yet it is rarely met with in a flourishing state. As is well known, the plant produces two kinds of leaves—one set with a petiolate, and elliptical, green flat blades in the usual way, and growing a few inches high. But it is in the other set, which develops into little round-winged pitchers, that the beauty of the plant lies. The pitchers are much ringed at the opening and beautifully marked with purple, while the lid is checkered with varying degrees of red or pink. It must be obvious that it is not for want of attractiveness, nor that size could forbid its inclusion in any collection, as it can easily be accommodated in a house of very moderate dimensions; moreover, a greenhouse temperature is the most suitable. I think the more probable reason of its scarcity is owing to insufficiency of light and air.

A steady supply of moisture both at the roots and in the atmosphere is essential to success, which is generally tried to be supplied by placing hand or bell-glasses over pots in which it is planted. This may be all very well as far as moisture is concerned, but in how many cases is there at the same time means provided for a free circulation of air besides? The whole is often placed in a shady out-of-the-way corner of the house—in fact often where more robust subjects have been unable to thrive. Then little wonder this native of a sunny land is unable to prosper. Recently I saw it well grown in the Royal Botanic Garden, Edinburgh, where Mr. Lindsay had on a shelf suspended close to the glass a splendid lot of plants with fine coloured pitchers, and in the rudest health. They were in small pots efficiently drained and filled with fibry peat and living sphagnum, the whole being kept uniformly moist by the syringe and watering-can, as little shading as possible being used. But I have seen capital results where none was used; indeed, where the plants can be stood on a moist surface, not too near the glass, but giving full exposure to light, with frequent syringing and careful airing, it is unnecessary. In any case the less shading is used the better.

As the winter approaches, the syringe should be used with caution, and this also applies to watering at the root, but avoid actual dryness—endeavour to keep up the necessary humidity by damping the surroundings. Under those conditions, a temperature of 50° Fahr. will be sufficient, except after repotting—which is best done just before the plants begin to make fresh growth, when a few degrees more warmth is beneficial. Propagation is easily effected by seeds, which should be sown soon after they are gathered in shallow well drained pans, filled to within an inch of their rims, with a compost of chopped fresh sphagnum moss and peat; press it moderately firm, and cover with a thin layer of finely broken charcoal, and potsherds, or bricks, give a good watering, and then sow the seeds—covering the pans with a bit of glass. Stand them in a close moist place—if possible, where shading will be unnecessary. To prevent drying it is a safe practice to stand them in saucers, with a little water in them. Prick off into a similar compost, as soon as the seedlings are fit to handle—and grow on as recommended. They may also be propagated by division just before they begin to make fresh growth, which is usually early in the year. *F. Ross.*

PLANT NOTES.

SENECIO MACROGLOSSUS.

This beautiful climbing plant was figured in the *Gardeners' Chronicle* for June 12, 1875, p. 749, and also in the *Botanical Magazine*, t. 6149. The suggestive name of Cape Ivy has been given to it, the habit and foliage bearing a great resemblance to some of the Ivies now in cultivation. To succeed with this plant it should be planted out if in a border, plenty of brick rubble should be mixed with the soil to make it of a porous nature, raising the soil a little above the ordinary level of the border where it is to be planted, as by so doing it is not so likely to damp-off at the base. The flowers are of a pleasing soft yellow freely produced from the ends of the branches, and bear some resemblance to those of Chrysanthemum Etoile d'Or. One need hardly mention that the position should be light and airy, and to see it in its glory it should be allowed to grow in a somewhat free and natural manner, that is as far as space and convenience will allow. The flowers and foliage when cut, last a long while in perfection, which, together with the fact that it flowers at this time of the year, makes it a very desirable plant for the cool house or conservatory. Cuttings of a good length should be inserted into a porous compost and stood in a light warm corner of an intermediate-house. To show what can be done in the way of large cuttings, a plant some time ago was noticed to be in hardly so fresh a condition as it ought, and upon examining the stem it was found to be completely severed at the base: the position being too damp had caused its decay. A mound of some brick-rubble and stones was made about the stem, and after a short time the plant began to grow, and resumed its fresh appearance. It was a plant of 3 or 4 yards height, bearing numerous branches. *W. Harrow.*

Azalea Deutsche Perle.

This is perhaps the most valuable of all the Azaleas, and cannot be too widely known to either trade growers or gardeners, the first-named of whom generally get hold of most good things pretty soon after they appear, as they are always on the look-out for what is likely to attract notice and sell, and blooms of Azalea Deutsche Perle do this, as they are almost equal to a Gardenia in appearance, for the flowers are nearly as full, and pure in the petals. These, too, are of good substance, and therefore the blooms stand well when cut, and are first-class for working up in bouquets. In habit the plants are very free, and make fine growth, and require but little forcing to get them into flower early, especially after they have once been in heat, as then they come on almost naturally, and may be induced to open any time in the winter. The old Fielder's White used to be the favourite, but that is hardly to be met with now: and Narcissiflora is quite eclipsed by the one under notice.

Azalea Pauline Mardner.

This makes a fine companion plant to Deutsche Perle, and is equally amenable to forcing, as it is naturally an early blooming variety, and being of a rose colour, forms a pleasing contrast to the pure white of the other. The flowers, like those of Deutsche Perle, are semi-double, and therefore last much longer than do those that are single, as the latter quickly fade and fall, especially when cut and are used in that way. *J. S.*

THE BULB GARDEN.

NARCISSUS CYCLAMINEUS.

I think this is going to be the earliest of all our Narcissi. In the open border I have it with strong buds on stems quite 2 inches long. At present N. minimus is scarcely above ground, but may perhaps develope the flower more rapidly later on. *Jay Aye, January* 15.

Crocus Imperati albus.

In 1886 a lady very kindly gave me two bulbs of this rare variety. These were planted in two favourable positions, but as yet I have had no blooms, and from present appearances I shall not get any this season, although one of the little clumps has thrown up five sheaths of leaves. Do any of your readers find this more delicate than the type? With me this grows and flowers very freely. *Jay Aye.*

CULTURAL MEMORANDA.

SERICOGRAPHIS GHIESBREGHTIANA.

Of the many stove plants, few, if any, equal this for general usefulness during the winter months, as not only is it exceedingly floriferous and bright in its scarlet Justicia-like flowers, but it lasts a long time in perfection, and will stand without suffering in any warm greenhouse. What I would convey by "warm greenhouse" is one ranging from 50°—55°, which degree of heat suits this Sericographis better, when in bloom, than a higher temperature, as in it the blooms are more enduring, and come brighter and deeper in colour. We like to have plants of it here in two stages—that is, one-year old, and two year old, and the way we manage is to propagate annually half the stock we want, and throw away the two-year old, after the plants have done flowering, at which time those kept are cut back to the last joint. They are then stood on a shelf, and remain without water, or only just sufficient to maintain the soil in a semi-dry condition till the plants break, when they are at once shaken out and repotted. This is done in peat and loam, or leaf-soil and the latter, with a dash of sand to keep the whole porous. The sized pots we use are 32's and 24's, but mostly the first-named, as they are generally large enough for even the strongest plants, and we never shift again after the first potting is over.

For propagating, we use the tips of the shoots which we take off at the time of cutting back, as of course they are earlier, and not only so, but they are stronger and always much shorter-jointed and firmer than any that can be had when they break. The cuttings referred to are put in in the ordinary way, after which they are placed in a close propagating-box in the stove, where they quickly root, when they are at once potted off singly in 60-sized pots, or stood up near the glass, where they can be shaded till they get a fresh start. As soon as this takes place the points of each are nipped out, and when they break again they are shifted into 32's, and kept well up to the light to ensure short-jointed growth. By the end of May or early in June, or as soon as we are clear of bedding stuff, the whole lot go into a pit or frame, where they have plenty of air during the

day by tilting the lights, and are closed after being looked over and watered, if necessary, and syringed at 3 or 4 o'clock in the afternoon. This cool treatment, and full and free exposure to light and sun, solidifies the young shoots, and makes them bloom very freely, and by the end of October the plants are moved into a warm house and there kept till they come into flower. The only insect pests that appear to affect the Sericographis are greenfly, which should at once be got rid of, when it appears, by fumigating, or the tips of the plants will be crippled and spoiled. *J. S.*

Anemone coronaria.

These seem quite unmindful of winter, as for weeks past some few flowers have made their appearance, and many buds are fast pushing up, which will soon be open if we get sun and a few warm days, under which influence they quickly expand, and as quickly close again when s lar light is withdrawn from them. In rooms, however, they keep open, and they are of great value for cutting, as they are of such rich and varied shades of colour and remarkably showy in vases. The best way to treat the Anemone coronaria is to sow seed annually, as young plants are far preferable to old ones, and if raised early they bloom freely the following winter and spring. To get them strong seed should be sown in pans or boxes at once in light rich soil, and slightly covered, when if placed in heat the plants will soon be up, and directly they are sufficiently large ought to be pricked out in a frame, where they can be kept a little warm till May, when they should be planted out on some sunny border after it has been prepared by being dug and having leaf-mould or mild rotten manure worked in. *J. S.*

Gardenias in Pots.

Plants on which the flower-buds are swelling should have a minimum temperature of 65°, with an increase of 5° or 15° by daytime. The plants should be well syringed overhead at closing time on bright days (about 1 o'clock in the afternoon), and be watered at the roots alternately with warm liquid-manure and clear water. An occasional sprinkling of artificial manure on the surface of the soil will also greatly tend to the production of fine flowers.

The Fuchsia.

As soon as cuttings can be taken they should be inserted in 3-inch pots filled with light mould and surfaced with sand, watered through a fine rose, and placed in bottom-heat. When rooted, the little plants should be shifted into small pots, and grown on near the roof, shifting them into 32 and 24-sized pots in due time. Keep them moist at the roots, the foliage clean, and the flowers persistently picked off until three weeks or a month before the time the plants are required to be in flower. They will then make nice furnishing subjects by the middle of August next. Of course frequent supplies of weak liquid-manure should be given at the roots, after the latter have pushed into the soil after each succeeding shift.

The Tuberose.

There should be no delay in potting a couple of dozen bulbs, more or less, according to circumstances, continuing to pot a like number at intervals of a fortnight or three weeks until the middle or end of June. The Pearl, being dwarfer than other varieties, and producing equally fine flower-spikes, is one of the best varieties to grow. Before potting them, the little bulblets must be rubbed off the bulb, and the old roots cut clean away. In potting the bulbs 3-inch pots should be employed, and light sandy loam, the apex of the bulbs being a little above the soil, which should be moderately firm. Plunge the pots in sawdust in a box about 5 inches deep, and place it over the hot-water pipes in a forcing-house; and be careful in the application of water, which should be tepid, until the plants have pushed into growth—and, indeed, during the whole growing period of the plants. Every offset springing from the bulbs should be rubbed off as soon as it appears, the centre stem alone being retained, otherwise failure will be the result. When the flower-stem has reached a height of 6 or 8 inches, the plants should be shifted into 6-inch pots. The plants must be syringed overhead, and kept moist at the roots without being wet, so that a healthy growth is promoted, and the inroad of red-spider—an insect to which the Tuberose is very subject—be warded off. Frequent waterings with warm liquid-manure, and an occasional top-dressing with Beeson's manure, will assist the production of large spikes of flower. *H. W. W.*

A SIMPLE TREE-MEASURER.

To correctly ascertain the altitude of large trees, Mr. S. E. Peal, in the *Indian Forester*, describes a small instrument (fig. 20) which he uses for that purpose:—A is a small Bamboo tube with the upper side cut away, and attached by two small pins to another smaller one, C, at the joint B, so that the tube C can fold down into tube A. D is a non-elastic string knotted outside, as per sketch, and when open these tubes are at an angle of 45°. To measure a tree, peg the ring of a measuring-tape in the stem at 3 to 4 feet up, and holding the tape and measurer in the left hand, or with both, step slowly back, holding A level, and when, looking through

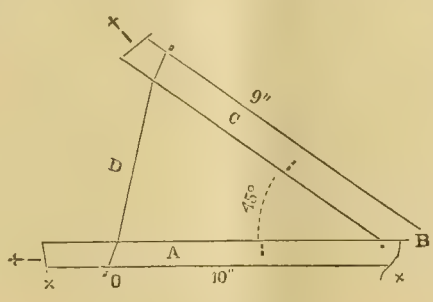


Fig. 20.—TREE-MEASURER.

both tubes, the upper one is found to be in line with the place to be measured; the tape then measures the exact height to that point.

HOW WE RID OUR VINES OF MEALY-BUG.

With the exception of Phylloxera this is the worst pests the Grape grower has to contend with. When I took charge of these gardens I found two vineries very badly infested, and the Vines were also in very bad condition, and most of the bunches of Grapes were full of the bug. I had been told it was impossible to clear Vines of bug, but I determined to try what could be done with those in one house. A few of the bunches were not affected, and by tying pieces of wadding round the stalks of these the fruit was kept clear until it was ripe. When the fruit had been consumed the laterals were shortened back, and the spurs, which were only 9 inches apart on each side of the rods, were thinned out to about 18 inches apart; the Vines were then heavily syringed with warm water in which 1 oz. of soft-soap and one tablespoonful of paraffin per gallon was mixed, taking care to keep it well stirred. This operation was repeated several times until the leaves had fallen, and it reduced the numbers of the insects considerably. As soon as possible after the fall of the leaf the Vines were pruned, the loose bark pulled off, and the crevices and spurs scraped with a knife; the glass, woodwork, and iron trellis thoroughly washed with hot water and soft-soap, and the wood and iron painted all over with paraffin. Finally the houses were filled with fumes of sulphur, and the walls were scraped and then dressed with hot lime-wash in which some sulphur and carbolic acid had been mixed. The top soil was taken off the border to a depth of 3 inches, the Vines were scrubbed with hot water and soft-soap at the rate of 9 oz. to the gallon, and were then painted over with a mixture of gas-tar and stiff blue clay, the latter being dried and rubbed into a powder before being well mixed with the tar, the whole forming a stiff paste, with which the Vines were coated all over, care being taken not to injure the buds. Some fresh loam was put on the border, and we thought that the last of the mealy-bugs was killed; meanwhile steps were taken to assist the roots by renewing the outside border which had got into a very bad state. The Vines having started gently on January 5, all went well, and no traces of bug were found: but as the sap began to rise the coating of clay and tar expanded, and on examining the Vines, just as the buds were breaking, three or four young bugs were discovered—a proof that not as yet were all killed. As a last resource a gallon of boiling water was procured, and into which were put five wineglasses full of paraffin, five of carbolic acid, and half a pound of soft soap; this was carefully applied all over the rods, with the exception of the growing buds, and decided the fight in our favour, as we have not had any bug on the Vines since that time. This last application may appear to be too strong to be safely applied generally, and I have no doubt it would have injured the Vines had they not have been partially protected by the previous application of clay and tar, which formed a hard coating all over them. *W. H. Divers, Ketton Hall, Stamford.*

TRADE MEMORANDUM.

The Seed Trade and the Merchandise Marks Act.—The following extracts from a letter in a Scottish journal have been forwarded to us for publication, in the hope that those concerned will be on the watch for any infringement of the Act:—

"It has in these latter days become necessary to pass the 'Merchandise Marks Act, 1887.' It is called 'An Act to Consolidate and Amend the Law relating to Fraudulent Marks on Merchandise (August 23, 1887).'

"Section 2, clause 1 (*d*) says:—'Every person who applies any false trade description to goods shall, subject to the provisions of this Act, and unless he proves that he acted without intent to defraud, be guilty of an offence against this Act.'

"Clause 2.—'Every person who sells, or exposes for, or has in his possession for sale, or any purpose of trade or manufacture, any goods or things to which any forged trade mark or false trade description is applied, or to which any trade mark so nearly resembling a trade mark as to be calculated to deceive, is falsely applied, as the case may be shall, unless he proves'—(here follows the extenuating circumstances, such as having no reason to suspect, &c.)—'shall be guilty of an offence against this Act.'

"Clause 3.—'Every person guilty of an offence against this Act shall be liable (*i*) on conviction or indictment to imprisonment, with or without hard labour, for a term not exceeding two years, or to fine, or to both imprisonment and fine,' &c.

"It is with the view of bringing it before the public that I have thus troubled you, and with the view of appealing to the retail members of the seed trade to be on their guard against, and on the outlook for, any infringement of this Act. Infringements, I fear, often happen. This is a year, however, in which such infringements can be easily detected.

"It is well known that, of all the red Clovers, the English-saved seed is, as a rule, the best, and commands the highest price. But besides being grown in England, red is saved in several of the Continental countries, and in America. The seed of these, however, commands a relatively lower figure, and a standing temptation naturally exists for wholesale houses to send out the foreign, either by itself or mixed with English, as pure-grown English seed. This year the crop of English saved Clover is almost

nil. We shall have to fall back on yearling seed if we want English. From a recent report of a large London wholesale house, I notice that they had only received an offer of 2 cwt. of new English seed up to the time of the issuing of the report. Notwithstanding this, I have within the last two weeks come across many samples of new seed sent out from England, offered as English, but which lacked the character of genuine English.

"It will be well, therefore, for the trade to be on its guard, and where unmistakeable evidence exists as to wrong description, let it bring the Merchandise Act into operation. To allow or blink at infringements of this kind is to do an injustice to the trade in general, and through the trade to the farmers, who have to rely on the respectability and word of their merchant.

"A Seed and Nursery Trade Association exists for the purpose of looking after the trade's interest, but beyond meeting once a year and drinking to the brotherhood of mankind it seems to do very little good, if we except perhaps its recent action in calling the attention of the trade to the 'non-warranty clause.'

"At the general meeting last, I called attention to the infringement of the Merchandise Act in the case of Italian Rye-grass—where the French-saved Italian seed, which is such a favourite with hay growers, was often mixed with Irish-saved seed. It is difficult to bring home a case of this kind, but this year there should be no difficulty, and I am confident the evidence will not be difficult to secure. I trust the trade will take up this matter, and by acting on Mr. Goschen's principles of 'courage and cleanhandedness' put an end to all infringements, so far as seed is concerned, of the 'Merchandise Act, 1887.'

"I am, &c., "James Elder."

Plants and Their Culture.

Ferns.—Many will shortly be pushing up new fronds, and should now be repotted if necessary; but before commencing this, if any of the plants be infested with thrips they may be fumigated if they have been kept rather dry, and if young fronds have not been made. But dipping into tobacco-water will be advisable if the plants are badly affected. The plants should be thoroughly dipped. Scale should be removed by a brush, followed by sponging. Mealy-bug should also be destroyed. If present it should be entirely got rid of by syringing and sponging to prevent it reaching the new growth. We use Bentley's insecticide for this purpose, and find it very reliable. The potting materials for the general collection of Ferns should consist of three-parts good fibrous peat and one part of good yellow loam that has been under cover for a time, adding a liberal quantity of coarse clean sand and broken charcoal. The stock of the useful cutting varieties may require to be increased, and this may now be undertaken. Adiantum cuneatum, when used for decorative purposes, will be better if divided, and make stronger growths in small pots. Pteris serrulata should be grown in the same way. If required, Davallias may also be increased by dividing and pegging down before the plants have made new growth. Gymnogrammas which require a shift should be repotted placed in the warmest part of the house and kept free from damp. Pot firmly and use no loam, and never syringe them. It is a good plan to have a few seedlings each year to take the place of the older plants, which are very liable to die off if perchance overpotted or watered indiscriminately. Gleichenias should have been rearranged now. In potting use more drainage for these, and put them in pans or shallow pots, and peg down at intervals to assist the rhizomes to root freely. They should be at the coolest end of the house. Tree Ferns, if they require it, should be repotted now, before the new fronds are much developed, and the house kept rather close for a time. The stems may be kept moist, to encourage vigorous growth. Great care should be taken in watering after the plants are repotted until the pots are filled with roots, when water may be given freely. The Selaginellas and similar subjects should be examined, made up, and also propagated.

Bouvardias.—Plants which bloomed through the autumn and early winter, and have been cut back for supplying cuttings for early plants, should now be propagated from. The cuttings, which should be taken when about 2 to 3 inches in length, should be inserted in small pots, plunged in a mild bottom-heat, and kept close. B. President Cleveland has proved to be a most useful variety; its brilliant colour and free growing qualities will make it a general favourite.

Chrysanthemums.—Cuttings of these should now be taken for the supply of plants for conservatory decoration. Carnation cuttings should now be taken from the plants in the greenhouse, to provide an early supply of bloom in the autumn. Where there is a deficiency in the stock of Pelargoniums a few of the strongest shoots on the old plants should be taken off with a heel and inserted singly in thumb-pots placed in a little bottom-heat. They will soon strike, and form useful plants for late summer work. *G. Wythes, Syon House Gardens, Brentford.*

The Orchid Houses.

In towns, and especially in the neighbourhood of London, the fogs leave a thick incrustation on the glass, giving it the appearance of slate in some places, and even in the country the glass gets dimmed in winter—in such case no time should be lost in getting it washed, and where practicable the insides of the glass should also be cleaned. When this is inconvenient the inside of a house should be cleaned in parts as opportunity offers. Where the water from the roof runs into the water-tanks no fear need be felt that the water used in washing off the deposit on the glass will be injurious if allowed to run into these. It soon settles, and will do more good than harm after the water clears. Until clear, care should be taken that the water be not used, or if used, that the foliage is not wetted, otherwise the latter will be rendered dirty. The only thing which can be said in palliation of the havoc which fogs commit on the Orchid flowers is, that they do not injure the health of the plants. I have heard of Masdevallia tovarensis and a few other things having lost their leaves through the fogs, but I think it took place from some other cause, possibly irregular temperature. They do hasten off the old leaves of Lycastes and a few other things whose time to fall, has come, but this does not injure the plants. *James O'Brien.*

The Flower Garden.

Planting, Alteration, &c.—Where extra work in the way of alteration, transplanting, &c., is on hand, and for which the weather continues to be favourable, all who are anxious to keep abreast of their work at all times should carry on such work with diligence, and so avoid difficulty in the future. One of the most desirable traits in a gardener is the ability of forecasting his work, so as to arrange accordingly, supposing that the labour employed is sufficient. All ground-work and draining would be better if completed within the next fortnight or be deferred to the autumn, for the obvious reason that turf or gravel which may have to be disturbed will have time to get hold of the soil in one case before the drying winds of March set in, and in the other settle down after being put in order and rolled whilst in a moist state. The making of new walks or the repairing of old ones has fallen to my lot every winter for many years past, and I have several times remarked the difference in firmness to the tread than there is in walks (with the same material) made in winter, and those which other work or stress of weather have hindered being done till spring. It is the same even with walks that are only pointed up—such pointing I always strive to get completed in the early part of the winter—and the frequent rolling necessary after sharp frost ensure firmness; and another advantage is that of added brightness, which lasts all through the winter. The cutting of turf edgings is usually deferred till the sharp frosts are over, for when done before that time the frost causes the exposed parts to crumble, and the work has to be repeated in the spring. If these are cut during a dry period there need be no concern as to the parings discolouring the gravel if done with care. The planting of all kinds of trees and shrubs should now be finished, or at least as soon as circumstances will allow. I say all advisedly, because it is usual to make exceptions. Hollies, for instance, are supposed not to live, or, at any rate, fail to thrive if moved before May. That best of all teachers, practical experience, enables me to say that such a notion is fallacious. They may be planted now with the greatest confidence of success (if large balls of earth are moved with them), as may all other description of shrubs and trees, evergreen and deciduous.

Roses.—Though Roses may be planted with a fair prospect of success as late as April, they will do infinitely better if planted now. I have planted them at all seasons between end of October and April, and the results obtained would, by preference, cause me now to select mid-November as the best time. At that season in each alternate year all the Roses that we grow in the open are lifted, and after well manuring and trenching the ground they are replanted. Some may consider that such extreme measures in respect of applying manure to be unnecessary; and to some extent this is true, as they do quite well if the manure be forked in—but far better when they are entirely lifted; besides, the removal of suckers and the shortening back of long fibreless roots can then be more effectually done. There are other advantages connected with November planting, viz., that the spaces between the plants can be filled in with Tulips, Hyacinths, Narcissus, Anemones, Ranunculuses, and other spring flowers. This, in fact, has been our way of growing spring flowers for years. Roses on walls and trellises which it may be desired to have in flower early should now be pruned, and the main shoots secured by tying or nailing, but only the main shoots; the younger shoots, and especially the new growths, look best, and, indeed, are best, when allowed to ramble somewhat at will; but, of course, early in the season due regard must be had to their extending beyond the limits of the protection from frost and cutting winds that walls afford. The shelter the walls afford the plants acts in a contrary direction in respect of the roots, by keeping off rain, and even in winter I have known such borders to be far too dry. If any are found to be in this state, give water to saturation point, but first apply a rich mulching of manure, and any further attention will not be needed for many weeks to come.

Herbaceous Perennials.—The majority of these plants are now starting into growth, and their transplantation cannot be longer deferred without injurious consequences. The revision of the arrangements and the division of the large clumps have been completed in this garden for some weeks, and the borders are now being finally forked over, this not being possible sooner without running the risk of injuring bulbs that are only now visible. Small clumps of the following will shortly be planted in the more open spaces, viz., Lilium auratum, Gladiolus, Anemones, Hyacinthus candicans, Pansies, Carnations, Pinks, Canterbury Bells, and Wallflowers. *W. Wildsmith, Heckfield, Winchfield.*

The Hardy Fruit Garden.

Old Pears.—If old Pear trees do not in favourable seasons bring in a fair crop of fruit, I would advise their immediate rooting up, putting strong healthy young trees in their places. For covering walls quickly, for fruiting early and well, I would recommend the planting of cordons, either upright or oblique trained. If the walls are of great height single cordons are the most preferable, and these should be planted at 18 inches to 20 inches apart. Previous to planting, the border (5 feet wide) should be thoroughly trenched; and in order to achieve real success it is essential to replace with a sweet loam, in which fruit trees have never been grown, much of the old soil where trees are to be planted, and if a good dressing of half-inch bones and lime-rubble can be added it will tell favourably on the welfare of the trees for many years. Perfect drainage should be secured, and in preparing the stations for planting the soil should be made firm; and probably the best course to take is to open out a shallow trench on the piece to be planted about the width of the stretch of the roots, trampling the bottom firmly for the roots to rest on. This having been done, planting is quickly accomplished. It is of the utmost importance that the roots be in a moist condition when planted, and should they have become dry in transit, soak them in a tub of water for an hour or so before planting them. In planting, spread the roots out evenly over the border, and sprinkle among them some fine soil; give the trees a gentle shake, and cover up firmly, which completes the work for the present. It may, however, be as well to state that all trees planted late

in the season, and especially on light soil, should be mulched at once. A few good varieties to plant in this country, except in very cold situations, are Marie Louise, Doyenné du Comice, Winter Nelis, Glou Morceau, Emile d'Heyst, Beurré Superfin, Pitmaston Duchess, Triomphe de Vienne, Madame Treyve, Clapp's Favourite, Josephine de Malines, Fondante d'Automne, Williams' Bon Chrétien, and Durondeau.

Raspberries.—There is still time to make new plantations, and if plenty of strong suckers are at command, plant in clumps of threes at 6 inches apart in the clump on deep trenched soil with plenty of sweet decayed manure added. As the Raspberry roots principally near the surface, it is not essential to bring to the top the bottom spit if the soil be of a poor description, but it should be thoroughly broken up and have a thick layer of dung placed on it. The distance between the stools depends entirely upon the way they are to be trained. Market growers seldom use any stakes but shorten the canes, and when the fruit gets heavy the bearing-rods fall outwards and clear of the young canes for next year's fruiting. Three feet from stool to stool and 5 feet between the rows is generally the distance allowed. Planting at 2 feet apart and training the canes fan-shape to trellises, allowing a distance of 5 to 6 feet between each row, is a good plan, and one very much practiced, as also tying the canes in arching fashion. But in whatever way the training is done the centre should be kept open for the benefit of the young ones which are to fruit the following season. All fresh planted canes are best cut down to within 4 inches of the ground-level, when a much stronger growth will result, and they will fruit well the next year.

Fruiting stools, if not already done, should (assuming the old fruiting canes were removed as soon as the fruit was gathered, and thinned to about six good canes) have the top soil scraped away from about them, replacing it with fresh soil and sweet decayed manure; mulch heavily with rich manure. The alleys should be very lightly forked over to bury weeds, &c. The tops may now be shortened to the required height. Autumn fruiting kinds may be cut down to within a few inches of the ground-level. If strong manure-water be supplied to the roots at this season of the year, especially on poor soils, it will prove very beneficial to them hereafter. *H. Markham, Mereworth Castle Kent.*

Fruits Under Glass.

Peaches.—The fruit in the early house will now be set, and in thinning it is prudent at this season to take only those fruit which are badly placed and much crowded, leaving many more than are sufficient for a crop. Attend to disbudding and pinching the shoots, not doing too much at one time, and being careful to leave a shoot at the base and point of each bearing shoot. In pinching shoots, leave two or three leaves to assist the growth of the fruit. Give the trees a rather heavy syringing to dislodge the remains of flowers, and continue the syringing on fine mornings and afternoons, shutting up early with sun-heat; and in dull or foggy weather, when there is no chance of the trees drying before evening, be content with damping the paths and beds in the afternoon, for when the trees are kept constantly wet I find the leaves get injured round the edges, and have a starved yellow appearance. Look well after greenfly, and do not let the insects obtain a foothold. At this stage from 50°--55° is high enough as a night temperature, with a rise of 10° by day if the weather be bright. If the trees are young and vigorous clear water may be given when the soil appears to require it; but old trees, on the contrary, should be watered with some kind of weak manure-water.

The Second House.—The trees here will now be in full bloom, and the setting should be aided by careful ventilation on fine days, also by tapping the branches and going over the trees two or three times daily with a camel's-hair pencil when the sun shines. The temperature may for the present be 50° and a few degrees less on very cold nights, and 55° by day and 60° with sun-heat and ventilation. Thin out the blooms where very thickly placed, but according to my experience this will not be common, the bloom on all Peach trees being rather sparse. The later house may now be started, syringing the trees twice a day with tepid water, and keeping a night temperature of 45°—50° and 55° by day. In the latest houses all work should be already done, and the trees kept as cool as possible. If any are to be pruned these should be taken in hand at once. There is nothing to gain by leaving fruiting shoots nearer together than 3 inches. If the trees are old ones water the border with some kind of manure, or strew Beeson's manure about on the soil and water it in, top-dressing with loam and manure. Any planting remaining unperformed should be finished without delay, and outside borders protected with leaves and straw.

Melons.—Any of these which were sown early for fruiting in the first week in May must be planted this month, and, if it be not done, cleanse the inside of the house thoroughly, take the drainage up, and sift out any foreign material, and relay it, covering with a little stable litter, to keep out fine soil; then fill in with compost, making a row of hillocks along the centre of the bed about a foot wide at the top. The loam employed should be heavy rather than light, and a little decayed manure may be added—press firmly together, and when thoroughly warmed through the plants may be put out at from 18 inches to 2 feet apart, pressing the soil firmly against the roots without disturbing them. Place a stick to train to until they reach the trellis, and do not stop them until within a foot of the top. Maintain a temperature of 70° by night and 80° by day, giving a little air on very fine sunny days, closing up early, and damping the walls and paths. Where a supply is required daily from May till October do not plant out too many of any one succession at a time, but sow seeds fortnightly—a few in 4-inch pots, and discard the weaker ones. Hero of Lockinge and La Favourite are very superior fruits, and, moreover, the latter will keep for three weeks in the fruit-room after being cut. At this season Melons may be planted out in frames on hillocks of soil which has got warm, planting two plants on each hillock, stopping them at the second leaf; after they make two shoots these must be again stopped, which will cause each plant to make four growths, train these at equal distances in lines to the back and front of the frame, stopping them when about a foot or so from the outside; any small weak shoots starting from the main stem or within a foot of it on the side shoots should be kept rubbed off. It should be borne in mind that it is important to keep the stem clear and dry, to prevent canker. In these days of hot-water heating early forcing by dung beds is not so much required, but I can remember the time when an old master of mine cut the Cantaloupe Melon on April 15, and the Telegraph Cucumber on March 15 for ten years in succession, with no other heat than that derived from leaves, and this was considered good practice thirty years ago.

Figs in pots plunged as advised last month should have a bottom-heat of 80°, with a night temperature of 55°, and now be making growth. Rub off all superfluous shoots, just leaving sufficient to furnish the plants. Syringe the entire house three or four times a day. Make all the use possible of sun-heat, closing up early. The main house should be started at a temperature of 50°.

Tomatos in bearing should have a night temperature of 50°—55°, and to 65° by day with air. Lightly syringe the paths and walls on fine days; with the increasing sun and daylight these plants will now make more progress, and constant attention to thinning the shoots and leaves will be necessary. Give a smoking now and then to destroy white-fly. If planted out in a small border a top-dressing of loam with a little rubble will keep them in good condition. Vick's Criterion and Hathaway's Excelsior I find to be two of the best varieties for bearing right through the autumn and winter months; they are also of the size and shape preferred by the cook. *W. Bennett, Rangemore, Staffordshire.*

The Kitchen Garden.

Mushrooms.—Beds which have been in bearing for some time, and are showing signs of weakness, may be re-invigorated by a watering with weak dung-water at a temperature of 85°, in which a handful of salt has been dissolved. Strew a little hay or straw loosely over the surface of the bed after watering, to prevent the chilling of the bed. Spawn successional beds when the temperature has fallen to 85°, and a day or two afterwards, if the temperarature shows no disposition to rise, the bed should be soiled over. The material for this should be good loam from an old pasture field, if possible, moderately dry, and of the same temperature as the atmosphere of the house. A thickness of 2 to 2½ inches should be laid evenly over the surface, and well beaten down with the back of a spade. Prepare fresh material for new beds, and in doing so it is not necessary to remove all the litter from it. When it is very littery it will require more frequent turnings to get rid of the rank heat. Mushrooms of good quality can, however, be produced from a mixture of stable litter and leaves. To secure firm fleshy Mushrooms the atmospheric temperature should be maintained at 50° to 55°; the latter figure not being exceeded.

Asparagus.—Put in a quantity of roots of Asparagus to force every two or three weeks, to keep up a constant succession. The plants should not be less than three years transplanted. The finest forced Asparagus I remember having seen was lifted in masses which it took two men to handle. In lifting, secure as large a ball of soil to each plant as possible, as the smaller the check the better will be the results. Set the plants as closely together as they will stand, and fill up all the vacancies between the roots with leaf-mould, into which these will speedily root. Admit air as soon as the crown commences to push.

Various.—Place the requisite quantities of Rhubarb (Victoria will be the best now), Seakale, Whitloof, Endive, to force and blanch, so that there may be no break in the supply. Sow Mustard and Cress twice a week, and seed for young Onions in boxes. Place a sufficient quantity of Sorrel, Tarragon, and Mint in heat. When frost has entered frames containing salads do not remove the coverings until the plants have thawed naturally. Look over all stores, and remove roots as soon as they show symptoms of decay.

Potatos.—Give air regularly to Potatos in frames in mild weather to prevent spindly growth; earth-up forward crops and raise the frames to a higher level as occasion requires, but keep the tops just clear of the glass. To keep the temperature from falling too low and as a security against night frosts cover with straw or mats. Early Potatos may now be planted on a warm sheltered border under some kind of protection. A description of protector in use here is 8 feet by 3 feet, span-roofed, 12 inches high at the sides and 20 inches to the apex. The glass slides into a grove at the top and is held in place at the bottom by a button. They are, however, better when the panes are fixed and the sashes hinged at the top, as then the glass would not get blown out, which occurs sometimes, and ventilation would be much simplified. Three rows of plants can be grown under each protector, and during frost it is an easy matter to cover them with straw or dry Bracken.

Seeds.—Early Milan Turnips, Early French Horn Carrots, Radishes, and Lettuces may also be sown under these frost protectors. Preserve the refuse soil from the potting-shed for covering all small and early sown seeds, keeping it under cover. Put sticks to Peas, and to those that were autumn-sown the soil should be drawn up to within an inch of the tops of the plants, placing a few short twiggy sticks on the side on which the cold winds strike them. I think there is little gained by sowing Peas in the autumn, and have now given it up and adopted the following system:—About the beginning of February prepare a light hotbed, whose heat must not exceed 75°, then cover the whole surface of the bed with strips of turf 4 inches wide and 12 inches long, and in these strips scoop out with a round-mouthed trowel a groove to hold the seed, the turves being of uniform size can be laid evenly in rows. In the little drill thus made sow seeds of the following varieties:—Veitch's Earliest of All, Dickson's First and Best, Sutton's Emerald Gem — the earliest Pea I have tried, excepting American Wonder, which is so dwarf that it can be accommodated at the foot of a south wall. American Wonder should also be sown on turves. When the seed is sown cover with 2 inches of leaf-mould and wood-ashes, place a mat over the glass until the Peas germinate, but be careful to allow all steam to escape by slightly tilting a light at the back of the frame. As soon as the plants appear remove the covering and ventilate the frame freely; and when about 2 inches of growth has been made the plants should be hardened off to be afterwards planted out on a warm border. A sowing of the same varieties should now be made on a border facing south, covering the seed with fine dry soil from the potting shed. Great care will have to be exercised with regard to the sowing of all early wrinkled Peas this season, and it will be far safer to allow the seeds of the varieties recommended to germinate under glass until the month of April, and especially if the ground be of a heavy nature. *W. M. Baillie, Luton Hoo.*

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THE GARDENERS' CHRONICLE,

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W. RICHARDS, 41, Wellington Street, Strand, W.C.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, FEB. 7—Linnean Society.

SALES.

MONDAY, FEB. 4—Further Portion of Barwins Park Collection of Orchids, at Protheroe & Morris' Rooms (three days). Nursery Stock, at the Park Road Nursery, Norbiton, by Protheroe & Morris.

TUESDAY, FEB. 5—Carnations, Picotees, Fruit Trees, Roses, &c., at the City Auction Rooms, by Protheroe & Morris.

WEDNESDAY, FEB. 6—Roses, Fruit Trees, Bulbs, Shrubs, &c., at Stevens' Rooms.

THURSDAY, FEB. 7—Imported and Established Orchids, Bulbs, &c., at Stevens' Rooms. Lilium auratum (English) and other Lilies, at Protheroe & Morris' Rooms. Nursery Stock, at the Eltham Nursery, Eltham, by Protheroe & Morris (three days).

FRIDAY, FEB. 8—Imported Orchids, from Messrs. Sander & Co. and Messrs. H. Low & Co., at Protheroe & Morris' Rooms.

SATURDAY, FEB. 9—Roses, Fruit Trees, Bulbs, Shrubs, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—39°.3.

Slugs and Snails.

THE words which we have taken as the text for the following remarks are not exactly "sweet words of pleasure" to gardeners of any degree. Indeed, by common consent the creatures are looked upon as the enemies of the human race in general, and of gardeners in particular. Unceasing warfare is waged against them. Watchful diligence is maintained to prevent their onslaught, and a smile of satisfaction steals over the face of the gardener as he watches a thrush battering an unhappy snail against a stone. Nevertheless, these creatures are not all evil. Some, as was recorded last week, act as pollen-distributors. Some serve as a nutritious food to our Continental friends, and only prejudice forbids us availing ourselves of the same resources. Others, such as the shelled slug (Testacella Maugei), in place of being a gardener's enemy, is his friend, because he eats his brothers and his cousins! We greatly fear this propensity is not appreciated as it should be by the gardener, and that Testacella Maugei has to suffer for being a slug; albeit, in some respects, destitute of slug-like propensities. It will, we suspect, excite some surprise, and, perhaps, more incredulity among gardeners who have not followed the general current of natural history since the great impetus given to it by DARWIN, to learn that plants are more or less self-protected from the ravages of slugs and snails by means of defence manufactured by themselves. The more perfect the defence, the better obviously the chance of the survival if not of the fittest, at least of the best protected plant. Without such means of defence the destruction would be even greater than it is. But what of the slug? Mr. STAHL has been lately studying this subject, and some of his statements are so interesting that we may be doing good service by calling attention to them. The original paper is contained in the *Jenaische Zeitschrift fur Naturwissenschaft und Medicin*, 1888, and a brief abstract is published in the *Annales Agronomiques*. Some slugs are omnivorous, others are specialists. Some feed chiefly on Mushrooms and other fungi, and not upon other plants till compelled to do so by stress of famine. Some eat one another habitually, others refrain from cannibalism till they can't help resorting to it. Some live on dead or decaying plants, others only on living tissues. Some of the water-snails feed exclusively on the Confervæ and Algæ, which grow upon water plants, and respect the latter unless obliged to do otherwise. These are the water snails (Limneus, Planorbis) which are serviceable in freshwater aquaria, others — as every grower of Water Lilies knows—are not so particular. The sense of taste is evidently strongly developed in these creatures. Formerly we used to give them credit for being good botanists, as they rarely or never fail to find out some newly-planted treasure, at least in our garden, and to mark their appreciation of it by consuming it, and that on the premises. And, indeed, their power of discrimination often puts the trained eyes of the botanist to shame, as the slugs will detect and—having detected—destroy many a leaf-blade which would escape undetermined by the naturalist.

That poisonous substances should be objectionable to slugs is not remarkable, but then the question arises, what is a poison? What is one creature's poison is food to another. We have had an illustration of this lately in the attacks made on the leaf-stalks, flower-stalks, and flowers of Hellebores. Hellebores are poisonous enough to most things, but it becomes a question whether the poisonous element is present in all parts of the plant; the exemption of the leaves themselves seems to indicate that they at least are well protected, whatever be the case with the other parts we have mentioned. According to Darwinian principles, if these Hellebores are to survive, the protecting poison must be more generally diffused, or an apparatus of spines, prickles, or other means of defence, must be gradually evolved for the same purpose.

Reverting to Mr. STAHL's paper, we may add, that he refers to three classes of chemical substances secreted by the plant, and serving as a defence against slugs and snails.

1. Tannin, a substance very generally diffused in plants—some, such as Rhododendrons, contain relatively large quantities of it. Slices of Carrot steeped in a solution of tannin were not touched by slugs.

2. Binoxalate of Potash.—This acid substance is found largely in such plants as Sorrel, Oxalis, Rhubarb, and Begonias, which owe their pleasant acidulous flavour to it. If, says Mr. STAHL, the acid be removed by appropriate measures from the plants, the slugs will then eat the leaves with avidity, which before they would not touch. Slices of Carrot soaked in a solution of this salt were also untouched by the wary molluscs.

3. Essential oils, such as those of Rue, of Herb Robert (Geranium Robertianum), of Acorus calamus, are repulsive to slugs.

4. Bitter substances, such as those of Gentians and Polygalas, are similarly distasteful.

As to the mechanical means of defence they are more readily comprehensible—hairs, prickles, and spines, are so arranged as to prevent the access of the slug, or to secure its entanglement and prevent its escape. Incrustations of carbonate of lime, as in some Saxifrages, offer a sort of plate armour which must be very effectual indeed. Mr. STAHL tell us that if this be removed the leaves readily become the prey of the gasteropods. The siliceous framework of grasses and Equisetums has a similar protective duty. The "rhaphides" or crystals so common in plants have a like office, but if removed experimentally, as done by Mr. STAHL, the unprotected plants then perish in the jaws, or lingual ribbons rather, of their adversary.

These are only a few illustrations of those curious relations between the animal and vegetable kingdoms, of which so many have been brought to our knowledge since DARWIN turned the light into previously dark corners. The theoretical interpretation of the facts may be open to question, but their practical importance is beyond dispute, and justifies us in calling attention to matters in which the observations of young gardeners and amateurs may be of great service alike to science and its applications.

THE CROWN PRINCE OF AUSTRIA.—The sad event which has caused such consternation in Austria will be felt also in the scientific world. Prince RUDOLPH was a traveller, a sportsman, a naturalist, a linguist,—in fact, a highly educated courteous gentleman, whose loss to his country is most deplorable. The Prince was married to STEPHANIE, daughter of the King of the BELGIANS.

ROYAL HORTICULTURAL SOCIETY. — The annual report and balance-sheet have been issued, and, as we have already intimated, are, under all the circumstances, of a surprisingly satisfactory character, reflecting great credit on the Council who in the short space of one year have accomplished a great deal more than many thought possible. It is to be hoped that the business-like energy which characterised the last year's proceedings may be continued in the present season.

THE LORD MAYOR AND THE FRUITERERS COMPANY.—The Lord MAYOR has intimated that something might be done by the Fruiterers' Company to restore the system of fruit-growing in this country, and he has suggested that if they had not the necessary means they should apply to some of the richer companies for help. He has offered the use of the Mansion House, and promised to throw himself heart and soul into the work if the company were willing to take it up. The Master, on behalf of the court, has accepted the Lord MAYOR's generous offer. The Fruiterers' Company is not blessed with an abundance of riches, and is not likely to excite the envy of reformers. It has nertheless done some good and useful work for the encouragement of fruit-growing, and it will only be acting in accordance with its recent history if it follow up the suggestion of the Lord MAYOR.

EXTRAORDINARY FRAUD ON MR. CHAMBERLAIN.—A remarkable imposture has (says the *Birmingham Daily Mail*) just been unmasked by Mr. JOSEPH CHAMBERLAIN. While Mr. CHAMBERLAIN was on his wedding tour a man called at Highbury and asked permission to inspect the Orchids. He brought letters of introduction from Mr. ERAS-U



IGHTHAM-MOTE, KENT.

WYMAN, a wealthy gentleman living in the United States, whose aquaintance Mr. CHAMBERLAIN had made. The visitor claimed to be Mr. WYMAN's nephew, and his object, he said, in visiting England, was to bring over from his uncle some choice specimens of American Orchids to Mr. CHAMBERLAIN's collection. Mr. AUSTEN CHAMBERLAIN showed the visitor over the conservatories, and after a conversation the visitor remarked that he had lost his purse and would trouble Mr. AUSTEN CHAMBERLAIN for a loan to pay his hotel expenses. The sum asked for was given, and the next day he called again on Mr. AUSTEN CHAMBERLAIN and produced a bill on the firm of DREXEL, MORGAN, & Co., of America, and asked for and obtained an introduction to a Birmingham bank that he might change it. He succeeded in changing it, and he then paid the sum he had borrowed. The bill was returned to the drawer, and nothing has been heard of the Orchids. On leaving Highbury the man went to the Orchid establishment of Messrs. SANDER & Co., at St. Albans, and, passing himself off as Mr. AUSTEN CHAMBERLAIN, obtained Orchids to a large amount. After that he disappeared.

DRIED FRUIT.—An attempt is being made to induce the Government to remit the import duty now raised on this article of commerce.

CYPRIPEDIUM.—There is no present symptom of decadence in the fashion for these singular and interesting plants, which happily have not yet had their history, individuality, and interest squeezed out of them by the enforcement of any standard of properties. M. GODEFROY's new publication, of which we have already spoken, is to be devoted to the illustration and description of this genus. The dedication is so characteristically French but withal so appropriate, that we deem it fitting to copy it *verbatim*:—

"A LA GLOIRE
DE LA MAISON
J. VEITCH AND SONS, DE CHELSEA,
LONDRES.

Dédiér a la maison VEITCH de Chelsea un ouvrage sur les Cypripediées, c'est chercher à acquitter une dette de reconnaissance pour toutes les joies que nous ont causées les introductions qu'ils ont faites et les hybrides qu'ils ont obtenues dans ce beau genre. A. GODEFROY-LEBEUF, Argenteuil le 15 Decembre, 1888." The text, in the elaboration of which M. GODEFROY has been assisted by Mr. N. E. BROWN, of the Kew Herbarium, is in parallel columns—English and French. The original descriptions are cited textually in the language in which they were originally written, and the necessary bibliographical references are given. Then follow a full botanical description, an account of the introduction of the particular plant, and cultural details—the latter furnished by M. GODEFROY, who has had practical experience of the needs of tropical plants alike in their native country and under European cultivation. Woodcut illustrations, showing the botanical details of the flower and of the greatest service for purposes of study and comparison are given. These appear to be carefully and accurately done, but the "process," whatever it be, by which the drawings have been reproduced, is by no means satisfactory, so far as general appearance goes—giving the appearance of coarse lithographs. The coloured plates, however, drawn by Mdlle. KOCH, are truly admirable. There is an all-pervading sense of fidelity to Nature without any attempt at "effect," such as is peculiar to the artist rather than to the plant. The minute details of form and colour are given with a precision yet lightness of touch and with a proper gradation of tint that reminds us of the work of the two BAUERS rather than that of any more modern artist. The species figured in the present part are:—C. Lowianum, C. superbiens, C. philippinense (of which C. Rœbelini is considered a variety), C. Dayanum (to which C. Petri is referred), C. purpuratum, C. Sallieri × (GODEFROY), a cross between C. insigne and C. villosum; C. ciliolare, C. caudatum, including Warscewiczianum and Humboldti. The work may be procured in England from Messrs. JAS. VEITCH & SONS, King's Road, Chelsea.

"O FLORICULTOR."—We have received the first number of a new Portuguese horticultural journal, to be published monthly at 161, Rua de Raiha, Porto. The text is in Portuguese, with the exception of one column "*pour les étrangers*," and containing descriptions of new Roses and Camellias in French.

AMERICAN POMOLOGICAL SOCIETY. — The twenty-second biennial meeting of this important and vigorous Society is announced to be held at Ocala, Florida, on Wednesday, February 10, and to be continued for three days. Ocala is in the centre of the Orange cultivation district.

"NATURAL HISTORY OF THE WEST INDIES."—The British Association, in connection with the Royal Society has instituted a joint committee to take steps to "investigate ascertained deficiencies in the fauna and flora" of these islands, or certain of them A brief report has been printed, together with a valuable appendix, containing a list of the principal publications relating to the natural history of the lesser Antilles, Tobago to Porto Rico inclusive. A few topographical details are given. Dominica is the most promising of all the islands mentioned, only 55,000 acres out of 186,000 being under cultivation, the remainder being mostly covered with virgin forest. A similar state of things occurs in Tobago.

INSECTS.—The authorities of the Cornell University, Ithaca, New York, have established in connection with their Agricultural Department an "Insectary." The object of this novel feature in agricultural education is to afford means for the study of the life-history of insects in their several stages, so as to ascertain their manners and customs, modes of increase, and the like, to discover what insects are injurious and which beneficial to the farmer, and to devise means for preventing the attacks or of palliating the evil results of insect pests. The establishment is under the direction of Professor COMSTOCK. Were such an establishment suggested here the proposal would in all probability be received with ridicule, but it does not appear in that light to our eminently practical cousins.

LINNEAN SOCIETY.—An evening meeting will be held on February 7, at 8 P.M., when the following papers will be read:—"Revision of the Echinoidea," by Professor P. M. DUNCAN, F.R.S.; and "New British Parasitic Acari," by Mr. A. D. MICHAEL, F.L.S.

GLASGOW BOTANIC GARDENS. — A correspondent informs us that these gardens have again been closed to the public, on the expiration of the new year holidays. He states, too, that there appears to be no hope of the permanent opening till the settlement of the annexation scheme, which it is hoped will be effected during the next session of Parliament.

SHOW FIXTURES.—We are informed that the flower shows at the Crystal Palace will take place as follows:—The Spring Exhibition of plants and flowers, March 23; Great Summer Exhibition, May 11; the National Rose Society's exhibition, July 6; the Fruit Exhibition and National Dahlia Show, September 6 and 7; the Autumn Fruit Show, October 10, 11, and 12; and Chrysanthemum Exhibition, November 8 and 9.

INTERNATIONAL HORTICULTURAL EXHIBITION AT MENTZ (MAYENCE).—In April next (from 20—25) will be opened at Mentz a jubilee flower show, to celebrate the existence during half a century of the Horticultural Society of that place (Mainzer Gartenbauverein), when an exhibition of flowers, of ornamental plants, forced vegetables, and other products of gardening will be held. The Society offers 6000 reischsmarks (£300) for premiums, and, besides, many special prizes. These prizes and the money amount are put at the disposition of the Jury, without any special guidance, but who will award the prizes in accordance with their own judgment of the merits of the exhibits. The regulations may be had from the President of the Mainzer Gartenbauverein, and we have a few copies at the disposal of those who may apply to us. The exhibition will be held in the Stadthalle, a splendid and spacious building near the Rhine, very fit for such an exhibition. The programmes contain the usual regulations. The committee of decorations will take care of the plants of foreign exhibitors during the show, but without accepting any responsibility. The show deserves more than usual attention as it promises to be a very good one. It seems that the Gartenbauverein at Mentz has the intention to hold similar shows every five years. The Society is under the protection of the Grand Duke of Hesse and the Rhine, LUDWIG IV. Usually the ladies of Mentz offer very valuable special prizes for the best collection of Roses in flower exhibited at these shows. The late Grand Duchess ALICE formerly accepted the protectorate of the Society. As Roses promise to be a principal feature of the show, it has been decided that during the show the fifth Congress of the German Rosarians will be held. The Society is honoured by the protectorate of Her Majesty the Empress FREDERIC of Germany. It is understood that for the sake of English exhibitors the committee of the Mentz exhibition, if informed in time, will do every thing possible to facilitate the introduction of English plants and garden products to the show, and to obviate any difficulty arising out of the restrictions imposed by the Phylloxera laws.

HORTICULTURE IN CARACCAS. — We, *Garden and Forest*, have already referred to Dr. ERNST's first article, published in the *Gartenflora*, on "Horticulture in Caraccas." It has been followed by a second chapter that contains much interesting information with regard to the plants which flourish in the Venezuelan climate, and those which, upon trial, have been found ill suited to it. The cultivation of useful plants, he tells us, has lagged so far behind that of flowering and ornamental plants, that it is no exaggeration to say, not a single new fruit or vegetable has been introduced into the country during the last fifty years. On the other hand, the prices paid for flowers are enormous, running so high in the case of native Orchids, that their re-importation from England may prove profitable. A specimen of Cattleya Wagneriana, with twelve leaves and eight blossoms, had recently been offered to the author for 45 dols., and he attributes such demands to the fact, that collectors for English firms have given such enormous sums for white-flowering Cattleyas, that the natives in consequence have "lost their heads" to a degree which can only be cured by a persistent abstention from purchase on the part of local customers. That they have by no means lost their cunning is shown by the statement that they treat the common Cattleya Mossiæ with sulphur fumes so as to make it look like C. Reineckiana, bring the plants bearing these blanched blossoms to unsuspecting amateurs in twilight hours, and often receiving high prices for them.

FELLING TREES BY ELECTRICITY.—Hitherto machines for felling trees have been driven by steam-power, but this is sometimes inconvenient, especially in thick woods, and electric power has recently been adopted in the Galician forests. Usually in such machines the trunk is sawn, but in this case it is drilled. When the wood is of a soft nature the drill has a sweeping motion, and cuts into the trunk by means of cutting edges on its sides. The drill is actuated by an electric motor mounted on a carriage, which is brought up close to the tree and shackled to it. The motor is capable of turning round its vertical axis; and the drill is geared to it in such a

manner that it can turn through an arc of a circle and make a sweeping cut into the trunk. The first cut made, the drill is advanced a few inches and another section of the wood removed in the same way until the trunk is half-severed. It is then clamped, to keep the cut from closing, and the operation continued until it would be unsafe to go on. The remainder is finished by a hand-saw or an axe. The current is conveyed to the motor by insulated leads brought through the forest from a generator placed in some convenient site. *Times.*

"THE DAIRY."—We have received the first number of a new weekly journal under this name, an auspicious omen, we hope, and one indicative of improvements and developments in a national industry already large, but which might be much larger. What is there in Denmark and Holland that their supplies should occupy so high a place in our market? There is not much difficulty in replying to that question; the perplexity comes in when we inquire why Ireland has not a larger share in work pre-eminently suited to the conditions of the Emerald Isle.

WHAT ARE LICHENS?—When SCHWENDENER, some twenty years ago, propounded the notion that lichens, such as we see encrusting rocks or covering old Apple trees, were compounds or rather associations of Algæ, represented by the "gonidia," or green globular bodies so conspicuous when a lichen is examined by the microscope, and of fungus moulds, the latter feeding upon the green gonidia, it is no matter of astonishment that so surprising a statement should have been looked at askance and even ridiculed. Even now some of the best lichenologists utterly refuse to sanction what they consider a heresy—for them a lichen is a lichen and not a mixture of parasite and prey. The botanists, who are most strenuous in their opposition have been the systematists who have to deal with the discrimination and orderly arrangement of these plants. Those who uphold the new view are for the most part those more interested in studying the minute anatomical structure and the life-history of the plants in question. They endeavoured to prove their case by showing that the green bodies (gonidia) in the interior of the crust of lichens were, in point of fact, Algæ, belonging to known genera. They extracted the gonidia, and grew them under appropriate conditions, and saw that they did really grow into Algæ. Moreover, in the tissues of the lichen itself the fungous threads and the gonidia are in contact only, and neither produce, nor are developed into, the other. It is unnecessary here to give all the details, or to mention the arguments brought against the theory. Suffice it to say that the biologists felt that if under certain conditions they could, on the *solvitur ambulando* principle, cause a lichen to be produced, their case would be proved. Various observers have succeeded partially in doing this, but we doubt if their success was recognised by the systematists. Lately, however, additional evidence has been adduced by M. BONNIER, who, after taking every precaution to exclude adventitious germs by means familiar to those conversant with the doings of PASTEUR and his colleagues, has so far succeeded as in the words of a committee of the Paris Academy of Sciences, to settle definitely to all appearance the question of the composite character of lichens. M. BONNIER, working partly in Paris, partly in the Pyrenees, has raised several (*plusieurs*) species of lichen from the spore stage to the adult condition; he has traced the successive stages in the formation of the crust (thallus) and the development of the fungous threads both in association with Algæ and with mosses. What the systematists will say to this new and powerful assault upon their position time will show. The balance of evidence, so far as outsiders can judge, is with the new school in this matter.

ACCIDENT TO R. H. MEASURES, ESQ.—We regret to record that an accident similar to that which resulted in the death of his neighbour and fellow orchidist, JOHN SOUTHGATE, befel Mr. R. H. MEASURES, while returning last week with his family in his carriage from the Crystal Palace. From some cause the carriage ran on to the kerb. The coachman jumped off, and the horses bolted down the hill. The carriage came in contact with a tree and was dashed to pieces. Mr. MEASURES was badly crushed. We are happy to say that Mr. MEASURES and the others injured are progressing as well as can be expected.

GARDENERS' ORPHAN FUND.—It is announced that a four days' benefit in aid of this Fund will be given at the Royal Princess's Theatre, Oxford Street, W., from Wednesday, February 6, to Saturday, February 9, inclusive. The representations are *Hamlet*, each evening, at 7.45 P.M., and *The Lady of Lyons*, on Wednesday and Saturday afternoon, at 2.30 P.M. Admission is by ticket (at the usual prices), which may be obtained from the Hon. Sec., Mr. A. F. Barron, Royal Horticultural Society, Chiswick. For the Saturday performance of *Hamlet* seats must be booked beforehand. In order to benefit the Fund tickets must be purchased, as money paid at the theatre doors does not accrue to the Fund.—The usual monthly meeting of the committee took place on January 25, at the Caledonian Hotel, Adelphi, Mr. George Deal presiding, there being a good attendance of members. The minutes of the last meeting having been read, it was reported that the balance at the bank amounted to £391 12*s.* 7*d.* A letter was read from Mr. O. Thomas, stating, that as the committee of gardeners who carried out the entertainment recently given at Chesterfield in aid of the Fund, had been dissolved, the original arrangement of dividing the proceeds into twelve portions, crediting the twelve members with an equal sum each, had better be carried out. Mr. Hughes, Secretary to the Chrysanthemum Exhibition at Birmingham, wrote enclosing the sum of £7 6*s.* 10*d.* taken from thirty collecting-boxes he had placed in different parts of the town; and stating his intention that each should contribute at least 5*s.* per annum. Contributions from local secretaries were announced amounting to £10 9*s.* 10*d.* Mr. W. H. Divers forwarded the sum of £2 7*s.* 8½*d.*, taken during the time the gardens at Ketton Hall were thrown open; Mr. Rose, The Gardens, Lockinge, sent the sum of 5 guineas, the proceeds of a concert at Wantage on behalf of the Fund; Mr. Fulbrook, Streatham Hill, £1 8*s.* 6*d.*; and Mr. Crawford, The Gardens, Coddington Hall, £1 12*s.*, obtained by means of collecting cards. A special donation of 5 guineas was announced from Mrs. A. F. Barron; one of £5 from Mr. Macmillan, the publisher; and the Hon. Secretary reported that the Chairman had increased his annual subscription to £5 5*s.*, and Mr. H. Herbst his by 1 guinea. By way of demonstrating the improving position of the Fund, the Chairman produced a statement prepared by Mr. Barron, showing that during the first six months of the present financial year the sum of £549 3*s.* 6*d.* had been received, in the following form:—Donations, £178 6*s.* 1*d.*; subscriptions, £132 2*s.*; from local secretaries, £122 19*s.* 5*d.*; miscellaneous, including the annual dinner, £101 3*s.*; and interest, 14*s.* 3*d.*; as against £417 in 1887-88; and the expenses in working the Fund had been relatively smaller. This statement was deemed very satisfactory. A letter was read from Mr. R. Lye, The Gardens, Sydmonton Court, Newbury, bringing to the notice of the committee the case of a gardener's orphan for whom it was desired to obtain the benefits of the Fund. An unsolicited offer was reported from Mr. Harris, the manager of the Princess's Theatre, on behalf of Miss Grace Hawthorne, offering performances in aid of the Fund on February 6, 7, 8, and 9, as above noted. It was also reported that Mr. H. B. May, of Edmonton, is organizing a concert in aid of the Fund, and Mr. Ford, of Richmond, a flower-stall for the same purpose. Mr. Hodges, local secretary at Lindfield wrote, asking if the committee would guarantee any loss accruing from an entertainment on behalf of the Fund, but the committee came to the conclusion that the promoters must take all risks. It was announced that the President, Sir JULIAN GOLDSMID, approved of, and would sign the petition to the City companies, praying for a grant to the Fund. A conversation took place in reference to holding another Covent Garden *Fête*, and it was resolved to memorialise the Duke of BEDFORD for permission to hold a second in the Wholesale Flower Market during the coming spring. It was also stated that the Croydon Horticultural Society would hold their annual show on July 3, and organise in connection with it a Rose Fair and Sale of Roses, in aid of the Fund. The usual vote of thanks to the Chairman brought the proceedings to a close.

MR. C. FIDLER'S EMPLOYÉS.—On Tuesday, January 22, the annual *soirée* of this firm was held at Reading. After having dined the *employés* of over nine months' standing each received a percentage on the nett profits of the business—a system which Mr. FIDLER has now carried out for about four years.

TRADE NOTICE.

MR. HENRY ECKFORD, lately Gardener at Boreatton Park, Baschurch, and well known as a raiser of new varieties of culinary and Sweet Peas, has established himself at Wem, Salop, and has entered upon business as a culinary and Sweet Pea merchant.

FLORISTS' FLOWERS.

THE CHINESE PRIMROSE.

FOR purposes of propagation the Chinese Primula, whose history was given in a former article, may be divided into three divisions: the single and semi-double varieties, which may be propagated from seeds or by cuttings, and the quite double forms, which can be propagated by cuttings only. Those who understand the propagation of Hollyhocks from cuttings would not have much difficulty with Primulas, as they require very much the same kind of treatment. What is required is a fine mixture of equal parts loam, leaf-mould, and sharp sand, and this should be used in a moist state. A deep thumb-pot should be prepared for each cutting; these should be well drained, and filled with the prepared soil. The cuttings usually have very short stems, but the longer the stems are the better, as the longest-stemmed cuttings are not so liable to damp off. Plant the cuttings firmly in the centre of the pots, with a little clean sand at the base of each. Were they like Verbena, Fuchsia, or other cuttings of that class, they might be watered at once, or soon after they were planted, but this treatment would probably kill them, and therefore they must not have any water for a considerable period, and to prevent the leaves flagging they should be placed under a close-fitting hand-glass. The glass must be taken off daily for a short period, wiped clean, and replaced. The cuttings must be shaded from bright sunshine. They are the easiest to propagate in the summer, and there need be few failures if the plants are not watered too soon after they are put in. When it is seen that roots have formed on any cutting they should be removed and placed in a more airy position, but no sudden check to their growth must be allowed, and the rooted plants should very speedily be shifted into a larger pot.

The single and semi-double varieties produce seeds so sparingly in some cases that when a really good variety is obtained it should be propagated by means of cuttings as well as seed. The seed may be sown at intervals during the spring and summer months, and the treatment of the young plants as they appear should be similar to that required for cuttings. What is required during the whole period of growth is a compost of loam, leaf-mould, and

decayed manure, having on it a good sprinkling of sharp sand.

The exhibition of these plants at the Royal Horticultural Society's floral meeting in the Drill Hall on January 15 last by Messrs. Cannell & Sons, of Swanley, was very remarkable. This firm grows large quantities for seeding purposes, and their object during recent years has been to obtain strains of high quality in every respect. Since the advent of the Chiswick Red the improvement in the Primula has been much more rapid than it was previously, and Messrs. Cannell were the first to obtain improvement on the colour, and their latest variety, Eclipse, exceeds any seen hitherto, it being of a rich crimson colour. The white varieties are very popular in gardens, and Market White and White Perfection are deservedly favourites. Cannell's Pink and Bridesmaid are also excellent strains of the pink and blush type. The above were exhibited at the Royal Aquarium, in a group of about 200 on January 9 and 10.

Perhaps the highest point of excellence in Primulas was reached in the selection exhibited at the Floral Committee by Messrs. Cannell on the 15th inst. The rosy-blush variety Princess Mary was of excellent form; the flowers of good substance, and the individual pips 2⅜ inches diameter. Swanley Mauve was thought by the committee to be the best of the bluish-lilac coloured varieties and received a First-class Certificate. Her Majesty had flowers 2½ inches across, but they were rather uneven in outline though of a good white. The clear rosy-pink Queen's Favourite was excellent, although the flowers were also uneven, the plant was of neat habit. Punctata carminata elegans, a deep rose-coloured flower distinctly spotted, was also uneven in outline, but of good substance and 2¼ inches across. These varieties with uneven, or wavy margins, are thought by some to be more effective as decorative objects, than those of the more formal type.

From Messrs. Veitch we have received flowers of some of their fine strain of Chinese Primroses. Among them are the following:—

Single Varieties.

White, or nearly so.

The Queen.—A very fine flower, 2 inches across, with a broad, yellowish, obscurely lobed eye, and a deeply undulated flesh-coloured limb. This is a Fern-leaved variety.

"The Queen crossed with the red-stemmed white."—Flowers snow-white, more than 2 inches across; boldly undulate, eye broad, greenish-yellow, six-angled. A flower that, of its kind, may be called magnificent.

"New Hybrid of the Queen," green-stemmed.—Similar to The Queen, but the flowers flatter and less "rough"; eye more distinctly hexagonal.

Veitch's White.—Flowers white, of good substance, nearly 2 inches across; margin undulate, eye broad, yellow, sharply five-angled.

Alba magnifica.—Flowers 1½ inch across, snow-white; eye greenish-yellow, its lobes sometimes rounded, at other times pointed.

Flowers red to crimson.

Chelsea Crimson.—A rich magenta, eye angular, yellow, lobes crenate.

Chelsea Scarlet.—Flowers flat, rich, reddish-crimson, nearly 2 inches across; eye relatively small, yellow, five-angled.

Flowers rosy-lilac to carmine.

Chelsea Carmine.—Flowers 1¾ inch across, rosy-violet, with a yellow eye; margin undulate. A richly coloured variety.

Veitch's Red.—Flowers more than 1½ inch, crimson, deeper than in Chelsea Crimson, and with the yellow angular eye surrounded by a narrow brownish zone.

Flowers pink or light rose.

Chelsea Rose.—Flowers 1½ inch across and upward, pale pink, with a broad yellow hexagonal eye. A very pretty flower.

Flowers bluish-lilac.

Chelsea Blue.—Flowers flattish, 1¾ inch across, deep lavender coloured, eye yellow, 6-lobed. Deeper in colour than many of the so-called blues.

Double-flowered Varieties.

Veitch's Double White.—Well shaped, elegant flowers, but with a pronounced rosy flush, not the same as the old double white.

Double Crimson.—Of a darker shade than the single Chelsea Crimson, and with smaller flowers.

A TURNIP GONE WRONG.

A correspondent has sent to us a Swede Turnip in the same condition as one that was described in our columns some years ago by our late friend, Professor Caspary, of Königsberg, and of which we reproduce the engraving (fig. 22, p. 149). It will be seen that the roots emerging from the so-called bulb show



Fig. 21.—Branching Kohl-rabi.

occasional bead-like seedlings, emulating on a small scale the parent stock from which they sprung. But what is more curious is the production of shoots which at first go downwards but afterwards turn upwards and bear leaves.

The "bulb" of a Turnip is, of course, no bulb at all in a strict botanical sense. It is a swelling of that portion of the plant (the caulicule) between the two first seed leaves, cotyledons, and the top of the root proper—a part which usually grows in an upward direction like the stem, but which usually differs from the stem in producing neither leaves, buds, branches, nor roots, from its surface. All or any of these productions may, however, be developed as exceptions, and the case before us is one of such exceptions. The statement of the fact—the "how?"—is easy enough; the interpretation—the "why?"—is another matter. What is the reason why the usually filamentous root developes tumours along its side? What is the reason why leaf-shoots are suddenly produced and why they turn about as they do? Some modern physiologists seem to be quite content when they say the downward tendency is an illustration of "positive geotropism," the upward tendency of "negative geotropism;" but really this is merely clothing familiar facts in unfamiliar coverings. Nothing is really explained, and we are left with the unsatisfactory reply, Because—as in the case of the quarrelsome tendency of dogs and cats—"it is their nature to." As to the cause of the development of the leaf shoots we may throw out a conjecture for which we find some evidence in the Turnip before us, and that is, that the production of the shoot is due to some injury from insects—wireworm, &c.—which the rind of the Turnip has received; in consequence of which the free passage of the juices has been arrested, and an accumulation of nutritive matter has taken place, just as happens when a tree is ringed or girdled. This explanation we believe to be correct, as far as it goes, but that is no long distance. Fortunately, the matter does not seem to be of much practical importance; but if every Turnip in the field took on this mode of growth, the growers would soon want to know why, particularly if, as was the case in Professor Caspary's plants, the tendency of the parent was transmitted to the offspring. For the sake of comparison we add a figure (fig. 21) of a similar malformation in Kohl-rabbi, where, however, the supplementary tubers clearly spring from the stem proper.

HOME CORRESPONDENCE.

ORCHID NAMES.—Is it not time, if not in the name of Science, at least, of convenience, that a protest should be made against the multiplication of names, especially of Latin names, for the most trifling variations in Orchids? Surely, the Hamburgh Professor, to whom we owe so many obligations, is allowing his good nature too free play when he claps the name of Jones, Brown, and Robinson, not to say Smith, upon the spotty or spotless, hairless or hairy, tweedledum or tweedle-dee varieties sent to him for a name. A Latin name I have understood implies at least that the nomenclator had drawn up and published a "definition" of the novelty, and placed it on record in a manner available for consultation and reference. How, may I ask, is it possible for the unhappy amateur to distinguish between the varieties Jackianum, Henryianum, Georgeianum, Tommyanum, and the like?—which are so similar that they might all have been cut from one plant or at least have issued from one seed-pod. Can you not do something to stop this torrent of new names for variations not worthy such distinctions? *Puzzled.*

LILIUM NEILGHERRENSE.—With reference to the note in the *Gardeners' Chronicle* of December 22 last, by Mr. G. F. Wilson, on the above-named Lily, a specimen of which he described as being 6 feet high, with five blooms—it is certainly a remarkably fine one. I know the native habitat of the plant well, having lived for some years on the Neilgherry Hills; but I do not remember ever having met with a plant in its wild state so high as 6 feet; in fact, it is usually seen as a very dwarf plant, bearing, as a rule, solitary flowers, though from two to five are by no means uncommon on a single stem, and I know for a fact that at least two plants have been found, the one bearing eleven, and the other thirteen blooms on single stems. The plant is usually found in rocky places, where there is plenty of moisture, and the soil it most delights in is black vegetable mould, wet and slimy during the monsoons, and dust in the dry season. It comes into flower from August to October, according to the districts in which it is found. Perhaps Mr. Wilson will kindly inform us if he has succeeded in saving and raising seed of this bulb in this country, and the soil he uses in its cultivation. *J. Lowrie, Lancing, Worthing.*

THE ROYAL HORTICULTURAL SOCIETY.—Will some one be so kind as to explain clearly the qualification of a private gardener, and thus enable the younger men in the profession to see what they have to work for, what practice to follow? It would likewise be of use to have it stated what benefit it is to him, and others like him, who live at a long distance from London, to join the Horticultural Society of London. I think there would be many more join the Society if they knew more about the conditions of membership. *G. H.* [Write to the Secretary. Ed.]

PRIMULA FLORIBUNDA AND P. OBCONICA OR POCULIFORMIS.—These two worthy species cannot become too well known and generally cultivated; with a little scheming as regards sowing the seeds at different intervals, they may be had in flower almost

throughout the whole year. Both of the kinds are exceedingly floriferous; the first is a yellow, while the second is a light lilac. As we have tried both plans of increasing the stock, viz., cutting up the old ones into a number of pieces (with reference particularly to the last-mentioned) and sowing seeds saved from the finest and best formed flowers, we are in favour of the last method, as the plants so raised are more vigorous, and do not receive that check which is necessarily caused by dividing them, and the flowers produced are larger and more abundant when raised from seeds. Sow the seeds as soon as ripe, giving due attention to pricking them off and potting them on. A 32 or 24-sized pot will be found large enough in which to flower them, using a mixture of loam and sand with some manure passed through a fine sieve as a compost, grown in a cool frame throughout the summer and autumn, and wintered in a light position in the greenhouse on a shelf until required for decoration. *W. Harrow.*

CELERY RUNNING TO STEM.—I should be glad to learn if others have been in the same difficulty as myself this season by reason of Celery running to stalk. I grew a white variety for early use—one that had done me good service in former years; this season I grew rather more of it than usual, but finding at the beginning of last month that it was not very good, I tried a red Celery, which, as well as the white, grew well last season. I found nearly every stick of the variety had a stem, and going from that one to a red variety when had been planted much later, and was not nearly so strong, I was surprised to find that that was in the same condition; and, as a last resource, I had to fall back on some much smaller white Celery, which is now carrying on the supply. There were a few that formed stems during the season of growth which were pulled out when seen, and I supposed that the stems were all formed then. I do not mention the name of the Celery which was the worst, as perhaps the season has had to do with its failure. I have heard of a case similar to mine close by here. *J. Williams, Monkhams, Woodford, Essex.* [The prevalent mildness of the season, in conjunction with early sowing, have occasioned the bolting complained of, probably. ED.]

MANURE TRIALS AT CHISWICK.—Believing, as I most thoroughly do, that such trials will be conducted honestly, and with a view to arriving at just conclusions as to the value of the different manures tested, I may nevertheless point out a variety of difficulties in the paths of the experimenters. In the first place the soil on which the experiments are conducted should be accurately analysed. If it contain potash sufficient for the crop, a manure deficient of that element would be quite successful on it, although it would fail completely on a soil deficient in potash. This remark applies to all the other elements in a manure. Then there are highly-stimulating manures that give rapid effects but leave the land poorer than before they were applied; these are quickly soluble but evanescent in their effects: such are manures that contain ammonia or nitrate of soda. As is well known to farmers no manure will produce such a rush of growth in the cases of Oats and grass as this last manure will, but it leaves the soil exhausted. With all the care possible my experience of what are called artificial manures leads me to the conclusion that the proposed trials of such manures at Chiswick will lead to no reliable conclusions. *Vitis.*

GYPSOPHILAS.—When pretty foliage and flowers are in demand, Gypsophilas should find at least a sunny corner in the flower border, more particularly the stronger growing varieties: albeit the dwarf tuft-like species, such as G. muralis, are quaint objects, very suitable for edgings. Gypsophila paniculata is probably the best of all, and has large panicles of very small flowers of a whitish colour; it averages 3 feet in height and is of equal width. The plant affords much variation amidst more stiff and erect plants. G. Gmelina is a stronger grower even than the last, and requires more space to grown in; but it is not so neat and compact, although suitable for growing upon very poor soils. G. cerastoides is a pretty alpine form, well adapted for prominent points on rockwork, for which its compact habit renders it highly suitable. G. Steveni possesses larger flowers individually, and is distinct owing to its having a tuft of leaves at the base, from which its panicles of flowers rise more independently than is the case generally with its compeers. *W. E.* [The above are perennial species, and should, like many other perennials, be sown in well prepared beds or boxes in early summer. From this sowing plants will be had for flowering the following year. Earlier sowing, if adopted, will not result in plants which bloom well the same year. These Gypsophilas may be increased by cuttings and division. ED.]

CLETHRA ARBOREA.—I am pleased to see your correspondent "J. C. M.," at p. 85, calls attention to this lovely Madeiran shrub, which is scarcely ever met with in private gardens. What the reason is for this I cannot even guess, it being easy to grow. The only two plants I ever met with were in Worcestershire and at Elm Grove, Saffron Walden. The latter was planted in a large pot, and was about 8 feet high, with a head of about 5 feet in diameter. It was always grown in a shady part of the conservatory, and used to bloom every year profusely. I might just mention that I exhibited this plant at one of the Saffron Walden shows, where it was very much admired. *A. Bishop, Bury St. Edmunds.*

THE EDUCATION OF YOUNG GARDENERS.—No educational movement of recent times has proved more popular than the Cambridge and Oxford University extension lectures. They are now held in many towns and country districts, and are becoming exceedingly popular; they cannot fail to exercise a powerful influence for good in the places where they are held. The passing of Mr. Forster's Education Act, and the subsequent legislation on that subject, all tending to bring the highest advantages of education within reach of the humblest poor, has already effected a change for the better in the character and intelligence of our young gardeners; but if we are to judge by the shadows which coming events are said to cast before them, the improvement is nothing to what it will be in the near future when free education will have become an established fact. In view of this development of the intelligence of our youth, it seems to me an absolute necessity that some movement should be set on foot whereby the rising generation of gardeners may more easily acquire the scientific knowledge bearing upon their work. English gardening has been brought to its present honourable position mainly through the labour of practical working gardeners—men mostly of humble origin and scanty education, and as far as excellence of practical work is concerned, I doubt very much if the present standard can be excelled. Where, then, are we to look for the future elevation and advancement of horticulture? and to whom shall we appeal for help in educating our young men in the sciences which have such important bearings on their work, such as chemistry, especially in relation to soils and manures, the physiology of plants, botany, geology, the study of air, light, heat, &c. I am aware that these subjects are taught in science and art classes in large towns, but country districts and small towns (where most of our gardeners are reared) are not blessed with these privileges. How, then, are these means of improvement to be brought within their reach? It seems to me that our great national garden, Kew, has now a golden opportunity of stepping in and initiating a policy which will place it in the future in sympathetic touch with English horticulture. Kew is admitted to be the finest scientific garden in the world, and is presided over in its various departments by the most learned professors of our time. Let us then appeal to the directory to take counsel together and see if they cannot formulate and carry out some scheme which will bring this scientific knowledge within reach of our garden youths. There are now established in many towns and districts gardeners' mutual improvement societies. Would it not be possible for Kew to take advantage of these organisations for giving lectures something on the same lines as the university extension lectures, having power to examine students and give certificates? *O. Thomas, Chatsworth.* [Something of the kind is already done at Kew, but only for those employed in the gardens. ED.]

A BLUE CHRYSANTHEMUM.—As affording some small assistance towards obtaining this desirable colour in Chrysanthemums it would be interesting to know how the so-called blue Chinese Primula was obtained?—and if this was done by cross-breeding, and what were the colours of the flowers so employed? I ask this in the interest of horticulture generally, as I can hardly think it is a trade secret; and, like Mr. Davis, I fail to see any reason why a blue Chrysanthemum should not be obtained eventually, as we have all the shades of colour in this latter class of plants, which were found in the Primula previous to the advent of the blue one, and likewise many others; but it would appear that so long as we depend so much on sports for our new varieties we are not doing much towards obtaining it. It would be interesting to hear what is considered the best time for crossing Chrysanthemums, and the subsequent treatment in order to ripen the seed, from anyone who has succeeded in this country. *W. H. Divers, Ketton Hall, Stamford.* [There is no Primula which is a true blue, although violet and mauve shades abound. With regard to crossing Chrysanthemums the Japanese and Chinese have been doing it for ages, and have not succeeded in getting a really blue flower, nor shall we. ED.]

PLANT NAMES.—I propose to discuss this question from the point of view of the gardener. We must admit at the outset that this point of view is not the same as that of the systematic botanist, but is often at a great distance from it. Horticulturally, we want a name for a plant for a very simple reason, *i.e.*, to distinguish it by. If we get a plant, the name of which we do not know, we submit it to those who do, or who will give it a new name if necessary. So far we are at one with the botanists, but in botanical nomenclature there is a constant tendency towards change, revision, reconstruction. This is said to be necessary because of additional information, additional material, or a change of view; consequently, the names of many plants are altered, once, twice, or more times, so that their first godfather would not recognise them. Botany is a progressive science, and finality in names is impossible; but horticulture is troubled and confused by this changing of names and there does not appear to be the slightest practical reason for the change of a name which has planted itself firmly in gardens and garden literature. The cause of botany may demand changes of this kind, but the cause of horticulture does not; on the contrary, it is injured by it. I can easily illustrate this. Botanists say Azaleas are now to be called Rhododendrons, because there is no good botanical reason for keeping the two distinct. Also, that Cinerarias must be called Senecios; Areca lutescens has been renamed Chrysalidocarpus lutescens; all garden Crotons must be Codiæums; Gloxinias we are to call Sinningias. These are a few instances selected from hundreds of the kind. Amongst specific names the changing is enormous. It is not necessary for me to point out how such changes as those here mentioned would, if adopted by agriculturists, be a source of much confusion and harm. Take the last proposal to change the names of two species of Phalænopsis (amabilis and grandiflora), for no other reason than that of a botanist's blunder fifty years ago. The plants under these two names are as well known in gardens as Fuchsias; they belong to horticulture more than to botany, and the proposal to change their names is simply ridiculous. Disa grandiflora was thus named by Linnæus in 1781, and it has been a well-known garden plant since 1825; but, because someone has discovered that the name D. uniflora has been given to this Orchid by a botanist who, from the name, could not have known the plant, we are, forsooth, told that the former most appropriate name must be abolished, and we must adopt the ridiculous name of D. uniflora, for a plant which is only rarely one-flowered! When horticulturists have accepted, spelled, and assimilated a name, and used it for fifty years, the proposal to substitute some other name on the flimsiest of grounds is both mischievous and absurd. Indeed botanists themselves sometimes kick against alterations of this kind, even when as justifiable as those they accept. Witness the refusal to substitute Castalia for Nymphæa, which, as pointed out by Mr. J. Britten, ought, on the strict law of priority, to be done. Horticulture does not require the citation of the authorities for names. It has a literature in which authorities for plant names do not occur, except in extremely few cases. There is no reason whatever why they should be used, although in botany there is. Is there any common-sense reason for giving up names which are as fixed in horticulture as household words, for no other reason than that of a botanist's blunder? One thing, however, is certain, we do not want the names of plants changed for horticultural purposes, on the contrary, there is the strongest feeling against it amongst those who prefer plants to names. The question may arise whether horticulture had not better have its own nomenclature for plants, and leave botanists to their own devices. In botanical books the new names are in-

variably adopted; in horticultural writings they are not. Surely the ultimate result of this must be evident to any one interested. The rising generation of systematic botanists are likely to do a good deal of harm with their inordinate love of name shuffling, and seeing their initials as authority for plant names. *A Gardener.* [The best course for gardeners to pursue, now that we have authoritative standard books of modern date, is to adopt the nomenclature therein given. The standard is Bentham and Hooker's *Genera Plantarum* (for the genera), and for the species, Nicholsons's *Dictionary of Gardening.* Ed.]



Fig. 22.—Turnip: irregular production of shoots, etc. (see p. 147.)

PEACHES AND NECTARINES AND OTHER FRUIT TREES.—We have had to lift trees of these from open walls for planting and furnishing a new house lately erected here, and never before at this season have I seen the buds so small and undeveloped or the wood so green and soft, which, combined, give but little chance of a crop, as the blooms must of necessity be poor and weak when they open. It is fortunate that we have had such a mild winter, or the shoots, in their immature condition, must have suffered, and it is to be feared they may do so yet, as they are full of sap, and yet a check or cold is needed to keep them back, for, owing to the exceedingly mild weather, they have been on the move nearly the whole of the winter. The same may be said of Apricots, and it would not take much sun to cause their buds to expand, but Pears, Apples, and Plums are not advanced, and the whole of these trees look remarkably well, and are full of promise, which, no doubt, in a great measure is owing to the light crop they carried last year; and their hardier nature enabled them to bear the low temperature better than Peaches and Nectarines and Apricots were able to do. The foliage, too, of the first named was kept clean by the frequent rains, which prevented attacks of red-spider, an insect Apple leaves often suffer from in hot dry summers or when growing on sandy or gravelly soil. This being the case here, we have to mulch, which I find is a very great help, as it induces the formation of fibrous roots near the surface and the washings from it and the decomposition of the material assist much in enriching the ground. For the purpose of mulching we use almost anything we can get, but chiefly rubbish, such as weeds, rakings, and trimmings of vegetables, which accumulate quickly in large gardens, and may always be turned to some good account. There is nothing, I think, better for forking in about trees that are not growing freely, that is, so far as Pears and Apples are concerned, and when preparing an old border before again replanting the first-named, we put a large quantity in at the bottom after removing a lot of the gravelly subsoil, and the young trees show how well it agrees with them. *J. S.*

FIGS.—Unless the advice given by a "Brown Turkey," at p. 118, is somewhat qualified, those who follow it will commit mistakes, as it is a method of procedure which can only be recommended in the event of unusually severe winters, or in very cold districts of the country. The last experience I had of Fig trees on walls being covered with a good thickness of Fern during the winter months until the end of March, was in Kent, in a place about 12 miles from Charing Cross. I had no control over the management of the trees in question but during the three years I was there I do not remember their having ripened a dozen fruits each, whereas several large standard trees growing in the open in the park at the home farm, half a mile off, bore heavy crops of good Figs annually, and the only attention bestowed upon these trees to my knowledge, was when the fruit was ripe. These results afforded me conclusive evidence in favour of the non-protection of Fig trees [there]. The Fig will stand 25° to 30° of frost with impunity, even in low-lying districts, and more than this in elevated situations. Trees taken off the wall, bundled together close to the ground, and then covered to the thickness of a foot with leaves and Fern during the winter months and until the end of March, when the last part of the covering would be removed, may be said to have been subjected to a "mild process of forcing." I think that such rash exposure of the trees, as re-nailing them to the wall would involve, and biting winds, would hardly result in a good crop of Figs. In Longford Castle gardens the Figs grow on walls 10 to 12 feet high. When I took charge of them eighteen years ago, I found that when the trees had shed their leaves in the autumn they were loosened from the wall, the shoots tied together in a horizontal position, and placed within about 5 feet of the ground, and protected with mats during frosty weather; so, bearing my Kentish experience in mind, and also wishing to act cautiously in the matter, Figs being thought a good deal of by my employer, I treated some of the trees as indicated for the first winter that I was here, leaving the others nailed to the walls, and without protection, and the result was, that the unprotected trees have much the better crop of fruit. It need hardly be said that since that time protection of any kind has not been afforded the Fig trees, except when the fruit is ripe. The trees under this mode of winter treatment have never failed to crop heavily. One year when we had, I think, 31° of frost, the points of the young shoots—which are never so well ripened as the wood below—were killed back about 12 inches by the frost. I may add that our Fig trees are trained with much precision, the proper distance and angle of the branches radiating from the centre of the tree being maintained as in a well trained Morello Cherry or Peach tree, and the method of culture is the same, except that they are not pruned until the buds on the ends of the shoots have begun to push into leaf: usually about the first week in May. It can then be seen which shoots are the best furnished with embryo fruits and the trees do not bleed so much as when the pruning is done, earlier. As in the case of the Peach, most of the old wood which can be dispensed with is removed at pruning time to make space for the young shoots of the previous year, these being laid in at 6 inches

apart; thus allowing space for a shoot of the current year to be laid in between; these young shoots, being stopped a few times during growth. In conclusion, I would recommend those of your readers who have failed to secure a crops of Figs by following the covering up method to give that which has been attended with such satisfactory results here a trial, and to report results in the *Gardeners' Chronicle*. *H. W. Ward, Longford Castle, Salisbury.*

LENT ROSES.

UNDER this name are included several closely allied species of Hellebore belonging to South-eastern Europe and Western Asia, of which the types are H. orientalis, H. olympicus, H. colchicus, H. abchasicus, H. guttatus, and one or two others. When these are grown together in gardens their seedlings often unite the characters of more than one species, and produce a very ornamental set of hybrids. This year they are flowering unusually early and unusually well. The plants stand 10° or 12° of still frost, even when in flower, without being damaged, but a less amount of frost, if accompanied by piercing north-easterly winds, crippled them sadly. It is, therefore, better to plant them in spots well sheltered from the east wind. I find that if exposed to the sun in summer the leaves turn brown and die off in winter, and the flowering is injured. They undoubtedly do best in my garden planted close against a wall facing north; but the situation should not be too exposed. They are not particular about soil, provided it is deep and well drained. With my clay soil I mix limestone riddlings, working them in to a depth of at least 2 feet. I have from time to time bought named hybrid varieties, most of them having German names; but about five years ago a friend sent me some seed and seedlings from Devonshire, which have produced quite as fine flowers as any I have bought. The colours vary from nearly pure white, sometimes freckled with purple, to deep claret colour, passing through many intermediate shades. The seeds of Hellebore should either be left to come up where they fall, or be sown as soon as ripe. They then germinate the following winter, but if the seed is stored and dried, it either does not grow at all, or remains dormant for a year. Some of the seedlings flower at two years old, but are not fine plants till their third or fourth season, and are then better than they ever are after division. Those with dark coloured flowers which come near the type of colchicus, are a month later than those with white or pink flowers. They are not good as cut flowers for indoor decoration, as they soon wither; but if laid in shallow water in a flat bowl, the water touching the back of the flower, they will last for three or four days. A hundred of these plants give interest to a garden at a dull time, and do well in shady corners where other things refuse to thrive. *C. Walley Dod, Edge Hall.*

MARKETS.

COVENT GARDEN, January 31.

TRADE still quiet, prices remaining unaltered. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, half-sieve	2 0– 4 0	Grapes, per lb.	0 6– 2 6
— Canada and Nova Scotia, per barrel	5 0– 12 0	Lemons, per case	12 0–21 0
Cobs, 100 lb.	100 0–110 0	Pine-apples, Eng., lb.	1 6– 2 0
		— St. Michael, each	2 0– 8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English, per 100	5 0– ...	Mustard and Cress, punnet	0 4– ...
— French, bundle	18 0– ...	Onions, per bunch	0 5– ...
Beans, Jersey and French, per lb.	1 6– ...	Parsley, per bunch	0 3– ...
Beet, red, per dozen	1 0– 2 0	Peas, French, per lb.	1 0– ...
Carrots, per bunch	0 6– ...	Potatos, per cwt.	4 0– 5 0
Cauliflowers, each	0 3– ...	— kidney, per cwt.	4 0– 5 0
Celery, per bundle	1 6– 2 0	— new French, lb.	0 6– ...
Cucumbers, each	1 0– ...	Rhubarb, bundle	0 6– ...
Endive, per dozen	3 0– ...	Seakale, punnet	2 6– ...
Green Mint, bunch	1 0– ...	Shallots, per lb.	0 6– ...
Herbs, per bunch	0 6– ...	Spinach, per bushel	4 0– ...
Leeks, per bunch	0 4– ...	Tomatos, per lb.	2 0– ...
Lettuce, per dozen	1 6– ...	Turnips, per bunch, new	0 5– ...
Mushrooms, punnet	1 6– ...		

POTATOS.—Beauty of Hebron, 50*s.* to 100*s.*; Imperators, 70*s.* to 90*s.*; Dunbar Regents, 110*s.*; do. Magnums, 120*s.*; and York Magnums, 100*s.* per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Ferns, in var., doz.	4 0–18 0
Arum Lilies, p. doz.	9 0–15 0	Foliage plants, various, each	2 0–10 0
Azaleas, doz.	24 0–42 0	Ficus elastica, each	1 6– 7 0
Cineraria, per dozen	8 0–12 0	Hyacinths, dozen	6 0– 9 0
Cyperus, per dozen	4 0–12 0	— Rom., doz. pots	9 0–10 0
Dracæna terminalis, per dozen	30 0–60 0	Lily-of-Val, doz. pts.	18 0–30 0
— viridis, per doz.	12 0–24 0	Marguerites, doz.	6 0–12 0
Erica hyemalis, doz.	9 0–18 0	Palms in var., each	2 6–21 0
— caffra, dozen	6 0–12 0	Pelargoniums, scarlet, per dozen	6 0– 9 0
Euonymus, in var., per dozen	6 0–18 0	Poinsettias, dozen	9 0–15 0
Evergreens, in var., per dozen	8 0–24 0	Primulas, per dozen	4 0– 6 0
Epiphyllums, doz.	18 0–30 0	Solanums, dozen	9 0–15 0
		Tulips, dozen pots	6 0– 9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilons, 12 bun.	3 0– 6 0	Mignonette, 12 bun.	2 0– 4 0
Arum Lilies, 12 blooms	4 0– 8 0	Narcis., paper-white, (French), 12 bun.	2 0– 6 0
Azaleas, 12 sprays	0 9– 1 0	— double, 12 bun.	1 6– 3 0
Bouvardias, per bun.	0 9– 1 6	Pelargoniums, 12 spr.	1 0– 1 6
Camellias, 12 blms.	3 0– 6 0	— scarlet, 12 spr.	0 6– 1 0
Carnations, 12 blms.	2 0– 3 0	Poinsettias, doz.	4 0– 9 0
Christmas Roses, 12 blooms	0 6– 1 6	Primulas, dbl., 12 sp.	1 0– 1 6
Chrysanthemums, 12 blooms	0 6– 3 0	Roses, Tea, per doz.	2 0– 6 0
— dozen bunches	4 0–12 0	— coloured, dozen	2 0– 4 0
Eucharis, per dozen	3 0– 6 0	— red, per dozen	1 0– 2 0
Gardenias, 12 blooms	15 0–30 0	— Safrano, dozen	2 0– 4 0
Heliotropes, 12 spr.	0 6– 1 0	Stephanotis, 12 spr.	12 0–15 0
Hyacinths, Roman, 12 sprays	1 – 1 6	Tuberoses, 12 blms.	2 0– 4 0
Lapageria, 12 blooms	1 6– 3 0	Tulips, 12 blooms	1 0– 1 6
Lilac, white Fr., bun.	3 0– 7 0	Violets, 12 bunches	1 0– 1 6
Lily-of-Val., 12 spr.	0 9– 1 6	— dark, Fr., bunch	1 6– 3 0
Marguerites, 12 bun.	3 0– 6 0	— Parme, Fr., bun.	5 0– 7 0
		Wallflowers, 12 bun.	6 0– 9 0
		— French	1 0– 3 0

SEEDS.

LONDON: *Jan.* 30.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market quiet. As regards red Clover seed full prices are cabled from America, whilst the samples offering from France show a marked falling off. Alsike, white and Trefoil, are held at recent rates. In Rye-grasses there is no quotable alteration. Spring Tares continue dear and bad, and consequently do not meet with buyers. For bird seeds the sale is slow. Peas and Haricots keep steady. In Rape seed the tendency is upward. Mustard is unchanged.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending January 26 :—Wheat, 30*s.* 1*d.*; Barley, 26*s.* 7*d.*; Oats, 16*s.* 3*d.* For the corresponding week in 1888 :—Wheat, 30*s.* 10*d.*; Barley, 30*s.* 10*d.*; Oats, 16*s.* 10*d.*

FRUIT AND VEGETABLES.

SPITALFIELDS: *Jan.* 30—Large supplies of all kinds of greenstuffs, &c. Trade very languid, causing prices to rule low. Quotations:—Brussels Sprouts, 6*d.* to 1*s.* per half-sieve; Greens, 2*s.* to 3*s.* 6*d.* per tally; Cabbages, 2*s.* do.; Savoys, 2*s.* to 3*s.* do.; Cauliflowers, 10*d.* to 1*s.* per dozen; Broccoli, 6*d.* to 10*d.* do.; Turnip-tops, 1*s.* 6*d.* to 2*s.* per sack; Spinach, 1*s.* to 1*s.* 6*d.* per bushel; Seakale, 1*s.* 3*d.* to 1*s.* 6*d.* per punnet; Parsnips, 6*d.* to 8*d.* per score; Beetroots, 6*d.* to 8*d.* per dozen; Turnips, 1*s.* 9*d.* to 2*s.* 6*d.* per dozen bunches; Parsley 2*s.* to 3*s.* do.; forced Rhubarb, 1*s.* 6*d.* to 2*s.* do.; Celery, 6*s.* to 12*s.* per dozen bundles; Horseradish, 10*d.* to 1*s.* 2*d.* per bundle; Spanish Onions, 7*s.* to 9*s.* per case; English do., 5*s.* to 6*s.* per cwt.; Dutch do., 2*s.* 6*d.* to 4*s.* 6*d.* per bag; Belgian do., 2*s.* 6*d.* to 4*s.* 9*d.* do.; pickling do., 4*s.* 6*d.* to 5*s.* 6*d.* do.; Endive, 2*s.* per dozen; Carrots, 20*s.* to 26*s.* per ton; Mangels, 16*s.* to 18*s.* do.; English Apples, 3*s.* to 5*s.* per bushel; do., 1*s.* 6*d.* to 2*s.* 9*d.* per half-bushel; American do., 6*s.* 6*d.* to 12*s.* per barrel.

POTATOS.

BOROUGH AND SPITALFIELDS: *Jan.* 29. — The trade is slack, with more than adequate supplies, and except for best qualities prices tend against sellers:—Regents, Scotch, 90*s.* to 120*s.*; English, 65*s.* to 100*s.*; Hebrons, 60*s.* to 100*s.*; Magnum Bonums, 62*s.* 6*d.* to 100*s.*; Scotch do., 80*s.* to 120*s.*; other varieties, 60*s.* to 90*s.* per ton.

SPITALFIELDS: *Jan.* 30.—Quotations :— Regents, 75*s.* to 110*s.*; Imperators, 75*s.* to 90*s.*; Hebrons, 60*s.* to 70*s.*; Magnums, 65*s.* to 90*s.*; Champions, 60*s.* to 65*s.* per ton.

STRATFORD: *Jan.* 28.—Quotations :—Scotch Magnums, 75*s.* to 110*s.*; do., Regents, 80*s.* to 108*s.*; English, light soil, 60*s.* to 80*s.*; do., dark soil, 60*s.* to 75*s.*; Elephants, 65*s.* to 85*s.* per ton.

THE WEATHER.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree — a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE. Above or below the Mean for the week ending Jan. 28.	ACCUMULATED. Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1889.	Below 42° difference from Mean since Jan. 1, 1889.
Principal Wheat producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	4 above	12	23	+ 4	— 41
1. SCOTLAND, E. ...	5 above	17	31	+ 11	— 45
2. ENGLAND, N.E. ...	2 above	11	20	— 1	— 30
3. ENGLAND, E. ...	1 below	6	37	— 18	+ 20
4. MIDLAND COS. ...	1 above	8	20	— 19	+ 7
5. ENGLAND, S. ...	0 (aver.)	7	29	— 2	+ 5
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	3 above	23	15	+ 16	— 62
7. ENGLAND, N.W. ...	1 above	9	24	— 11	— 39
8. ENGLAND, S.W. ...	0 (aver.)	11	11	— 21	— 4
9. IRELAND, N. ...	2 above	22	9	+ 9	— 37
10. IRELAND, S. ...	2 above	21	4	+ 2	— 27
— CHANNEL ISLANDS	1 above	21	0	+ 11	— 31

DISTRICTS.	RAINFALL. More or less than the Mean for the Week.	No. of Rainy Days since Jan. 1, 1889.	Total Fall since Jan. 1, 1889.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1889.	BRIGHT SUNSHINE.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.			
0. SCOTLAND, N. ...	3 less	19	3.4	4	11	
1. SCOTLAND, E. ...	6 less	12	1.9	31	22	
2. ENGLAND, N.E. ...	3 less	12	1.0	38	17	
3. ENGLAND, E. ...	4 less	9	0.7	31	16	
4. MIDLAND COS. ...	6 less	10	0.8	24	15	
5. ENGLAND, S. ...	5 less	10	0.7	21	16	
Principal Grazing, &c., Districts.						
6. SCOTLAND, W. ...	4 less	15	3.4	19	13	
7. ENGLAND, N.W. ...	1 less	11	1.0	21	16	
8. ENGLAND, S.W. ...	7 less	10	1.6	9	20	
9. IRELAND, N. ...	3 less	18	2.8	5	10	
10. IRELAND, S. ...	5 less	15	3.6	8	17	
— CHANNEL ISLANDS	6 less	12	1.5	8	30	

THE PAST WEEK.

The following summary record of the weather for the week ending Jan. 28, is furnished from the Meteorological Office :—

"The *weather* has been somewhat fairer than of late in most parts of the kingdom, but in Ireland and the S.W. of England the sky has been very dull, with occasional (but generally slight) falls of rain. Fog was experienced at times in different parts of the kingdom.

"The *temperature* has about equalled the mean in 'England, S.' and 'England, S.W.,' but in all other districts it has been above; in Scotland the excess has varied from 3° to 5°. The highest of the maxima, which were recorded on the 25th in most parts of England, and on the 26th at the English and many of the Irish stations, ranged from 50° in 'Scotland, W.,' to 54° in the 'Channel Islands.' At Ochtertyre the thermometer on the 23rd reached 57°. The lowest of the minima were registered on

the 27th, when the temperature fell to 29° in 'Scotland, W.,' and to between 23° and 28° in most other districts; in 'Ireland, S.,' however, the lowest reading was 33°, and in the 'Channel Islands,' 35°.

"The *rainfall* has been less than the mean in all districts. Over the greater part of England and in the E. of Scotland the fall has been extremely slight.

"*Bright sunshine* shows a decrease in Ireland, the S.-W. of England, and in the 'Channel Islands,' but a decided increase elsewhere. The percentage of the possible amount of duration was as high as 31 to 39 over the N.-E. and E. of Great Britain, while in Ireland, the S.-W. of England, and the 'Channel Islands,' it was as low as 5 to 9.

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

JAPANESE ORCHIDS. *C. W. S.* would be much obliged to any of our readers who have been successful in the cultivation of the Japanese Orchids Angræcum falcatum and Aërides japonicum if they would tell him what treatment they require as to heat, light, and moisture at different seasons, because he has failed to keep either of them healthy for long.

SCARLET WALLFLOWER.—Will the firm which advertised seed of the above in September last give its address in these columns, and will any reader give instructions as to the best kind of soil, &c., in which to grow double Wallflowers? *Nicholas.*

NOTICES TO CORRESPONDENTS.

ARAUCARIA IMBRICATA CONING: *R. B.* Not rare.

BOOKS: *A. E.* You can only apply to a second-hand bookseller, who may be able to get the book for you.

BOOKS: *C. W. W. The Gardeners' Assistant* (Thompson), Blackie & Son, Paternoster Row, London, or through any bookseller, price 31s. 6d.—*V. Fans.* Please state more fully what you require.

BORDEAUX BROTH: *X.* This, which is recommended to be used in the form of spray for the Tomato and Potato rot, as well as for Grape mildew (Peronospora), and Lily disease, is composed of 100 parts of water, 6 sulphate of copper, and 6 of lime.

CAMELLIAS: *R. H. B.* In the case of the soil being in bad condition, it is better to re-pot before growth commences—say late in February or in March, otherwise re-potting is best done after growth is made and partially matured. If you have severely pruned in the head, a slight cutting back of the roots will do no harm, and these will then go into a pot or tub proportionate to the size of the head.

CHINESE CABBAGE: *J. Joyce.* You probably refer to the Shantung Cabbage, upon which an article appeared in our issue for May 19, 1888, p. 619.

"CYPRIPEDIUM:" *T. E. Walker.* The work is published in England by Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, S.W.

CYPRIPEDIUM CALLOSUM: *Constant Reader.* The plant was found by M. Regnier in forests in Siam, at a height of 1500 metres. The dorsal sepal is very large, white, with longitudinal rays of green and purple; the sepals green at the points, white towards the middle, and marked with lines of green and rose; the lip resembles that of C. superbiens. It is a vigorous grower, and flowers abundantly, commencing to do so in November. A night temperature of 60°, and a day temperature of 70°, will suit the plant during the winter.

DOUBLE PHEASANT'S-EYE NARCISSUS: *Constant Reader.* This bulb may be brought on by forcing, but the operation should not be hurried in the early stages, these late blooming bulbs being not very amenable to the regimen of the forcing-house. Of course the bulbs were potted early in the autumn.

EUCHARIS BULBS: *Hortus.* The bulb mite is present in small numbers. Grow them on freely, giving liquid manure occasionally; and if the drainage is good overwatering during the growing season is not possible.

FRAME TO RAISE TOMATOS: *Market Gardener.* As you have stable-dung, make up a bed about 2½ feet thick, treading it well, so as to render the warmth less violent, and more lasting. When finished put on the frame, allow the rank steam of fermentation to escape for a few days, then put on a 6-inch layer of sifted leaf and peat tan or fine coal-ashes. In this stuff, when the heat has risen to 80° to 85°, the seed-pods may be plunged. If the flue beneath the bed be used, it will dry up the materials of the latter which would therefore be better placed elsewhere in the Rose house.

GOOSEBERRY CATERPILLAR: *W. C.* We pity your case; still we do not believe that the Gooseberry-caterpillars came direct from out of the earth, crawled up the stems, and laid eggs on the leaves, and thence went to the standard Pear and Apple trees, doing likewise. A closer observation would have revealed to you the fact that the female insect—which was a chrysalis from a late summer brood, and which had passed its existence in the earth until March or April—was the culprit. Remedies, such as they are, are obviously those which would remove the progenitors of next year's destroyers; the removal or suitable treatment of the surface soil—in case of removal, burning it. It is a question whether this work, if delayed till winter or spring, is not too late; but by removing it early in the autumn, or turning it up at intervals of a month or so, so that the birds might aid in the work of destruction, better results might be obtained. A broad band of thick brown paper smeared with cart-grease, or coal-tar, fastened round the stem in March, would be of service in preventing the full-grown grubs from travelling from bush to bush. The eggs are laid on the leaves by the females of the latest brood, which have hibernated as chrsalids during the winter; and therefore the first steps taken should be in the way of attempting to lessen the numbers of females in the way indicated above. All soil removed should be charred, or buried deeply close by—distant removal is not needed; and all rakings ought to be carefully collected and burned without delay. Many other remedies have been tried with various results. We may mention a few:—Syringing with tobacco-water, if applied early; dusting with sulphur when the bushes are wet; a layer of powdered lime laid under the bushes; also gas-lime; the last two as a means of preventing the insects from emerging from the soil.

LEAF MINER: *A. H.* Continue your hand-picking.

MAGGOT IN MARGUERITES: *Constant Reader.* We assume that you mean the mining insect, which injures the leaves by making passages between the upper and lower epidermis. Catching the fly (Tephritis onopordinis) is out of the range of possibility, but the mining grub itself can be killed by squeezing the leaf between finger and thumb, all leaves much injured by the grub being cut off and burnt—not thrown away, to reproduce fresh generations in due time.

MARKET RATES: *Poor Geordie. Horticultural Times and Covent Garden Gazette*, published by R. Smith, 127, Strand, W.C.

MELONS: *G. H.* We do not know where Dell's Hybrid and Eastnor Castle are figured, except in trade lists.

M. VILLE'S EXPERIMENTS: *Histon.* The tenth added by M. Ville is, of course, as much a product of Nature as the remaining nine-tenths of which he speaks; the difference is that the nine-tenths are at hand, whereas the remaining tenth has to be added. M. Ville's system is explained in his book. The extract referred to is expressly stated to be taken from a trade circular, and possibly does not fairly represent M. Ville's views.

NAMES OF PLANTS: *J. L.* Abies (or Picea) Veitchii.—*Mrs. Smiley.* Tradescantia discolor.—*A. J. B.* 1. Citrus myrtifolius; 4, C. japonicus. The others we are unable to name, as the specimens are insufficient.—*D. Wallace.* 1, Pellionia Daveauana; 2, Acorus gramineus variegatus; 3, Nephrolepis davallioides furcans.—*D. McL.* 1, Oncidium tigrinum; 2, Odontoglossum bictonense; 3, Lælia albida; 4, 5, 6, 7, Crotons, which we cannot attempt to name; 8, Bertolonia Van Houttiana.—*Ch. Mills.* Strelitzia reginæ.—*J. E.* 1, Thuia (Thuiopsis) dolabrata; 2, Cephalotaxus drupacea; 3, Juniperus communis var. stricta; 4, Abies nobilis; 5, Abies orientalis; 6, A. Lowiana.—*W. M.* 1, Pinus Laricio; 2, Pinus silvestris; 3, Abies, probably a form of excelsa; 4, Thuia (Thuiopsis) dolabrata; 5, not recognised; 6, Pinus excelsa.—*A. F.* Helleborus niger. Big clumps established in tubs or pots, if put under glass (unheated) in November, bloom well at Christmastime. The blooms are marketable.

NERINES NOT FLOWERING: *Constant Reader.* It not being stated what species had failed to grow, we can do no more than give general directions. Being South African bulbs, and deciduous, a distinct resting period must be observed. Most of them flower somewhat earlier than the appearance of the leaves, and require at that season very great care in watering, no more moisture being afforded than is actually necessary. A rich, light, sandy loam is suitable for them, and a slight bottom-heat is of advantage during active growth, but cooler treatment afterwards, water being withheld as the leaf ripens. Repotting is not needed oftener than once in three years, but offsets should be removed and grown on in the same manner as flowering plants. If the leaves are dying back now, it is a sign that the soil is in bad condition, or that too much water has been given them since growth commenced. Examine them, repot, carrying out the above directions. As to temperature, 45° to 50° at night, and 60° to 65° by day, will be found high enough at this season.

PETROLEUM: *C. W. S.* In "Answers to Correspondents," in our issue for the 12th inst., under your initials, directions are given on this subject. We do not think anything can be added to them.

PIT LIGHTS AND PUTTY: *J. W. B.* If the rabbet be coated once with red or white-lead paint whilst in a perfectly dry state of the wood, and this is allowed to become dry before putting on the putty, and the latter be painted, when dry, with two coats of paint, there will be little danger from putty peeling off. Your ingredients for putty are good enough, although some persons use a little white-lead as well; it certainly gives toughness to the putty. A good method of glazing without putty on the outside, and one that allows of no drip, is to bed the panes in ordinary putty, and make them secure by little triangular bits of tin, or brads driven into the sash-bar; and then, instead of using a fillet of putty, give a coat of thick red-lead paint to the sash-bar, quite filling up any space there may be between bar and glass.

SEEDS: *J. N.* The seeds of the plant named should be sown at any time during April, in pans of sandy loam and leaf mould, placing them in a cold frame. No coddling should be allowed, but full exposure when the plants are up.

TOMATOS: *Market Gardener.* Any of the Perfection strain, Layton's Open-air Early Free and Sutton's Earliest of All, and Hathaway's Excelsior are worth growing where full flavour is an essential point.

CATALOGUES RECEIVED.

V. LEMOINE ET FILS, 134, Rue de Montet, Nancy, France—New Plants.

JAS. COCKER & SONS, 59, St. Nicholas Street, Aberdeen—Seeds.

J. LAMBERT & SÖHNE, Trier, Rheinish Prussia, Germany—Wholesale Price List.

EDMONDSON BROTHERS, 10, Dame Street, Dublin, Ireland—Seeds.

WM. SAMSON & CO., AND W. AND T. SAMSON, 8 and 10, Portland Street, Kilmarnock—Seeds, Plants, and General List.

W. THOMPSON, 34 and 35, Tavern Street, Ipswich—Flower Seeds.

JAS. W. MACKEY, 23, Upper Sackville Street, Dublin—Seeds, and Amateur's Guide.

BRUANT, Boulevard St. Cyprien, Poitiers, Vienne, France—New Plants, &c.

COMMUNICATIONS RECEIVED.—J. D.—W. W.—H. B.—W. C—O. T.—J. W.—W. E—J. S.—J. Rust.—R. A. R.—J. Hughes.—W. Watson.—J. A—F. R.—A. D.—W. H. D.—T. C.—T. G. H—A. M. L.—A. F. B.—J. H. K.—C. T.—A. S. M.—E. M.—Don José Maria de Lacovzqueta.—E. W. S.—R. P.—F. S.

DIED, on January 6, aged seventy-nine, Mr. EDWARD CHENNELL, late Gardener to Lee Steere, Esq., Jayes Park, Ockley, Surrey. The deceased was well known in gardening circles, was much respected, and had held his situation for seventy years—a longer period than almost any other gardener in the kingdom. He was brought up on the estate, and went into the garden at the age of nine.

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TEA ROSES { A grand stock, in 5-in. pots, 12*s.* & 18*s.* doz. / A grand stock, in 7-in. pots, 24*s.* & 30*s.* doz.

GRAPE VINES { Black Hamburgh and other varieties. / Suitable for fruiting in pots, 10*s.* 6*d.* each / Suitable for planting vineries, 5*s.* and 7*s.* 6*d.* each.

FERNS { A fine stock, in 5-inch pots, 12*s.* per dozen. / A fine stock, in small pots, 4*s.* per dozen.

Catalogues on application.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), LIMITED,
THE VINEYARD AND NURSERIES, GARSTON, NEAR LIVERPOOL.

BENTLEY'S INSECTICIDE.

Is superseding the use of other Insecticides.
Used by nearly all the Leading Gardeners.
1 Gallon, 9*s.*; ½ Gallon, 5*s.*; 1 Quart, 3*s.* 6*d.*; 1 Pint, 2*s.*
Testimonials and full particulars upon application.

J. BENTLEY,
Chemical Works, Barrow-on-Humber, Hull.

ORCHID PEAT, best quality; BROWN FIBROUS PEAT for Stove and Greenhouse use. RHODODENDRON and AZALEA PEAT. Samples and Prices to WALKER AND CO., Farnborough, Hants.

SULPHIDE of POTASSIUM (Harris).—A certain cure for Mildew on Plants, Red Spider, Aphis, &c. Enough to make 32 gallons of solution, free for 1*s.* 3*d.* The only kind to use is "Harris's specially prepared Sulphide of Potassium." Sole Manufacturers:—
PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

GENUINE GARDEN REQUISITES, as supplied to the Royal Gardens.

Cocoa-nut Fibre Refuse, best quality, 1*s.* 3*d.* per sack; 10 sacks, 10*s.*; 20 for 18*s.*; 30 for 25*s.*; sacks included; truck, containing more than two ton, 28*s.*, free on rail. Best Brown Fibrous Kent Peat, 5*s.* per sack; 5 for 22*s.* 6*d.*; 10 for 35*s.* Best Black Peat, 4*s.* 6*d.* per sack; 5 for 20*s.* Coarse Bedfords' Sand, 1*s.* 6*d.* per bushel; 14*s.* half ton; 25*s.* per ton. Potting Composts, 5*s.* per sack. Genuine Peruvian Guano, Crushed Bones, Fertilisers, &c. Fresh Sphagnum Moss, 2*s.* 6*d.* per bushel; 6*s.* per sack. Charcoal, 2*s.* 6*d.* per bushel; 8*s.* per sack. Flower Sticks, painted and unpainted; Labels, and Bamboos. Best Raffia, 1*s.* per lb.; 7 lb. for 5*s.* 6*d.* Pure Leaf Mould, Peat Mould, and Yellow Fibrous Loam, each 1*s.* per bushel; 3 per sack. Sacks and Bags, 4*d.* each. Spécialité Tobacco Paper, 10*d.* per lb.; 28 lb., 21*s.* Finest Tobacco Cloth, 10*d.* per lb.; 28 lb., 21*s.* Mushroom Spawn, best quality, 4*s.* per bushel. Russia Mats, 10*s.* to 18*s.* per dozen. Virgin Cork, 28 lb., 5*s.* 6*d.*; 56 lb., 10*s.*; 1 cwt., 17*s.* Write for free Price List.—W. HERBERT AND CO., Hop Exchange, Southwark Street, London, S.E. (near London Bridge).

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Crushed Bones in all sizes for Vine Borders, Lawns, Potting, Grass Lands, &c. Also BONE MEAL for Poultry Feeding, GARDEN GUANO, DISSOLVED BONES, Special MANURES and FERTILIZERS for all purposes.

For Prices, apply to
HARRISON, BARBER & CO. (Limited),
GARRETT LANE, WANDSWORTH, SURREY, S.W.

PEAT for ORCHIDS,

AZALEAS, HEATHS, FERNS, RHODODENDRONS, &c.

The Best in the World.

A. JOHNSON AND CO., 23, Leadenhall Street, London, E.C., continue to receive the highest of testimonials (unsolicited) from large Orchid Growers, stating the ORCHID PEAT supplied by A. J. & Co. is by far the best they have ever used. Samples can be seen at above address, or forwarded on application free of charge.

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LEMON OIL INSECTICIDE.

Certain and Sudden DEATH to Insects on Plants.

Sweet Smelling and Harmless.

CLEANLY IN USE.

HARMLESSS TO TENDER FOLIAGE.

Certain Death to Insects.

Highly recommended by—

Mr. HARRISON, Gr. to Earl of Derby, Knowsley.
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Mr. MILNE ,, Lord Delamere, Vale Royal.
Mr. BROTHERSTON ,, Earl of Haddington, Tyningham, and many others.

PRICES:—

Pints.	Quarts.	½ Gallon.	1 Gallon.	4 Gallons.
1*s.* 6*d.*	2*s.* 9*d.*	5*s.*	9*s.*	34*s.*

Ask your Seedsman for it, or we will send sample tins free on receipt of price.

WM. CLIBRAN & SON,
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TWO PRIZE MEDALS.

Quality. THE BEST in the Market. (All sacks included.)

PEAT, best brown fibrous ... 5*s.* per sack, 5 sacks for 22*s.* 6*d.*
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PEAT, extra selected Orchid 8*s.* 6*d.* ,, 5 sacks for 40*s.*
LOAM, PREPARED COMPOST } 1*s.* per bush., 3*s.* per sack
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SILVER SAND, coarse, 1*s.* 6*d.* per bush., 14*s.* half-ton, 24*s.* ton.
RAFFIA FIBRE, best only ... ... 1*s.* per lb.
TOBACCO CLOTH, or PAPER ... ... 1*s.* lb.; 28 lb., 27*s.*
SPHAGNUM MOSS, all selected, 3*s.* per bush., 8*s.* per sack.

	In Bags.				
CHUBB'S "PERFECT" FERTILIZER (the Best Food for all kinds of Plants, Flowers, Fruits, Vegetables, &c. ...)	Tins. 7lb.	14lb.	28lb.	56lb.	1 cwt.
	1/6	3/-	5/-	8/-	14/-	22/-
CRUSHED BONES, or Bone Dust	1/2	2/-	3/6	6/-	12/-
VIRGIN CORK (Best Quality only)	—	3/-	5/6	10/6	17/-

RUSSIAN MATS, BAMBOO CANES, PERUVIAN GUANO, NITRATE of SODA, HORTICULTURAL CHARCOAL, &c.

PEAT MOSS LITTER, cheapest and best Bedding for Horses and Cattle, £2 per ton. Extra large Sample Bales, 6*s.* each. Also prepared for Poultry Pens, Rabbits, &c., in Sacks, 1*s.* 6*d.* each.

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1*s.* 4*d.* each; 10 sacks, 12*s.* 6*d.*; 15 sacks, 17*s.* 6*d.*; 20 sacks, 20*s.*; 25 sacks, 24*s.*; 30 sacks, 27*s.*; 40 sacks, 35*s.*; 50 sacks, 40*s.*; Truck-load, loose, free on rail, 30*s.* Limited quantities of G., special quality granulated, in sacks only, 2*s.* 6*d.* each.

SPECIAL MANURES, for Farmers, Agriculturists, Market Gardeners, and others (concentrated into a Dry Powder).

CHUBB'S **"PRODUCTIVE"** MANURE, in bags, **£3 per ton** (bags included); sample 1 cwt. bag, 4*s.*, producing extraordinary results, and worth four or five times the actual cost. Try it against any other manure, no matter what price.

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Terms strictly Cash with order. Bankers, Union Bank of London.

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NATIVE GUANO: BEST and CHEAPEST MANURE for Garden use. Price £3 10*s.* per ton, in bags. Lots under 10 cwt., 4*s.* per cwt. 1 cwt. sample bag sent, carriage paid, to any station in England on receipt of P.O. for 5*s.*

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Orders to the NATIVE GUANO CO., Limited, 29, New Bridge Street, Blackfriars, London, E.C., where Pamphlets of Testimonials, &c., may be obtained. Agents wanted.

SAVE HALF THE COST.

GARSIDE'S

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SILVER SAND,

Coarse and Fine,

Is admitted by the leading Nurserymen to be **the Best Quality** obtainable in the Trade.

Consumers should **Buy Direct** from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Splendid Sand, and thus save half the ordinary cost. NO TRAVELLERS OR AGENTS.

Apply direct to the Proprietor for Samples and Price.

Free on Rail or Canal. *All Orders executed with the utmost promptness and under personal supervision.* Special Railway Rates in force to all parts.

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FRESH CUTTINGS OF

SPLENDID ORCHID PEAT.

Nineteen Certificates of Merit awarded to

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SPECIALLY PREPARED, FREE FROM ALL WASTE, PURE BRACKEN FIBRE ONLY.

12s. per cask.

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JENSEN'S GUANOS are the most perfect Fertilisers. Promote and Sustain all Growths. Do not Exhaust, but Enrich the Soil. Analyses Guaranteed.
Six Prize Medals awarded in 1888.
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EPPS & CO. are now prepared to offer **PEAT,** as above, of first-class quality, at lowest prices. Send for Samples, Price List and Testimonials. Depôt for HORTICULTURAL SUNDRIES, LOAM, SAND, LEAF-MOULD, SPHAGNUM, COCOA FIBRE REFUSE.

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HUGHES' Soluble FIR TREE OIL

FLORISTS AND NURSERYMEN SHOULD NOT BE WITHOUT IT.

Unsurpassed as an Insecticide, it kills effectually all parasites aud insects which infest plants whether at the roots or on the foliage, without injury to tender plants—such as ferns, etc., if used as directed. Used as a WASH it imparts the gloss and lustre to the foliage which is so desirable on exhibition specimens.

Dog Fanciers should not be without it! It makes a silky Coat and produces healthy Skin Action; kills fleas, and is excellent for **washing dogs.**

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Sold by Seedsmen and Chemists, 1s. 6d., 2s. 6d. & 4s. 6d.; ½ gallon 7s. 6d., 1 gallon 12s. 6d., or less in larger quantities.

A Treatise on FIR TREE OIL as an INSECTISIDE, its application to Plants and Animals, sent Post free on receipt of address, by the Manufacturer,

E. GRIFFITHS HUGHES, Manchester.

WHOLESALE from all the London Seed Merchants, and Patent Medicine Houses.
NEW YORK—ROLKER & SONS.

GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft-water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6*d.* and 1*s.*, from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

TANNED NETTING, 2 yards wide, 1½*d.* per yard; 10*s.* per 100 yards; 25 yards, 2 yards wide, post-free, 4*s.*; 4 yards wide, 3*d.* per yard, 20*s.* per 100. NEW TWINE NETTING, 1-inch mesh, 1 yard wide, 2*d.*; 2 yards wide, 3*d.*; 4 yards wide, 6*d.* per yard. COTTON NETTING, 54 inches wide, 19 meshes to square inch, 7*d.* per yard (best article to protect fruit trees, &c.). FILCHARD NETTING, 12 yards wide, ¾-inch mesh, 9*d.* per yard.—W. CULLINGFORD, 127, Field Road, Forest Gate, London, E.

PIERCE'S SCALE FEEDER and PACKET FILLER MACHINE for Sale. A great convenience and saving. Price, nett cash, 30*s.* Fourteen days' trial allowed.
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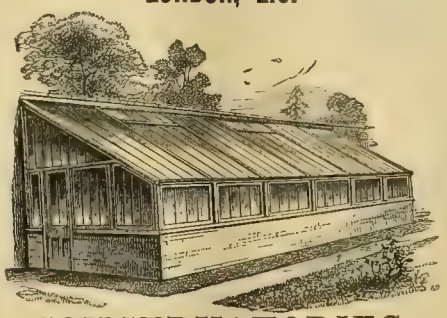
SANKEY'S "MARKET POT," or LONG TOMS, the best "Garden Pot" for Bedding Plants and Market Work. The 3-in. Market Pot holds as much soil as an ordinary 3½-in. pot, thus saving half an inch in room for each pot. Five sizes, 3 in., 3½ in., 4 in., 4½ in., and 4¾ in.; no rims, nearly upright, an inch to 1½ inches deeper than usual, very strong and much lighter in weight—the very pot for Market Growers; great economy in room and weight. Largest Stock in United Kingdom.
RICHARD SANKEY AND SON, Bulwell Potteries, Nottingham.

W. H. LASCELLES & CO.,

HORTICULTURAL BUILDERS,

121, BUNHILL ROW,

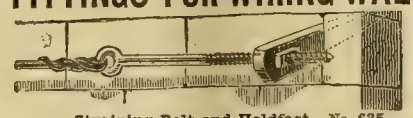
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Plans and Estimates Free.

THOMAS'S FITTINGS FOR WIRING WALLS



ALL GALVANISED.

Straining Bolt and Holdfast.—No. 635.
As illustrated above, price 3*s.* and 4*s.* per dozen.
Driving Eyes.—No. 631. Terminal Holdfasts.—No. 633.



Per doz. 2*s.*

2 2½ 3 3½ inches.
3*d.*, 4*d.*, 5*d.*, 7*d.* per doz.



No. 632A. 2*s.* 6*d.*

Best Galvanised Wire, 1/3, 1/6, 1/9 per 100 yards.
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87, Queen Victoria Street, London, E.C.

SAVE YOUR FIRE

and keep a fixed temperature under glass, by using "FRIGI DOMO," made of prepared hair and wool: a perfect non-conductor of cold.

PROTECT YOUR PLANTS
"FRIGI DOMO"
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FOR PRICE LIST & PARTICULARS ADDRESS
BENJAMIN EDGINGTON
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ORCHID BASKETS,

RAFTS, BOATS, AND CYLINDERS,

AND ALL GARDEN SUNDRIES.

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H. C. SMYTH,
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DRURY LANE, W.C.

GLASS.—CHEAP GLASS.

8s. 6d. per 100 feet 15 oz. 12×10, 18×12, 18×14, 24×14, 14×12, 20×12, 18×16, 24×16.
12s. per 100 feet 21 oz. ... 16×12, 16×14, 20×16, 24×18, &c.
Putty, 6*s.* 6*d.* per cwt.; White Lead, genuine, 21*s.*; Our Speciality, 17*s.* 6*d.* per cwt.; Paints ground in Oil, Stone Ochre, 20*s.*; Oxford Ochre, 24*s.*; Green, 16*s.*; Black, 16*s.* per cwt.; Varnish, from 5*s.* 6*d.* per gal.—Full Price List on application to **THE CHEAP WOOD COMPANY,** 95, Bishopsgate Street Within, London, E.C.

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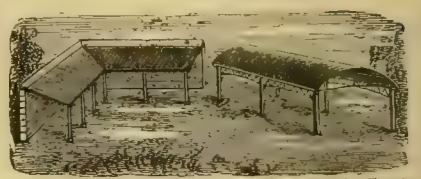
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IRON FENCING, HURDLES, GATES, &c.



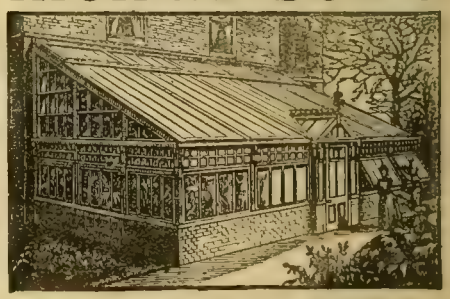
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Fixed in any part of the Kingdom with Hot-water Apparatus complete.

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STOCK SIZES	
Inches.	Inches.
14×12	20×16
16×12	20×16
18×12	22×16
20×12	24×16
16×14	20×18
18×14	22×18
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21-oz. Foreign of the above sizes, in 100 and 200 feet boxes, 3rds and 4ths qualities, always kept in stock.

A large stock of similar current sizes of **15-oz.** glass in 200 feet boxes.

English Glass, cut to buyer's sizes, at lowest prices, including *free delivery in the country in quantities.*

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SCIENTIFIC PRUNING AND TRIMMING MADE SAFE, EASY, AND RAPID.



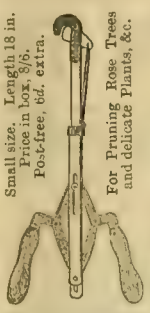
The New and Latest Invention for Scientific Pruning, Trimming and Thinning-out on a large scale.

THE GIANT PRUNER.

The great success of the "Standard" Tree Pruner and the "Mytieuttah" has induced us to give our attention to the production of a somewhat similar Implement, but of a much more powerful construction. In the Giant Pruner you have a tool capable of EASILY cutting a branch 7 inches in circumference, with an exerting pressure of 1½ tons, in 13 seconds.

Lengths from 2 feet to 12 feet. Prices from 22s. to 30s.

For Illustrated Price LISTS (in English, French, German, &c.) of above and other Novelties in Pruning Tools, Fruit and Flower Gatherers, &c., apply to the Principal Ironmongers and Seedsmen at home and abroad; or of the



Small size. Length 18 in. Price in box, 8/6. Post-free, 6d. extra.

For Pruning Rose Trees and delicate Plants, &c.

The New and Ingenious Hand to Hand Pruner,

"MYTICUTTAH"

(Registered Trade Mark and Title).

Patented in Great Britain, France, and Germany.

Hitherto, strictly correct Pruning could only be done by holding the branch with one hand and using a Knife with the other, but then only for small branches, whereas the "Mytieuttah" itself holds the branch, cutting over an inch in diameter, and in case of prickly bushes, &c., it saves the hands from injury. Garden and Lopping Shears, which hack and bruise the branch, are entirely superseded by this new Patent, and its many advantages will at once commend it to the practical Gardener or Forester.



For Pruning Evergreens, Roots, &c.

Large size, 21 in. long, in box, 9/6. Post-free, 7½d. extra.

Sole Proprietors and Makers: **THE STANDARD MANUFACTURING COMPANY, ST. ALKMUND'S CHURCHYARD, DERBY.**

THOMAS GREEN & SON, LIMITED,

SMITHFIELD IRONWORKS, LEEDS, AND SURREY WORKS, BLACKFRIARS ROAD, LONDON, S.E.,

HORTICULTURAL ENGINEERS to HER MAJESTY THE QUEEN, call Special Attention to their Patent Wrought-Iron Municipal or Angular Chambered and Tubular

HOT-WATER BOILERS,

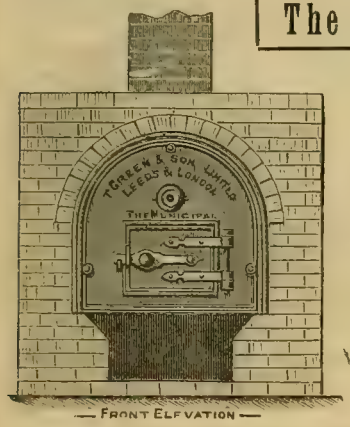
And others with SHELVES, and Hollow or Ordinary Cast-iron GRATE BARS.

SADDLE BOILERS, With WATERWAY BACKS and WELDED BOILERS, any of which are specially adapted for Heating Greenhouses, Conservatories, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c. They are the neatest, cheapest, most effective, and durable of any extant.

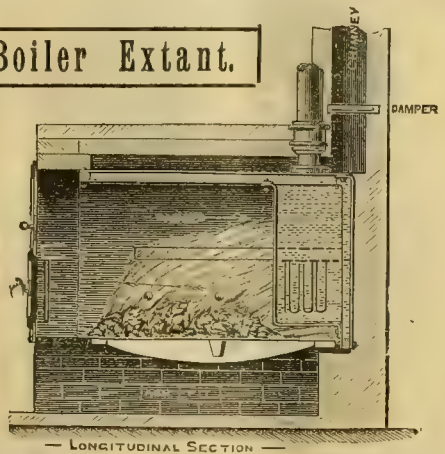
The MUNICIPAL and TUBULAR ones are remarkable for their great heating power, slow combustion, and the length of time the fire will burn without requiring attention.

These Patterns secured the FIRST and HIGHEST PRIZE—a SILVER MEDAL—at the Royal Horticultural Society's Exhibition, South Kensington, London, June 1, 1881.

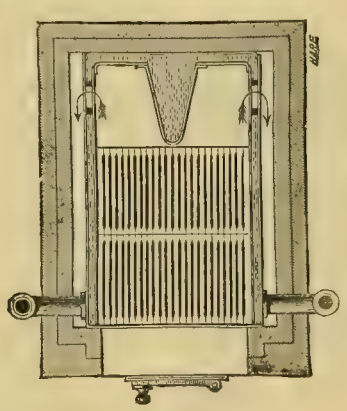
The Best Boiler Extant.



— FRONT ELEVATION —



— LONGITUDINAL SECTION —



SECTIONAL PLAN

The longitudinal section gives a view of the fire-box, water space, flues, &c. The cross section gives a view of the fire-box, water space and V-shaped back.
The front elevation shows it set in *brickwork, which is necessary for this class of boiler.*

SIZES AND PRICES.

M B 1	3 ft.	2 in.	long	by 2 ft.	0 in.	wide	by 2 ft.	0 in.	deep	Calculated to heat 4-in. piping as follows:—	1000 ft.	Price £15	0	0
M B 2	4	0	,,	by 2	0	,,	by 2	0	,,		1280	,, 21	0	0
M B 3	5	0	,,	by 2	3	,,	by 2	6	,,		2200	,, 32	0	0
M B 4	6	6	,,	by 3	0	,,	by 3	0	,,		4000	,, 60	0	0
M B 5	8	6	,,	by 4	0	,,	by 3	9	,,		7000	,, 85	0	0

TESTIMONIALS.

MESSRS. THOS. GREEN AND SON, LTD., NORTH STREET, LEEDS. **Re HEATING APPARATUS.** Borough Engineer's Office, Municipal Buildings, Leeds. *January* 9, 1886.

GENTLEMEN,—I have great pleasure in bearing testimony to the efficiency and satisfactory working of the Hot-water Heating Apparatus you erected in these public buildings.

The buildings are four storeys high, and we have a total length of about 28,000 feet of piping in them, varying in size from 1½ in. to 6 in. diameter, with their connections, &c. The several offices and rooms can all be in operation at one time or separately, and the heat regulated by means of the valves to the temperature required, even in the coldest weather.

Two of your Patent Municipal Pattern Boilers, No. 4, work the whole of this piping easily, although we have three of them fixed. They are very powerful and economical in the consumption of fuel, and I am pleased to be able to report of them and the apparatus so favourably.

I am, Gentlemen, yours truly, THOS. HEWSON, Borough Engineer.

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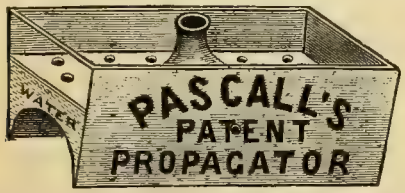
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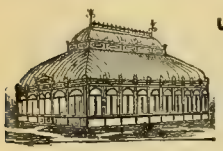
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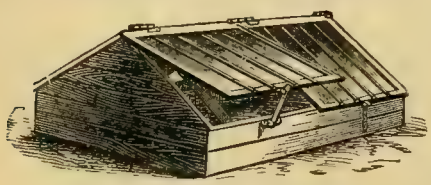


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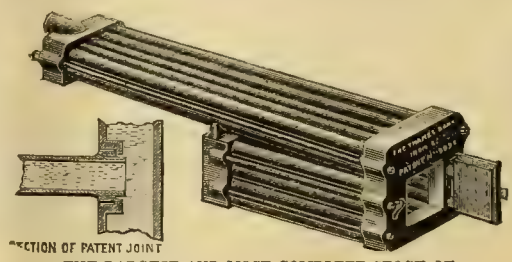
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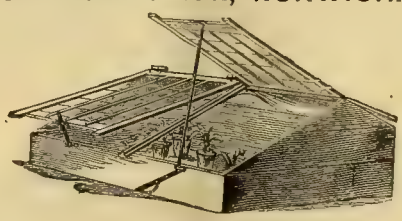
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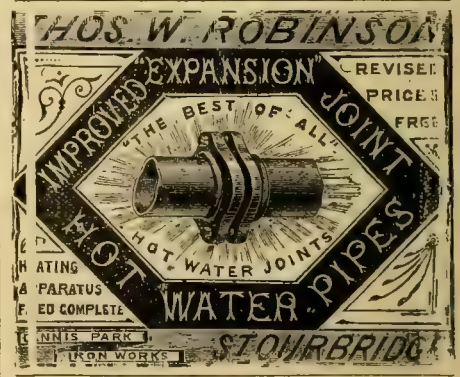
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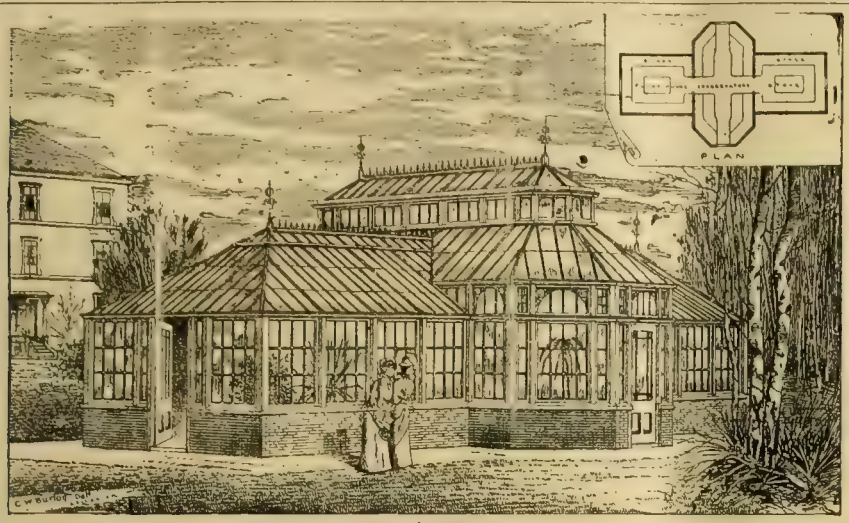
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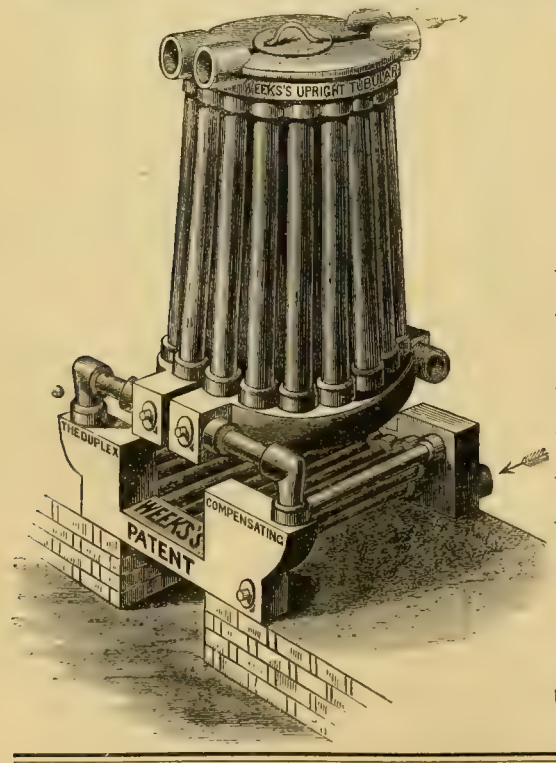
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E. S., West End Gardens, Thorpe, Chertsey, Surrey.

WANTED, ORCHIDS, EUCHARIS, ROSES, Maidenhair FERNS, and any other choice Cut FLOWERS in quantity. Best Market Prices returned weekly. S. HILL, Jun., 21, Charlotte Street, Fitzroy Square, W., and 363, Covent Garden Flower Market, W.C.

WANTED, a Large Specimen KENTIA FORSTERIANA, with not less than 12 or 14 leaves. Also a large Specimen CORDYLINE INDIVISA, in perfect condition.—State price to
A. W. SMITH, Seed Merchant and Florist, Hawkesbury, near Coventry.

WANTED, good TOBACCO PAPER.
Send lowest price per cwt. to
C. S., care of Willing, 125, Strand, W.C.

LILIUM AURATUM.—THE GOLDEN-RAYED LILY OF JAPAN can now be purchased in Cases containing 50 fine Bulbs, just as received from the Japanese Bulb Farms, unopened and unexamined, at 25s. per Case; sent Free to any Railway Station in England and Wales on receipt of Postal Order for 23s. 9d. Cases containing 100 fine Bulbs, price 40s. Fine and sound Bulbs per dozen, 4s., 6s., 9s., 12s., and 18s. Mammoth Bulbs, 2s. 6d. and 3s. 6d. each. All sent packing and carriage free.
CARTERS', Royal Seedsmen by Sealed Warrants, 237 and 238, HIGH HOLBORN, LONDON, W.C.

W. THOMPSON, SEEDSMAN, 34, Tavern Street, Ipswich, begs to announce that his FLOWER SEED CATALOGUE for the present Season is Now Ready, and may be had on prepaid application. It includes in addition to all the best of previous introductions, some New and Rare Seeds, exclusively in his possession.

Full of Useful Information—No Charge.
BARR'S 1889 SEED CATALOGUE, now ready. In addition to the usual valuable information, will be found special remarks on the Culture of the TOMATO and TOBACCO as INDUSTRIES, with a Special LIST of HIGH-CLASS POTATOS, handsome in form, pleasant in flavour, and bountiful croppers. CATALOGUE free on application to
BARR AND SON, King Street, Covent Garden, W.C.

30,000 DWARF ROSES.—Cheaper than ever. All the best leading varieties. Warranted true to name. The best money can buy. Sample dozen from 3s.; 22s. per 100—packing free for cash with order. Send for a LIST.
A. J. AND C. ALLEN, Stone Hills Nursery, Norwich.

PALM SEEDS. — TO THE TRADE.—Write for Special Price LIST of all the leading kinds to
H. DAMMANN, Jun., Breslau, Germany.

CHEAL'S SINGLE DAHLIAS. — Seed from this celebrated strain, selected from over 50 of the best named varieties, 1s. 6d. and 2s. 6d. per Packet.
J. CHEAL AND SONS, Crawley.

APPLE TREES with Mistleto growing on them, 10s. 6d., 15s., and 21s. each.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

BUNYARD'S Prizetaker BROAD BEAN. The finest ever sent out free for 20 stamps per Packet. Wholesale of Messrs. HURST AND SON, London, only.
GEORGE BUNYARD AND CO., Seed Merchants, Maidstone.

SELECTED SEED POTATOS. — The best varieties for table use. The best varieties for exhibition. Delivered free. Lists Post-free on application.
DICKSONS (*Limited*), The Royal Seed Warehouse, CHESTER.

CHRYSANTHEMUM CULTURE.—Standen's Manure, admitted by growers to be unrivalled for this purpose; in tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each. Sold by all Seedsmen.

SULPHIDE of POTASSIUM (Harris).—A certain cure for Mildew on Plants, Red Spider, Aphis, &c. Enough to make 32 gallons of solution, free for 1s. 3d. The only kind to use is "Harris's specially prepared Sulphide of Potassium." Sole Manufacturers:—
PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

1,100,000 GARDEN POTS, 3½ in. diam., in stock, ready for immediate delivery; carriage and breakage free on £10 orders; half carriage on £5. Acknowledged by the trade to be the best pots manufactured. Largest Stock and Largest Manufacturers in United Kingdom.
RICHARD SANKEY AND SON, Bulwell Potteries, Nottingham.

SEND FOR New Illustrated CATALOGUE of Conservatories, Greenhouses, Garden Frames, Propagators, post-free, for 6 stamps, deducted from first order.
CHARLES FRAZER, Palace Plain Works, Norwich.
Great Reduction in Prices.

SALES BY AUCTION.

Wednesday Next—(Sale No. 7867.)

200 AZALEA MOLLIS, and 100 A. INDICA, well set with buds, from Ghent; 400 Choice Named Standard and Dwarf ROSES, from a well-known English Grower; Pyramid and Dwarf-trained FRUIT TREES, to name; Ornamental EVERGREENS, SHRUBS, and CONIFERS; CARNATIONS, PICOTEES, and other Border Plants, in great variety; DUTCH BULBS for present planting, SPIRÆA JAPONICA, LILY OF THE VALLEY Crowns, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 13, at half-past 12 o'Clock precisely each day.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7868.)

SPECIAL SALE OF ORHIDS IN FLOWER AND BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, February 13, at half-past 12 o'Clock precisely, a choice COLLECTION of ORCHIDS IN FLOWER AND BUD.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7868).

200 Lots of well-grown ESTABLISHED ORCHIDS in FLOWER and BUD, from a well-known private collection.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY NEXT, February 13. Among other choice things will be found,—

Cypripedium Boxalli, thirty-four flowers.
,, Schlimi album, twelve leads.
,, Sedeni porphyreum.
Cœlogyne cristata Lemoniana, with forty spikes.
Odontoglossum ramosissimum, extra fine varieties.
,, Roezlii, fine plants.
Lycaste Skinneri alba.
Dendrobium Amsworthii.
Cattleya Percivaliana, fine specimen.
Lycaste Skinneri, splendid form, with thirty flowers.
Odontoglossum pulchellum majus, with thirteen spikes.
Choice Masdevallias.

Some splendid varieties of Odontoglossum Alexandræ, O. Pescatorei, &c.

On view morning of Sale, and catalogues had.

Thursday Next. (Sale No. 7869.)

VALUABLE IMPORTED ORCHIDS.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 14, a splendid Importation of CYPRIPEDIUM CALLOSUM, in fine condition; CŒLOGYNE SULPHUREA, AERIDES, ONCIDIUMS, and other ORCHIDS.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7869.)

5000 grand Bulbs of LILIUM AURATUM and other LILIES, just received from Japan, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 14.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7869.)

ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 14, a fine lot of ESTABLISHED ORCHIDS, many in Flower and Bud.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7869).

VANDA KIMBALLIANA (Rchb. f.)

2000 CYPRIPEDIUM NIVEUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, February 14, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a large quantity of Choice Imported Orchids, comprising VANDA KIMBALLIANA, offered for the first time, respecting which Professor Reichenbach writes "appears a glorious, grand novelty." The habit of the plant somewhat resembles Vanda teres, but it flowers so profusely, that plants 6 inches in height have 4 spikes, flowers large, 15 to 20 on a spike, colour of petals and sepals pure white, the lip a beautiful rosy-purple. Also splendid specimens of what appears to be a gigantic form of the lovely VANDA AMESIANA, 2000 CYPRIPEDIUM NIVEUM and OTHER CHOICE ORCHIDS.

On view morning of Sale and Catalogues had.

Monday Next.

IMPORTANT and SPECIAL SALE of LILIES, consisting of about 4000 Lilium auratum, just arrived from Japan, in magnificent condition; 3000 Lilies, in variety, including beautiful bulbs of Humboldtii, Washingtonianum, Wallichianum, and Brownii; a splendid collection of IRIS, embracing most of the leading kinds in cultivation; a grand lot of the beautiful CALOCHORTI, CARNATIONS, PICOTEES, DAHLIAS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, February 11, at half-past 11 o'Clock precisely.

On view morning of Sale, and catalogues had.

Tuesday Next.

Named CARNATIONS and PICOTEES in Pots, Standard and Dwarf ROSES, FRUIT TREES, EVERGREENS, CAMELLIAS, and AZALEAS, from an English Nursery.

MESSRS. PRTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 38, Gracechurch Street, E.C., on TUESDAY NEXM, February 12, at half past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.,

Tuesday Next, February 12.

ONCIDIUM MACRANTHUM—wonderful importation.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Charlesworth, of Heaton, Bradford, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, February 12, at half-past 12 o'Clock, a consignment of the following ORCHIDS, collected personally by Mr. Charlesworth. These plants are very difficult to import, but by using the necessary care and proper judgment in packing, the consignment has arrived in marvellous condition, and the attention of intending buyers is drawn to this fact.

ONCIDIUM MACRANTHUM.

The importation is the healthiest and by far the finest batch ever offered for sale. Many large and distinct pieces will be found amongst them. Oncidium macranthum is decidedly the finest Oncidium, and is of very easy culture.

ODONTOGLOSSUM EDWARDII.

This desirable Orchid produces long branching spikes, closely set with dark violet-purple flowers.

ODONTOGLOSSUM CIRROSUM,

One of the most elegant and charming Odontoglots. The spider-like flowers are creamy-white, thickly blotched with chocolate-purple. It produces numerous spikes, very valuable for exhibition or floral decorations. The plants offered are in marvellous condition, especially selected.

ODONTOGLOSSUM HALLII.

The plants offered of this grand Orchid are in excellent condition, with large bulbs and healthy breaks. The flowers are large, with broad sepals and petals, the colour being of a brightyellow, heavily blotched with reddish-brown. It flowers during the spring months, and continues in perfection a considerable time.

On view morning of Sale, and Catalogues had.

Wednesday Next.

5000 LILIUM AURATUM from Japan, 60,000 Seeds of COCOS WEDDELLIANA from Brazil, in splendid condition; English-grown LILIES in variety, Japanese IRIS, various Hardy BULBS, ROSES, GREENHOUSE PLANTS, &c,

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, February 13, at half-past 12 o'Clock precisely.

On view morning of Sale or Catalogues had.

Wednesday, February 13.

60,000 SEEDS of COCOS WEDDELLIANA, from Brazil, all of superior quality and in first-class condition.

Important to the Trade.

MESSRS. PROTHEROE AND MORRIS will include the above at their Central Sale Rooms on WEDNESDAY, February 13, in lots of 1000 each.

On view morning of Sale and Catalogues had.

Thursday, February 14

(and not Tuesday, as previously advertised).

Important to the Trade and Private Buyers.

SALE of NURSERY STOCK and GREENHOUSE PLANTS from Sample.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on THURSDAY NEXT, February 14, at half-past 12 o'clock precisely, large quantities of NURSERY STOCK and GREENHOUSE PLANTS from Sample, including the following:—

20,000 Rhododendron ponticum and others
3,000 Kalmias
20,000 Cupressus Lawsoni, various sizes
20,000 Berberis Darwinii, 3-yr.
1,000 Laurels, 2 to 2½ feet
3,000 Azalea pontica, 2 to 2½ feet
3,000 Clematis vitalba
20,000 Quick, various sizes
5,000 Currants
Quantities of Dwarf-trained and Standard Fruit Trees

Quantities of Dwarf Roses, and many other Trees and Shrubs of various kinds.

Catalogues may be had of the Auctioneers, and Samples will be on view the morning of the Sale.

Friday, February 15; Tuesday, February 19; and WEDNESDAY, FEBRUARY 20.

THE BARVINS PARK COLLECTION of ESTABLISHED ORCHIDS.

UNRESERVED SALE of the Third Portion of this Extensive Collection, by order of the Proprietor, who is leaving the neighbourhood and Selling the Estate.

Important to the Trade and Large Buyers.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., at half-past 12 o'Clock precisely each day, the Third Portion of this Extensive Collection of ESTABLISHED ORCHIDS, without the least reserve, comprising several thousands of Plants, mostly for the cool house, including a large quantity of Odontoglossum Alexandræ, in various sizes, all unflowered, and principally selected from Messrs. Shuttleworth, Carder & Co's. importations of the broad-petalled Pacho variety.

The Plants will be on view the morning of Sale. Catalogues forwarded, free by post, on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Leamington.

GREAT CLEARANCE SALE of GENERAL NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Wills & Sons to SELL by AUCTION, on the Premises, The Nursery, Milverton, Leamington, on WEDNESDAY and THURSDAY, February 20 and 21, at 12 o'Clock each day, the whole of the beautifully grown NURSERY STOCK, including a very choice assortment of handsome specimen Conifers, splendid specimen Golden Hollies and Yews, Standard Ornamental Trees, Pyramics, &c.

May be viewed any day prior to the Sale. Catalogues may be had of Messrs. WILLS AND SONS, Nurserymen, Leamington; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Tuesday, February 26.—Special Sale.

ORCHIDS in FLOWER

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be pleased to receive NOTICE of ENTRIES as EARLY AS POSSIBLE.

Cypripedium insigne Hallianum.

The ENTIRE STOCK of this beautiful and new variety, fully described by Professor Reichenbach in this week's *Gardeners' Chronicle*.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, on FRIDAY, March 1, NEXT.

The celebrated Sunbury House Collection of

ESTABLISHED ORCHIDS,

IMPORTANT UNRESERVED SALE.

Preliminary Notice.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESADY, March 12 and 13, at half-past 12 o'Clock each day, the first portion of this valuable collection of ESTABLISHED ORCHIDS, by order of Major Lendy, who, in consequence of ill-health, is relinquishing their cultivation.

Full particulars will appear in future announcements.

The Rosarium, Ashbourne, Derby.

To Gentlemen, Gardeners, and Nurserymen.

GREAT CLEARANCE SALE of Hardy EVERGREENS, SHRUBS, and DECIDUOUS PLANTS.

MESSRS. OLIVER, SON, AND OLIVER are favoured with instructions from Mr. A. W. Godwin to SELL by AUCTION, at the Rosarium, Ashbourne, on THURSDAY, February 14, 1889, at 11 o'Clock (weather permitting), the whole of the large and varied collection of EVERGREENS, SHRUBS, and DECIDUOUS TREES.

Full particulars in Catalogues from the Auctioneers, Derby.

TO BE SOLD,

By Private Treaty, as a Going Concern,

A LARGE AND WELL EQUIPPED

NURSERY.

Situate about 7 miles from Manchester.

There are eleven Houses, varying in length from 20 to 60 yards, and the Stock inside comprises Adiantum cuneatum, Double White Primula, Lomaria gibba, Palms, Dracænas, Azaleas, Pancratium, Spiræa japonica, Mixed Ferns, Eucharis amazonica, &c. The outside of the Nursery is stocked with Rhododendrons and Rose trees. There is ample plant and working utensils.

Particulars can be obtained on application to Messrs. BOOTE AND EDGAR, 18 and 20, Booth Street, Manchester.

FOR IMMEDIATE DISPOSAL, good SEED and FLOWER BUSINESS, chiefly cash. Satisfactory reasons. Good Dwelling-House attached.

SEEDSMAN, 41, Wellington Street, Strand, W.C.

FOR DISPOSAL, the FREEHOLD of a SMALL NURSERY, with good Dwelling-house. Has been in the occupation of the present owner over thirty years. Used for growing Grapes, Tomatos, and Cut Flowers for Market.

Letters J. C., care of C. Martin, General Avenue, Covent Garden, W.C.

Garthlands Arkley, High Barnet, Herts.

About 1½ mile from High Barnet Station, in a high and rural position, facing south, and commanding views of considerable extent.

TO BE SOLD (Lease expires 1911; Ground-rent £15; Price £1350), a COUNTRY RESIDENCE, in excellent repair, with Carriage-drive; four Bedrooms, one Dressing-room, an Attic, good Hall (tiled) Drawing-room, 21 feet 10 inches by 15 feet 10 inches; Dining-room, 22 feet 10 inches by 15 feet 2 inches; Library, 14 feet 10 inches by 10 feet 10 inches; a Butler's Sitting-room and Bedroom combined; good offices. The Gardens sloping to the south are very tastefully laid out, and exceptionally complete; they include large levelled Tennis-lawn, thoroughly secluded Flower, Fruit, and Kitchen Gardens, Lawns, Shrubberies, Fish-pond, handsome succession Vineries, in houses 50 feet in length. The Vines are in full bearing, and Hothouses about 45 feet in length, all with first rate Heating Apparatus; large Pottingshed, ornamental Fowl-house—in all nearly 2 acres. Gas and Water, good Drainage; Church and Post-office within 10 minutes' walk. Personally inspected, and recommended to any one seeking a comfortable residence with an enjoyable garden and first-rate glasshouses. For order to view, apply to DEBENHAM AND TEWSON, 80, Cheapside, E.C.

To Nurserymen, Florists, and Others.

TO BE DISPOSED OF, the Lease and Goodwill, with Possession, of 5 acres of NURSERY and ARABLE GROUND, fully stocked, together with Cottage, Buildings, Greenhouses, and Pits, and 12 acres of open Ground adjoining, near Windsor, Berks. Capital required, £450; or Partnership arranged.

Apply to E. P. NEWMAN, Market Gardeners' Agent, Uxbridge, W.

To Market Gardeners, Florists, Nurserymen, &c.

HAMPTON-ON-THAMES.

FOR SALE, choice FREEHOLD LAND, in Acre Plots, suitable for above. Rich Garden Soil with gravel and sand sub-soil. The land is considered by the Trade the finest near London for Grape and other Market Products.

Apply, SECRETARY, Esher Investment and Villa Farm Company, Estate Office, Tangley Park, Hampton-on-Thames.

WEST END FLORIST'S BUSINESS for SALE, doing £20 a week now, and £80 a week in the season. About 300 accounts on the book. £400 required. Stock at a Valuation, and book debts can be taken over or not. Apply, Messrs. FIRTH AND CLARKE, Accountants, 26, Bedford Row, W.C.

FOR SALE, a SEED BUSINESS, &c., in a large and thriving Town. Established 10 years. Sales over £7000 per annum, at good profits. Incoming about £1000. Address, The AGENCY, 19, Finsbury Square, London, E.C.

TO LET GLASSHOUSES, GARDEN, and 2 Acres excellent LAND, all in first-class condition. Address, Mr. BROWN, Florist, Chariot Street, Hull.

Farm, High-class, 12 Miles from London.

TO BE LET, on Lease, at expiration of present holding (Michaelmas next), the compact and choice property known as VICARAGE FARM, Heston, Hounslow, situate a few yards only from the Barracks Station, on the District Railway, and about 12 miles from Covent Garden. The Farm comprises about 216 acres of most productive Arable and Pasture Land, and is surrounded by good hard roads. It embraces a superior Residence, with complete Farm Buildings, Bailiff's House, Labourers' Cottages, &c. Well worthy the attention of Gentlemen Farmers, Market Gardeners, and others. Such a choice Farm is seldom met with so near London.

For further particulars apply to Mr. WOODS, Auctioneer and Valuer, Hounslow, Middlesex.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an Immense Stock of

ESTABLISHED ORCHIDS,

which they offer at the most reasonable prices; and they are continually receiving fresh importations from various parts of the world.

Lists, with Prices and Full Particulars, on application.

THE VINEYARD AND NURSERIES,
GARSTON, NEAR LIVERPOOL.

TO THE TRADE.

OUR WHOLESALE CATALOGUE

Has now been Posted; if not received, send for one

AND COMPARE PRICES.

HOWCROFT & WATKINS, Seed Merchants,
HART STREET, COVENT GARDEN, LONDON, W.C.

To the Trade.

SURPLUS PEAS to offer:—
AMERICAN WONDER
CHAMPION OF ENGLAND
BRITISH QUEEN
FILLBASKET
IMPROVED SANGSTER'S
SHARPE'S INVINCIBLE
LITTLE GEM
PRINCESS ROYAL.
Also NANTES HORN CARROT, Clean Seed.
Samples and prices on application
HOWCROFT AND WATKINS, Seed Merchants, Hart Street, Covent Garden, W.C.

100 CONIFERS in 50 distinct varieties ... ... for 50s.
100 ORNAMENTAL TREES, in 50 distinct varieties, including many variegated, golden, and purple varieties ... ... for 50s.
100 DECIDUOUS SHRUBS in 50 distinct varieties ... ... for 20s.
100 EVERGREEN SHRUBS, in 50 distinct varieties ... ... for 30s.
100 ROSES, in 50 distinct varieties, of H.P., Moss, Tea, &c. ... ... for 35s.
100 RHODODENDRONS, in 50 distinct varieties ... for 100s.
100 HERBACEOUS PLANTS, in 50 fine varieties ... for 20s.
100 PRIMULAS, in 50 distinct varieties ... ... for 50s.
CATALOGUE of Names free on application.
MORRISON BROTHERS, Nurseries, Aberdeen.

ROSES — ROSES — ROSES.—50,000 extra strong Dwarf H.P.'s in all the leading kinds, 21s. per 100, £10 per 1000; Maréchal Niel's, extra strong, 15s. per dozen; Gloire de Dijon, extra strong, 9s. per dozen; William A. Richardson, extra strong, 12s. per dozen. A few Manetti Stocks to offer at 35s. per 1000. Cash with order.
CATALOGUES free on application.
C. H. GORRINGE, Roselands Nursery, and 75, Terminus Road, Eastbourne.

AN AMATEUR, changing residence, wishes to SELL his VANDAS, DENDROBIUMS, CATTLEYAS, &c., very cheap. State genera required.
Address, North Lodge, Addiscombe.

100 ALPINE and HERBACEOUS PLANTS, 25s. Descriptive CATALOGUE, Illustrated, with Cultural Notes, 72 pages (containing much interesting information). Post-free, 9d.
STANSFIELD BROS., Southport.

FOR SALE, 3000 GENISTAS, in 48-pots. Good stuff to go into 32-pots, at 17s. per 100; and well-rooted Cuttings, at 4s. per 100. Sent on by Parcel Post for cash with order.
T. BALDWIN AND SON, Edith Nursery, Burchill Road, Leyton.

THE MARQUIS of HARTINGTON'S Head Gardener says:—"What an appropriate name is that given to CARTER'S SCARLET PERFECTION CARROT." Price in sealed packets, 1s. 6d. per oz., post-free, from 237, High Holborn, London.

To Offer, Very Cheap.

GRAPE VINES.

J. PEED AND SONS, Roupell Park, Tulse Hill Station, S.E.

BEGONIA SEED and TUBERS.—BOX'S varieties are the best, as testified by all purchasers. Both quality and quantity. SEED from latest novelties of Singles, mixed colours, small packets, 6d.; larger packets, 1s. and 2s. 6d. Collections, 4 separate colours, 1s. 6d.; 8 ditto, 2s. 6d. Of Doubles, small packets, 10d.; larger packets, 1s. 6d., 2s. 6d., and 5s. Collections of Dahlias, 4 separate colours, 2s. 6d.; 8 ditto, including white and yellow, 5s.; double orange, very extra, 2s. 6d. and 5s. per packet. TUBERS, unnamed Singles, to colour superior to named sorts, 12 or more distinct colours, for pots, per dozen, 9s., 12s., 18s., and 24s. per dozen; for bedding, 40s. and 50s. per 100; mixed colours, 28s. per 100. Unnamed Doubles, very superior, 6 or more colours, per dozen, 24s., 36s., 48s.; mixed colours, 15s.; choice, to name, from 24s. All post-free. Full LIST on application. Quote this paper).
JOHN R. BOX (for 10 years J. Laing's sole Partner), Seedsman and Begonia Grower, Croydon.

BIRMINGHAM PRIMULAS. — Exhibitors and judges know well that Birmingham Primulas have been for many years, and still are, far ahead the best known; and the varieties Marquis of Lorne, Princess Louise, The Queen, Emperor, Lady R. Churchill, Pope's Blue, all raised by our foreman, Mr. Rose, are still the best known, and, where exhibited, win. No others have a chance. They have won every prize at Birmingham for many years, except where debarred from competition. Gentlemen, who have not seen a Birmingham Primula Show, we shall be pleased to send a few blooms, on receipt of 3 stamps for box and postage. Mixed Packets of all the best sorts, 5s.; Ditto, small packet, 2s. 6d.; or separate, if required, at 2s. 6d. to 5s. per packet.
POPE AND SONS, Nurserymen, &c., King's Norton Nurseries, Birmingham.

CANNELL'S SEEDS
PERFECT ONLY—DIRECT FROM
SWANLEY—KENT.

It is a settled question that our seeds (200 acres), owing to our sunny position, warmer and better soil, are a lot the best, the difference between them and those grown farther north, bought and sold half-a-dozen times by those who never grow a grain, is immense. Have them direct from us, the ACTUAL GROWERS, at nearly wholesale prices, effecting a great saving. Numerous First-class Certificates the last quarter of a century stamp ours the best strains. All Seeds Carriage Free, except heavy kinds. Send for ours, the best Illustrated Catalogue ever issued.

From Mr. R. R. OSWALD, *Chapel Street, Birkenhead, February* 10, 1888.
"Your Seeds are the best I ever grew. I took eleven First Prizes with them last year."

SEED GROWERS and MERCHANTS,
SWANLEY, KENT.

CANNELL'S SEEDS
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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At a General Meeting of the Subscribers to this Institution, held on WEDNESDAY, the 16th January, 1889, for the Election of New Pensioners on the Fund, the following was the result of the Ballot:—

CANDIDATES.

Votes.	Name.	Age.
1122	STEPHEN EVANS	73
916	THOMAS MORLEY	79
773	JOSEPH NORVAL	63
1190	JOHN SLOWE	70
1234	ELIZABETH SNOW	74
1917	WILLIAM HOLAH	67
1900	HELEN W. LESSELLS	72
1615	MARGARET MALCOLM	59
592	JAMES MANDERSON	65
718	ELIZABETH POLLARD	76
1729	GEORGE READ	58
1626	CHRISTOPHER ROBINSON	77
965	HENRY BERRY	73
385	JAMES EDMONDS	82
983	WILLIAM FOWLE	68
114	GEORGE FRICKER	72
452	JOHN GRIMSHAW	78
111	JOHN HOOPER	79
1383	ELIZABETH KEMBER	83
2014	SARAH NAYLOR	61
1587	CHARLOTTE NEWELL	64
274	WILLIAM NIXON	61
174	CLEMENT PRESTON	76
1313	JAMES PRUST	64

The Meeting then declared John Slowe, William Holah, Helen W. Lessells, Margaret Malcolm, George Read, Christopher Robinson, Elizabeth Kember, Sarah Naylor, and Charlotte Newell, as having the greatest number of votes, duly elected Pensioners of this Institution, from the 25th December, 1888.
By Order. EDWARD ROGER CUTLER, Secretary.
50, Parliament Street, S.W., January 19, 1889.

THE GARDENERS' ORPHAN FUND.

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Royal Horticultural Society's Gardens,
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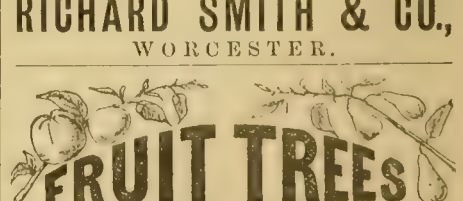
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THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 9, 1889.

UNCLE JACKS.

THE race of Uncle Jacks did not die out with famous free-handed and free-tongued Jack Tibbets of *The Caxtons*. In sketching this amusing creature who was apparently as much knave as fool, the late Lord Lytton seems to have had prophetic foresight of some other enthusiastic persons, who in these matter-of-fact days still draw wonderfully sanguine pictures of the prosperity which will flow from hardy fruit culture. Under other designations Jack Tibbets' successors write to the papers, give lectures, make speeches, write essays, and continue with boldness and assurance to declare that big fortunes are to be made by all who, taking their advice, will embark in hardy fruit culture. The original Uncle Jack was as ignorant as a waggon-horse of fruit culture; the modern Uncle Jack is not so ignorant, hence his fancy sketches are all the more enticing and dangerous. We might have almost fancied, in turning over the pages of *The Caxtons*, though written a generation since, that we were reading the report of some Fruit Congress, a speech, or some letter in a morning or evening paper, when perusing Jack Tibbets' bold outlines of the method by which his bookworm brother-in-law was to find a mine of wealth in his orchards. Verily there is nothing new under the sun, and even Jack Tibbets might have had his prototype generations before Bulwer Lytton created him. Here is Jack's startling calculation, which some others have of late perchance been studying:—

"'But my dear brother, I was just looking with admiration at those Apple-trees of yours. I never saw finer. I am a great judge of Apples. I find in talking with my sister that you make very little profit by them. That's a pity. You might establish a cider orchard in this county. You can take your own fields in hand. You can hire more, so as to make the whole, say, 100 acres. You can plant a very extensive Apple orchard on a grand scale. I have just run through the calculations; they are quite startling. Take forty trees per acre

that's the proper average—at 1*s.* 6*d.*; 4000 for 100 acres, £300; labour of digging, trenching, say, £10 per acre: total for 100 acres. £1000. Pave the bottom of the holes to prevent the tap-roots striking down into the bad soil. Oh, I am very close and careful in all my *minutiæ*—I always was!—pave 'em with rubbish and stones. Sixpence a hole; that, for 4000 trees, would be £100; add the rent of the land at 30*s.* an acre, £150; and how stands the total?' Here Uncle Jack proceeded, rapidly ticking off the items with his fingers,—'Trees, £300; labour, £1000; paving holes, £100; rent, £150; total: £1550. That's your expenses. Mark now the profit. Orchards in Kent realise £100 per acre—some even £150—but let's be moderate, say only £50 per acre, and your gross profit from a capital of £1550 will be £5000. £5000 a year! Think of that, Brother Caxton. Deduct 10 per cent., or £500 a year for gardeners' wages. manure, &c. and the nett produce is £4500. Your fortune's made man—it is made! I wish you joy,' and Uncle Jack rubbed his hands. 'Bless me, father,' said eagerly the young Pisistratus, who had swallowed with ravished ears every syllable and figure of this inviting calculation, 'why, we should be as rich as Squire Rollick; and then, you know, you could keep a pack of hounds.' 'And buy a large library,' added Uncle Jack, with more subtle knowledge of human nature as to its appropriate temptations. 'There's my friend the Archbishop's, collection to be sold.' Slowly recovering his breath my father gently turned his eyes from one to the other, and then, laying his left hand on my head, whilst with the right he held up Erasmus rebukingly to Uncle Jack, said, 'See how easily you can sow covetousness and avidity in the youthful mind. Ah, brother.' 'You are too severe, sir. See how the dear boy hangs his head! Fie!—natural enthusiasm of his years. 'Gay hope by fancy fed,' as the poet says. Why, for that boy's sake you ought not to lose so certain an occasion of wealth—I may say untold wealth. For, observe, you will form a nursery of Crabs; each year you will go on grafting and enlarging your plantation, renting, nay, why not buying more land? Gad, sir, in twenty years you might cover half the county, but say you stop short at 2000 acres; why, the nett profit is £90,000 a year. A duke's income—a duke's, and going a-begging, as I may say.' 'But stop,' said I, modestly; 'the trees don't grow in a year. I know when our last Apple tree was planted—it is five years ago—it was then three years old; and it only bore half a bushel last autumn.' 'What an intelligent lad it is! Good head there. Oh, he'll do credit to his great fortune, brother,' said Uncle Jack, approvingly. 'True, my boy. But in the meanwhile we could fill the ground, as they do in Kent, with Gooseberries and Currants, or Onions and Cabbages. Nevertheless, as we are not great capitalists, I am afraid we must give up a share of our profits to diminish the outlay. So hark ye, Pisistratus, hark ye, now to the mysteries of speculation. Your father shall quietly buy the land, and then, presto! we'll issue a prospectus and start a company. Associations can wait five years for a return (here Jack Tibbets suddenly became practical). Every year meanwhile increases the value of the shares. Your father takes, say fifty shares at £50 each, paying only an instalment of £2 per share. He sells thirty-five shares at cent. per cent. He keeps the remaining fifteen, and his fortune is made all the same, only its not quite so large as if he had kept the whole concern in his own hands. What say you now, Brother Caxton? *Vis ne edere pomum*, as we used to say at school. I don't want a shilling more than I have got," said my father.

"'But,' interrupted Uncle Jack, pertinaciously, and reserving his grand argument for the last, 'for the good you would confer on the community—the progress of the natural productions of your country, the wholesome beverage of cider brought within cheap reach of the working classes. If it was only for your sake should I have urged this question?—should I now, is it my character? But for the sake of the public—mankind—of your fellow-creatures. Why, sir, England could not get on if gentlemen like you had not a little philanthropy and speculation.'" Jack Tibbets, however, failed to convert the bookworm Caxton, who was deaf to the brilliant fruit-growing prospects. and no more is heard of them in the novel. Uncle Jack, had the book been written to-day, would have dropped the cider argument in favour of "supplying good fruit for the million," counteracting foreign competition, &c.; but his statistics and calculations read all the same as if taken from the newspapers, or some Fruit Conference paper. The Uncle Jacks of to-day have already done the recent revival of fruit culture harm, for in truth, there is no room for wild speculations as to profits, or suggestions as to great fortunes. Fruit culture. however adopted—and hardy fruit culture especially so—is but a very matter-of-fact prosaic sort of occupation, in which, because of climatic conditions, as well as of market associations, there is very little more that is roseate than is to be found in corn or vegetable production. The better the sorts grown the higher the culture, the more acceptable the position, the more careful the sampling, the more judicious the marketing, the greater probably the profits; but these never can be excessive, and will always be moderate. Let every one anxious to embark in fruit culture as an occupation listen to the story of Uncle Jack with interest, but with discretion also, and with the resolve to prove all things, so far as it is possible to do so, before embarking on what may turn out a disappointment. Aspirations of this nature, as well as methods of culture, cannot be too severely practical.

New or Noteworthy Plants.

CYPRIPEDIUM INSIGNE HALLIANUM, *n. var.*

This is stated by Mr. W. Hall, 14, Upper Tulse Hill, London, S.W., to have, up to the present, very narrow, slender foliage. It is therefore in the way of Cypripedium insigne Maulei. The floral parts are all narrow. The upper sepal has a long greenish disc with fine nearly chocolate-brown spots, and similar streaks stand on the inferior part of the light green inferior connate sepals. Border and apical part of upper sepal white. Petals covered by a fine mauve-reddish wash, excepting the ochre borders, with numerous chocolate-brown dots up to the apex. Lip very slender, light yellow, with numerous lines of very small dark spots at the base, a brownish anterior part, and brown reticuations inside the lateral horns of anterior sac. You may compare it, too, with Cypripedium insigne Horsmanianum, and nitens. It differs from all in its spotted petals. It bears the name of its lucky possessor. *H. G. Rchb. f.*

CYPRIPEDIUM CLAPTONENSE×, *n. hyb. Angl.*

This appears to be the first hybrid raised in the establishment of Messrs. Hugh Low & Co. One of the parents was Cypripedium Harrisianum. I believe the other parent was C. villosum, though the upper sepal is nearly that of C. insigne. The foliage is long and narrow, and very slightly mottled. The flower partakes of the character of that of C. villosum, C. insigne, C. Harrisianum×, C. nitens×. The upper sepal is oblong acute, narrow. It has the upper broad part white, the lower part light very bright green, with lines of dark Indian-purple spots, most of them very small. The lateral sepals form a ligulate-acute, long, rather narrow light green body, with two short broken lines of dark streaks at the base, and some similar short lines outside those. It is not shining, whereas the upper sepal is shining on the inside. The petals are ligulate, dilated at the apex, blunt acute, wavy at the upper side, of an ochre-yellow ground colour, with a dark brown central line, some light brown wash on the upper part, where there are brown transverse bars between the brown nerves. This is less seen on the lower sides. There are some very small, dark, Indian-purple spots in front of the usual stiff, dark, basilar hairy lid, erect as in Cypripedum villosum, with strong retrorse lateral horns. of a yellowish-ochre colour shining, with brown wash and network under the yellow border of the mouth. Staminode quite that of C. villosum. The flower is equal to that of the just-named and elegant species. The bract is nearly equal to the hairy ovary. *H. G. Rchb. f.*

CATASETUM FIMBRIATUM (*Lindl.*) PLATYPTERUM, *n. var.*

This fine variety has larger flowers than any I have seen before. Sepals light greenish-white with numerous pallid purple-brown streaks and dots. Petals very much enlarged and with a few small teeth outside. The acuminate apices are so strongly recurved that those petals appear to be simply blunt before you look at the other side. Numerous transverse purple-brown bars adorn the whitish-green surface. Lip garlic-green, nearly like that of Catasetum fimbriatum fissum, though much less divided. Point very acute, reflexed under the upper surface. Colour lightest greenish-white, with some brown-purple streaks. I have to thank Mr. F. Sander for it. *H. G. Rchb. f.*

HABENARIA MACOWANIANA, *N. E. Br., n. sp.*

A small species, growing 6—8, or perhaps 9 inches high, and closely leafy throughout. Leaves 1½—2 inches long, ¼—½ inch broad, lanceolate acute, ascending. Flower spike occupying more than one-third of the entire length of the stem, dense, bracteate. Bracts lanceolate acuminate, the lowest ¾ inch long, the upper gradually smaller, mostly longer than the flowers, which are small, and unattractive, being about ¼ inch in expanse, with ovate subacute sepals and petals, a fleshy three-lobed lip, and a clavate spur about one-tenth of an inch long.

This plant was discovered by Professor MacOwan in November, 1865, near Grahamstown, and it appears to be exceedingly rare, as he only had but one specimen, which he very generously presented to Kew. And now Mr. J. O'Brien has given another specimen to Kew, collected at the same place, and informs me that he has the plant in cultivation. I have, therefore, thought it desirable to place it on record, as it is somewhat remarkable that so rare a plant of this kind should so soon be under cultivation. Professor MacOwan's specimen was originally described by Reichenbach as Brachycorythis Macowaniana, but the presence of a spur removes it from that genus, and structurally I do not find that it differs from Habenaria. *N. E. Brown, Kew.*

ADIANTUM WILLIAMSII.—A specimen of this Fern, 2 feet across, in the gardens of J. F. Blackwell, Esq., The Cedars, Harrow Weald, shows the plant to advantage, its gold-powdered young fronds looking very pretty amongst the larger and more matured ones. Mr. J. Dinsmore, the able gardener here, says that, when grown cool this variety is more productive of fronds, and lasts longer when cut, than the favourite A. cuneatum, or any other Maidenhair. Of course the fronds should not be cut before they are matured.

HAMPTON COURT GARDENS.

(Concluded from p. 105.)

Of the other improvements carried out by Wise, the "removing and new planting" of the rows of Lime trees appear to have been the most important. Originally the Limes were planted by Le Notre on either side of the semicircular canal. Wise, however, for some reason or other, did not approve of this plan, so he had the northern row taken up out of the earth and replanted in the Fountain Garden, on the inside of what had formerly been the south row. The following items, which refer to this, occur in the accounts:—"To remove and new plant 403 large Lime trees, y^e^ dimensions of them girt from 4 feet 6 inches to 3 feet, the charge of taking up these trees, bringing them to the place, digging holes of 10 or 12 feet diameter, Carting 5 loades of earth to each tree, one with another, with all charges at 10*s.* per tree—£201 10*s.*" "100 trees, to dig 20 feet round them, and to take out y^e^ gravel and sand, and raise their roots and put in 5 loads of earth to each tree, at 8*s.* per tree—£40."

Defoe also tells us that the "fine parcell of Limes which form the semicircle were, by the dextrous hand of the head gardener, removed, after some of them had been almost thirty years planted in other places, though not far off, and they thrive perfectly well."

The great bronze fountain by Fanelli, which stood in the centre of the Fountain Garden, was also removed about this time, and the present jet placed there. "The King," says Defoe, "also directed the laying the pipes for the fountain and the *jets d'eaux*, and particularly the dimensions of them, and what quantity of water they should cast up, and increased the number of them after the first design." *

It was also in this reign that the Mount Garden was removed, and the soil heaped up on either side of the Privy Garden, to make the two terraces. Queen Mary's Bower was also planted, and the beds of the Privy Garden were laid out with rows of alternate Yews and white Hollies, many of which remain to this day. In the year 1700 the long walk or terrace which extends along the Thames from the Water Gallery to the Bowling Green was commenced, and about the same time the Wilderness was also planted. Until the year 1700 this plantation, which lies between the Tilt Yard and the great Fountain Garden, was known as the Old Orchard. King William, however, had the orchard trees removed, and had planted in their place "espaliers, so high," says Defoe, "that they effectually took off all that part of the old building which would have been offensive to the sight." The Maze was also probably laid out about this time.

The appearance of the gardens as completed by William III. may be well seen in the birds-eye view given in old print in the British Museum.† "The only fault that I could find," says Switzer, "with the gardens as completed by the great Nassau, was that the pleasure gardens were stuffed too thick with Box—a fashion brought over here out of Holland by the Dutch gardeners, who used it to a fault, especially in England, where we abound in so good grass and gravel."‡ This fault, however, was remedied very soon after the death of William.

"The Box work at Hampton Court," says Switzer in another part of the above-quoted work, "was pulled up some time after, and the gardens laid into that plain but noble manner they now appear in."§ Beyond this relaying of the Fountain Garden, very little appears to have been done in the gardens of Hampton Court during the reign of Queen Anne.

Shortly after the accession of George I., however, several alterations were made. In 1714 so many of the trees in the Wilderness were taken up and new ones planted that these alterations completely changed its appearance. They were, we learn from the State records, undertaken by Henry Wise. His estimate, which is still preserved, is for "new planting several lines and platons of Elms and Abeals,* and making a figure hedgework of very large evergreens in the Wilderness belonging to the palace.† Defoe visited the gardens in this year (1714). He thus describes them:—"The front of the palace to the east, all of freestone, is very noble, looking into the park over a noble parterre a good half mile long, embellished with vases, statues, gravel and green walks, and separated from the park by a balustrade of iron; on the north side there is also a little garden walled in, with a most curious labyrinth, and from the palace along the river side is a noble terrace walk which leads to the bowling green, where in each corner is a large pavilion."

During the reign of George II. the gardens underwent considerable modifications. In the Fountain Garden all the smaller fountains were removed, and the side paths were taken up and the ground covered with turf. The beds were also, of course, remodelled. They were cut out of the grass in square or oblong shapes. They were then planted round the edge with a single line of dwarf Box, and conical-shaped Yew trees and globular-shaped Hollies were planted in the centre of each bed. The space between the Box border and the centre trees was planted with choice flowering plants.

The appearance which this garden then assumed may be seen in a print by Rigaud dated 1736. A new kitchen garden was also laid out about this time, to the west of the Wilderness, and the plot formerly used as the kitchen garden was converted into the Melon ground. The plan of the gardens and the form of the beds at this period may be well seen in an engraving made by J. Rocque for King George II. in 1736.

"Since George II.'s time," says Mr. Law, "but little change has occurred." For some eighty years, indeed, the place was so neglected that many of the fine old Yew trees were suffered to become overgrown and strangled with Ivy, and others to die without being replaced, and of the choice Hollies which were tended with such care in olden times scarce half a dozen remain. Nevertheless "much of their original formal trimness," an appreciative critic observes, "is still retained with great benefit to the character and charm of the place." *Percy Newberry.*

* See also *Treasury Papers*, vol. lxxv., 54; and Minute Book, xi., p. 38, directs "100 *li.* a week to be issued to ye works and applied to pay 4315 *li.* 8. 1½*d.* due to plumbers for works done in ye gardens." † K. 14 c.

‡ *Ichnographia Rustica*, vol. i., p. 76. § *Ibid*, p. 83.

* Poplars.

† *Treasury Papers*, vol. clxxix, No. 35.

NOTICES OF BOOKS.

THE INVISIBLE POWERS OF NATURE. By E. M. Caillard. (Murray.)

We opened this book with some misgiving, we closed it with much satisfaction. The misgiving arose from a feeling that the form of dialogue is not the one best adapted to convey to the youthful mind scientific information, and that it is not one which generally commends itself to those whom it is intended to benefit. We closed it with satisfaction, because we have rarely met with a work of the kind in which so much information is so clearly and so accurately set forth. The author, of course, has not the resources of the lecture-room at command, but she has not even the advantage of illustrations to facilitate the explanation of the subjects treated on, and yet her style is so clear that the want of illustrations is scarcely felt.

The book treats of gravitation, attraction, the properties or attributes of solids, liquids, and gases, the phenomena of heat, light, sound, electricity and magnetism, and their practical application. The elementary facts and general principles founded on them are detailed with great skill and lucidity, so that the book will form an excellent introduction to more technical works, and will form an excellent preparation for the lecture-room and experimental laboratory. We know that there are many who think that the beginner should begin his work in the laboratory itself, or at least should become initiated into his subject by witnessing the demonstrations and experiments of a competent teacher. Without in any way derogating from the importance of the method of learning as much and as early as possible from Nature; yet this cannot always be done; and, even when it can, we are of opinion that the learning is facilitated by a little preliminary help, such as this book affords. Which of us has not been helped in reading a play by a preliminary glance at the "Argument?" Just such help, but with a little more elaboration of detail, is afforded by this book. For a future edition we would suggest the addition of a general summary, and of a section, or sections, showing the inter-dependence of the several forces, the unity which underlies them, and the mutations and mutual substitutions they undergo. An index is also a desideratum. We recommend the book for young students, and think it would be highly desirable for all young gardeners to master its contents, and mould their practice accordingly.

SELECT EXTRA-TROPICAL PLANTS.

A seventh edition of this work, revised and enlarged, has been issued by Baron Ferd. von Mueller. It gives a detailed alphabetical list of plants suitable for cultivation in extra-tropical countries for economic purposes, and from the details given as to the uses of plants it forms, independently of its primary purpose, a useful dictionary of economic botany. Its utility is proved, not only by its sevenfold rejuvenescence in its native land (Victoria), but also by its appearance in American, French, and German guise. The French edition, issued by the singularly competent hands of M. Naudin, has, we believe, been so much appreciated that a second issue is in preparation. The original work may be had from any bookseller, or from R. S. Brain, Government printer, Melbourne.

NURSERY NOTES.

ORCHIDS AT ST. ALBANS.

A visit to the immense Orchid growing nursery of Messrs. F. Sander & Co. can at no season fail to be interesting, so I had no fear of not finding something to please and instruct even in the last days of January. A visit to the place at any time during the last few years would always show glass-houses in course of building, but now the area of the glass structure has been determined—for the present, at least—by the erection of a large span-roofed house, now well filled with plants. An important alteration is now going on—the transformation of one of the older houses into a warm house for Cattleyas. It will be well known that many of the Cattleyas, and among them the beautiful C. superba found in the hot low-lying regions of South America, north of the Amazon river, and others from the regions of the Orinoco and Rio Negro rivers, require a greater degree of heat than do others. In this house large tanks of water, in which a collection of Nymphæas and other water plants will be grown, occupy the centre, and over these tanks the Cattleyas will be suspended in baskets of Teak-wood. C. superba itself succeeds best when fixed to short length of dead Tree Fern stems. Round the sides of the house there will be stages upon which other species of plants will be placed. The clever methods for throwing moisture on the walls and paths by means of hot-water pipes has been alluded to before, but besides this large quantities of tree leaves are placed beneath the stages, where they give off moisture, which seems to suit the requirements of the plants. Every effort is made to keep the plants in a healthy condition and free from insects. There are considerable numbers of recently introduced and noteworthy Orchids in flower at the present time in the various houses, and the Cattleyas and Lælias are well represented by numerous flowering plants. Cattleya Percivalliana — distinct, and one of the latest additions to the C. labiata group—was nicely

in flower, and fine forms in variety gave a rich glow of colour to the group. This species precedes in bloom C. Trianæ, a section which was also being brightened by the vanguard of the section; and of these early flowerers and of great merit a few had been placed together. The variety Morganiæ has broad pure white sepals and petals, the point of the lip lightly stained with rosy-purple. C. T. Backhousiana is also a remarkably distinct variety, and was very prominent with its rich purplish feather at the apex of each petal. A few good forms of C. Eldorado made a pleasing feature, and should have been over long ago, but they are always welcome whatever the season may be. There were amongst them two forms of the white variety, Wallisii—the ordinary variety with pure white flowers and distinct orange throat; and the other a similar flower, but with a purple stain on the lip.

A group of Lælia acuminata, every one of them furnished with a good spike of pure white and pale blush flowers with maroon centre, had a charming effect; some of them had as many as ten flowers on a spike. This is the Lælia anceps season, and amongst them a fine dark variety was noticeable. There are some immense masses of the lovely white variety, but they are not allowed to remain long in flower, as anything in this way which is distinct and of fine quality soon finds a purchaser. Two or three distinct varieties of L. furfuracea arrested attention. This was a plant introduced about fifty years ago from Mexico, but it is not much known. It seems to be intermediate between L. anceps and L. autumnalis. It comes from a district nearer the Pacific coast than either L. anceps or L. autumnalis, and would require similar treatment to these species. The petals are distinctly rhomboid, and the ovary is covered with black mealy glands. It lacks the offensive perfume of L. autumnalis. Lycaste Skinneri is a grand plant to produce flowers from now until the month of May, the white variety—and the choicest Orchid—flowering in winter. There were numerous beautiful varieties as well as the white ones, which were well represented—amongst the latter there being one variety with immensely broad petals and one which had no fewer than forty pseudobulbs with many growths. The rich orange-yellow coloured sweetly perfumed L. aromatica was finely in flower. L. Schilleriana is a distinct species, but not very showy. It has reddish-brown petals and white and purple spotted sepals. L. gigantea is a stately growing species, and was stated by Mr. Bateman to be the best of its race with the exception of L. Skinneri. It varies considerably in colour, but not nearly so much as L. Skinneri. The sepals and petals are of a yellowish-olive colour, the lip dark and with a yellow edge.

A great feature is a group of Cœlogyne cristata and its varieties. The St. Albans variety is nearest to the Chatsworth form of any other that I know of, but a comparison of the two shows that the sepals are more twisted in the latter, and the shade of yellow on the lip is also different. As far as one can judge the three most distinct varieties to grow are the St. Albans variety of C. c. alba and Lemoniana, the variety with a lemon-yellow lip.

Paphinia cristata is a distinct and rather curious Orchid; a large number of it were suspended in baskets from the roof of a warm house, which were flowering freely. This is a plant not much known, although it has been grown in gardens for many years. It seems to be of free growth, and should be grown even in the smallest collections, as the plants take up but little space. The flowers are singular in form, large, white, streaked, blotched, and spotted with chocolate-brown.

A fine lot of Catasetum Bungerothii arrested attention by their vigorous growth, and on examining the flowers the column is seen to have a slight resemblance to a pelican. Mormodes luxatum eburneum is now flowering out of time; but the large spikes of greenish-white flowers are very welcome.

The Calanthe oculata gigantea is a king amongst the C. vestita group. The spikes are of immense length and stoutness, and the pure white flowers with Roman-red centre are 3 inches across.

Worthy of special notice is a large importation of Oncidium splendidum; many fine plants are in flower. It is a gorgeous flower, with a deep rich yellow lip, not primrose-yellow, as in O. tigrinum, with which it has been confused. The sepals and petals are barred and blotched with chestnut-brown. A large importation of Odontoglossum vexillarium was observed, and almost the first plant to flower is a splendid variety, reminding one of the fine variety flowered by Sir T. Lawrence, Bart., M.P., named superbum, but it has a richer and deeper colour. The sepals and petals are deep rose, the centre of the flower has a large dense angular blotch of crimson-maroon, and below the central mass of colour is a large spot of the same colour. It has received the varietal name of Leopoldii. A few strong plants are flowering in an importation of Limatodes rosea. Amongst the cool-house Orchids, perhaps the most striking are Odontoglossum Harryanum; I measured a flower which was 4½ inches across. The peculiar combination of colours in this species is worth attention, viz., the brown and purple of the sepals and petals, through which show a few yellow markings. The front of the lip is primrose-yellow, the throat orange, the two colours being divided by a red-purple venation, while there is, to crown all, a faint honey-like scent.

Masdevallias were represented by M. ignea, of many colours; M. Fraseri, a hybrid, deep purplish-lake; and M. Schroderiana, purple and white, with yellowish tails. The lovely group of Odontoglossum nævium majus was something to be lingered over and admired. These plants have graceful pure white flowers, blotched and spotted with crimsom. The discovery of the habitat of this plant was a great find.

Of the genus Cypripedium there were many choice hybrids besides new species in flower, and amongst them I observed C. Godseffianum, a hybrid between C. hirsutissimum and C. Boxallii, which, at first sight, might be taken for C. hirsutissimum, but the dorsal and lateral sepals show the markings of C. Boxallii, with the purplish tint of the other parent; it is very bright in colour. C. Io, between C. Lawrencianum and C. argus, is singular and interesting; it has the dorsal sepal of C. Lawrencianum, and the peculiar dark spots on the lateral sepals of Argus; C. Hornianum=C. superbiens, and C. Spicerianum, the last-named species being distinctly visible in the dorsal sepal; the laterals are thickly marked with small dots; the lip is intermediate between the parents. C. tonsum is a distinct Cypripedium of very pale tints; the upper sepal whitish, marked with purple lines.

An entire house was filled with C. caudatum, splendidly grown, the foliage as green as grass, and not a single leaf decayed at the tips, as is so often observed. How has this result been brought about? some might say. I was curious to know; and all the details of the culture were pointed out to me. They are grown in an intermediate-house. The plants have been potted in a compost formed principally of loam and leaf-mould; the pots are plunged over the rims in growing moss: this is all. *J. D.*

Messrs. J. Laing & Sons, Forest Hill.

There are a few good Orchids in flower, two fine pieces of Cœlogyne cristata attracting immediate notice on entering the house, but the eye is immediately carried to a flower of Cattleya Trianæ with a very richly coloured lip, the deep colour running far back, and traces of it showing throughout the entire length. Cattleya Percivalliana is also in flower. Of the popular Cypripediums, C. Harrisianum and C. insigne were represented by finely flowering lots. Epidendrum cucullatum, Odontoglossum Rossii, O. Cervantesii, &c., and a pan of the pretty white Masdevallia tovarensis, were also flowering bravely, in spite of the recent fogs, which hung very heavily over the S.E. district of London. Cinerarias and Chinese Primulas were also to be seen just beginning to make a display of good size and colour. In the way of Ferns the usual popular sorts were to be seen, such as Polypodium aureum, numerous Adiantums, including a large specimen plant of A. trapeziforme, Asplenim bulbiferum, Nephrolepis davallioides furcans, &c. Peristrophe lanceolaria, which is grown in quantity, was full of flowers.

Messrs. H. Low and Son's, Clapton.

The fogs during the present winter have been more trying to tender flowers than they have been for many years past; and the collections in the East of London have probably suffered more than those in the West. It is some satisfaction to the owners to know that their plants themselves are not injured but may be improved thereby, because, the flowers being destroyed, the plants are not distressed by strains to support them. Had the weather permitted, the Phalænopsids would at this time have been a beautiful sight as it is, the flower-buds are crippled and the opening, and open flowers have been crumpled up. I have not seen the cool-house Orchids suffer so much in any winter as they have done during the past one, not only from fog, but the want of sunshine. The petals of the flowers are as if glued together, and even when these are loosened by the fingers, no strength seems left in the flower to develope itself into what it ought to be. I saw many of the flowers in this state this nursery, and in our garden at Ilford. We must comfort ourselves with the reflection that what is lost in pictorial effect, will be recouped in the greater plumpness of the pseudobulbs, for it is remarked that when a plant bears two or three strong spikes of blooms, especially in the winter, when root-action is sluggish, the bulbs shrink in bulk considerably and take weeks and even months to plump up again. The plants seem now to have made a fresh start, and some of the groups of Orchids are a beautiful sight, even now.

In one of the houses a collection of many hundreds of splendid plants of the recently introduced Cypripedium bellatulum was observed, many of which were exhibiting flowers. This, the best of the C. Godefroyæ section, has more variability in its markings than that variety. C. concolor may be taken as the type of this group, and C. niveum, the nearest allied species. They all seem to thrive better when some fibrous calcareous turfy loam used in potting the plants can be added to the other ingredients. A fine lot of C. Sanderianum had passed well—so far—through the winter; the plants seem right well established, and likely to grow away freely under the increasing light and warmth. C. Argus was coming into flower; indeed, a few flowers were fully open. C. Haynaldianum was also in flower, and which at first sight may be said to resemble a pale form of C. Lowii, but there are structural differences observable when it is closely examined. It flowers in the spring early; the plants grow to a large size, and when well furnished with well-furnished scapes it is a very striking subject. Amongst Cattleyas, a few good forms of C. Trianæ were in flower, and two or three nice spikes of C. amethystoglossa. Amongst the C. Mossiæ we placed a few of Epidendrum ciliare. The plant is not distinguishable from those of C. Mossiæ; it has not a striking flower; the sepals and petals being of a greenish-yellow, and the lip is pure white. The flower is sweetly perfumed at night. In the house set apart for species of Angræcum of small growth there were numbers of A. citratum whose flowers were fortunately not open during the interval of fogs, and the buds were not injured, so that, with favourable weather, there will be numerous flowers open in a few days. On a small group of plants of A. hyaloides, described at p. 138, I counted fifteen spikes on one small plant, and most of them had from nine to a dozen clustering at the base of the stem. There were many of A. sesquipedale, but this species is as easily injured by fog as the more fragile Phalænopsis; a few were in flower, but sadly crippled. *J. D.*

MANURES FOR PEACH TREES.

The eighth annual report of the New Jersey Agricultural Experimental Station, established for the "benefit of practical and scientific agriculture, and for the development of unimproved lands," gives the account of an interesting and instructive experiment upon the effect of different fertilising substances upon Peach trees. The investigation has been under the management of Mr. S. C. Dayton, Basking Ridge, Somerset County, N.J.

The experiment, which embraces twelve plots, was begun in 1884.

Since the commencement two plots have received no plant-food whatever; of the remaining plots, no two have been manured alike; otherwise their treatment has been identical.

The trees on all the plots are uniform in size; the only effect produced by the fertilisers, so far as the eye could discern, has been in the darker green of the foliage of the trees where superphosphate has been used.

The variety of Peaches planted was Crawford's Late Malacatoons. Thirteen trees were planted on each plot, which is of one-tenth acre area. The plots were ploughed in the spring as soon as the ground was in suitable condition. The manures were sown broadcast and afterwards harrowed in; the harrowing was repeated to keep down the weeds and stimulate the growth of the trees. The plots were again ploughed late in June, and harrowed; afterwards the weeds were mown.

The trees were not pruned this season, and are reported to have made a thrifty growth, many of the main branches being more than 3 feet in length, and the foliage large and green. The fruit was of good size and excellent in quality, but it lacked somewhat in colour, being too much shaded. The largest fruit grew on Plot 11, receiving farmyard manure alone; the smallest fruits were from the unmanured plots. The crop ripened from September 15 to 20.

In this experiment the rows of trees are 20 feet apart, in order to prevent the roots from feeding on adjoining plots, the usual custom being to plant them about 15 feet apart, which, of course, gives more trees to the acre.

The first crop from the orchard was harvested in 1887. The following table will show the kind and quantity of manure used in each case, with the quantity of produce obtained, and the value of the crop:—

Table showing the Effect of Different Manures upon Peach Trees, 1887.

Plot.	Manures applied in Quantities per Acre.	Baskets of Peaches per Acre of 150 Trees.	Value per Acre of the Crop.			Increase from Manure Supply.		
No.			£	s.	d.	£	s.	d.
1	No manure	106·6	11	5	10			
2	Nitrate of soda, 150 lb....	81·6	8	13	9	(3	4	2)
3	Superphosphate, 350 lb	162·5	16	18	6	5	0	7
4	Muriate of potash, 150 lb	123·5	13	13	4	1	15	5
5	Nitrate of soda, 150 lb... Superphosphate, 350 lb.	140·7	15	0	8	3	2	9
6	No manure	120·0	12	10	0			
7	Nitrate of soda, 150 lb.... Muriate of potash, 150 lb	113·8	12	8	6	0	10	7
8	Superphosphate, 350 lb. Muriate of potash, 150 lb.	173·6	18	5	6	6	7	7
9	Nitrate of soda, 150 lb.. Superphosphate, 350 lb. Muriate of potash, 150 lb.	152·2	16	4	8	4	6	9
10	Gypsum, 400 lb.... ...	131·3	14	4	11	2	7	0
11	Farm-yard manure, 20 tons	147·6	15	11	4	3	13	5
12	Farm-yard manure, 10 tons ... ... Lime, 50 bushels ...	62·4	7	5	2	(4	12	9)

The increase from manure supply is obtained by taking the mean value of the crop from plots 1 and 6 as the standard for comparison. By which it is seen that plots 2 and 12 show a deficiency of crop amounting to the value of £3 4*s.* 2*d.* and £4 12*s.* 9*d.* respectively.

These results teach us that fruit development seems to have been very favourably influenced by the phosphatic manures. Mr. Dayton says, "Assuming 50 cents to be the average nett price per basket of Peaches, plot 3 shows a new profit of 20·55 dols. from the use of superphosphate alone. With the exception of plot 9, in every case where this manure was used a profit followed. On the other hand, an unfavourable influence upon the quantity of fruit was exerted when nitrate of soda was used alone; and nitrate appeared to decrease the quantity of fruit when used in combination with the mineral manures. A profit of 8·50 dols. was secured from the use of gypsum (plaster of Paris); this favourable effect of gypsum has also been noticed on previous crops. Muriate of potash, when used alone, resulted in a profit to this crop of 2·10 dols. When used in combination with superphosphate a favourable effect is also noticed, a nett profit of 23·43 dols. being secured. Farmyard manure, when used in the amount indicated in experiment 12, with lime in addition, has resulted in a loss for this crop of 21·85 dols. per acre.

Nitrogenous manures, apparently, have been injurious in their effects—a point which seems to have been suspected by successful Peach growers; for, while they have used phosphatic manures and potash salts as freely as their means allowed, they have learned to avoid the use of excessive amounts of farmyard or stable manure; and they also avoid complete fertilisers containing high percentages of nitrogen. The manufacturers who offer special manures for Peach trees use a formula which guarantees less than 1 per cent. of nitrogen. *J. J. Willis, Harpenden.*

THE ALPINE GARDEN.

There is not much now in flower in this particular department, though we shall not have long to wait before the winter Aconites and Snowdrops are with us once more. These are now just pushing through the soil, and, with many more, will soon be full of interest. One of the most charming of all winter flowers, however, is now nicely in bud—this is the winter Wind-flower, Anemone blanda, not to be confounded with the variety of the Apennine Wind-flower bearing the same name; the true A. blanda is a much superior plant, with large handsome blue flowers, and is still somewhat rare. Its requirements are very simple, a sandy loam suiting it well, with a position sheltered from north and north-east winds, by way of preserving its flowers; indeed, so charming is this species in the midwinter season all alone that it is worthy the protection of a handlight or bell-glass. The plant is a profuse bloomer, and seeds freely, so that a stock with a little care may soon be raised. It is advisable at this season of the year, when frost frequently lifts the smaller alpines out of the ground, and particularly those which root near the surface, to press them firmly in position by the hand, and, to avoid their being displaced so readily, if some small stones are scattered over the surface of the soil, and especially close round the plants; these assist also in staying evaporation in summer-time,—an item of some importance to many alpines.

But now a word respecting alpines in frames, for where there is a collection of these a frame or series of such will be also found for their accommodation. I think I may go to the extent of saying that the ordinarily constructed frame is not likely to suit many of the rarer alpines, which need no protection so far as their actual hardiness is concerned, though at the same time they are not capable of enduring the changes of weather in these islands with impunity, therefore protection overhead is to a great extent a necessity. The best position for such a frame is one facing due south or as near south as possible, next to which it is important that a perfect system of continuous ventilation be secured. This is best accomplished, first by the brickwork at front and back being pigeon-holed—*i.e.*, bricks omitted—which will afford plenty of air among the pots or pans; and secondly, by the lights being kept raised, thus allowing a free current of air overhead. For safety in this latter it is best to screw a piece of wood called a rest to the wall-plate on either side of each light at the back and front, and when turned up to support the light these rests will be supported against the partition rail between any two lights, being placed so that the latter will be raised some 4 or 5 inches clear above the wall plate; thus ventilated the choicest alpines are safe from the evil consequences of damp, the greatest enemy they have to contend with in the winter. Always keep the plants near to the glass, and allow them to stand on a well drained bottom; water must be given but sparingly, especially to the Androsaces and similar things; many of the species of Primula will now appear in their worst garb, particularly P. minima, P. denticulata, P. cashmiriana, P. rosea, P. involucrata, P. capitata, and others, though it does not follow that such of this genus as are deciduous are less secure, but invariably the contrary. Slugs should always be well sought after, being very destructive, and more so where the ventilation is not good. Slugs are not partial to soot and lime in a fresh state, the latter being recently slaked before use. These substances should be strewn on the bed where the pots stand, but if the pests are not numerous, catching will be the best, as it is certainly the safest plan. A gentle stirring of the surface soil will be of benefit now, removing accumulations of moss, &c., but there will not be much of this growth present with a dry atmosphere overhead.

Raising Alpines from Seeds.

This is an operation which might well be done at once; it is important too, for I am inclined to the belief that a far greater percentage of choice alpines may be raised from seeds than is now the case, if a little more care was exercised in sowing them and giving attention afterwards. Many of our really best alpines have very small diminutive seeds, therefore it is not advisable to cover them at all with soil, but merely to sow the seeds on the surface. Another drawback is the length of time some species take to germinate. For various reasons I prefer not to water overhead after the seed is sown, for no matter how carefully it is done—and especially when watering has to be done for several months in succession—there is the possibility of washing the seeds about; in fact, I am of opinion that to watering many failings may be traced. In sowing seeds of these I am always very careful about having perfect drainage, about one-half of the depth of the pots being filled with crocks; over the drainage some moss litter, or cocoa-nut fibre, is placed, then some rough, open soil, and finally for the surface 1½ inch of finely-sifted very sandy soil. The pots are thoroughly watered and allowed to stand till ready for use; the seeds are sown in the usual way, and the pots, 6-inch ones, are placed in a saucer, the latter being kept supplied with water as occasion requires, but which will average twice or thrice a week, according to the time of year. Thus treated the soil can be kept uniformly moist, and it has no chance of becoming dry—a fatality to many seeds besides alpines. In the event of the soil becoming too moist there is the option of emptying the saucer, when a perfect drainage follows; but as a precaution I allow the whole of the water to be taken up from the saucer, and a few hours to elapse before it is refilled, at this time of year; in summer this is not necessary, for then evaporation and absorption is going on more rapidly. By working on these simple lines choice alpines may be raised from seeds with perfect ease; and with about half the labour in examining them to know their wants, the anxiety of their becoming dry is disposed of, and the chances of a good crop of plants, provided you have good seeds, is far more certain. I have adopted the same plan for Begonias and similar seed with equal success, though the great value of this method is realised with seeds that take several months to germinate. *E. Jenkins.*

ABIES LASIOCARPA, Hooker.

The tree generally so-called in gardens has no real right to the designation which has been applied to it under a misapprehension. Its real name should be Abies Lowiana. What, then, is A. lasiocarpa? To this question recent circumstances allow, at least in our opinion, of an answer being given. The Abies lasiocarpa of Sir W. Hooker—the first plant to bear the name, and as we think the only one which has a right to it—was described by the late Sir William Hooker in 1848 in the *Flora Boreali Americana*, vol. ii., p. 163. The type specimen, consisting of a small branch with leaves, and with some detached cone-scales, was collected by Douglas in his last journey "in the interior of North-west America." It is now in the Kew Herbarium, and has been studied and commented upon by succcssive students of Conifers. Some (those who only knew it by hearsay), thought it was a myth, others that it was an accidental mixture of two species, others again that it was the same as the species subsequently described by Engelmann as subalpina—a view published, but with hesitation by Engelmann himself.

A. subalpina (fig. 32, p. 174) is now pretty well known, or at least it can be made out without much difficulty, by those who care to do so, from the native specimens now at hand and from the plants in cultivation. There are differences in the length of the leaves, in their notched or unnotched tips, in the size of the cones, and of the cone-scales and bracts, but these variations are not different from what one expects to meet in Conifers at different stages of their growth, or growing in different exposures; moreover, some of them may be seen to co-exist on one and the same specimen. It is important here to note that the leaves vary in character on the original specimen of lasiocarpa in the Kew Herbarium, some of the leaves being pointed, others notched, although the branch appears to be a sterile one.

In 1888 we were favoured by Mr. F. Moore, of Glasnevin, with a small twig with foliage and cones of a plant sent to us under the name of A. Fraseri. It clearly had nothing to do with Fraseri, but on examination it dawned upon us, to our great interest, that it might be referred to Hooker's lasiocarpa, from which, indeed, it differs only in the shorter leaves—a point of no real importance, as already mentioned. Moreover, it seemed clear that the plant in question was also indistinguishable, as a species, from Engelmann's subalpina, and there is, as we have seen, a pretty general consensus of opinion that subalpina may be the same as Hooker's mysterious lasiocarpa. In our opinion there is no longer any doubt that this is so. It would be tedious here to go into all the botanical evidence to be alleged in support of this statement. The illustrations at fig 23, taken from Douglas' original specimen, will suffice for our present purpose. In this figure leaves of two sizes, one notched at the extremity, the other rounded, are shown enlarged two diameters, and the cone-scale is shown from the outside, the inside, and edgewise, with the bract about half the length of the scale and the seeds with their (lilac-coloured) wings. At fig. 24 is shown a plan of the leaf section of Hooker's type.

Fig. 25 shows a twig of what is commonly grown in this country as subalpina, and greatly resembling the type specimen of Hooker.

Our next figures (26, 27) show a branch with three cones (purple) of the Glasnevin specimen, of the real size, together with details of the foliage and cone-scales as before. In looking at these figures it must be remembered that the Glasnevin cones were unfertilised, and therefore both cones and seed imperfectly matured. The internal structure of the leaf is identical in all essentials with that of Douglas' specimen of lasiocarpa, and also identical with that of all the specimens of subalpina, but different from that of grandis, amabilis, concolor, Lowiana, and others with which this species has been confounded.

Abies bifolia.

We now come to the plant originally described by Murray, and generally referred to subalpina, though, curiously enough, if the two names really belong to the same species, it is Murray's name which should, on the grounds of priority, have the precedence. Leaving these critical questions on one side, we are confronted with these questions—What is A. bifolia of Murray? Is it distinct from subalpina or lasiocarpa (Hook.)?

To the first question there is not much difficulty in furnishing a reply. The type specimens are in the Kew Herbarium, from Lyall, and another (from Roezl) was figured by Murray in our columns (see figs. 28 to 30). Moreover, we have seen what we take to be it, in various nurseries, and have had various specimens sent to us for name, so that, on the whole, there is little or no difficulty in identifying Murray's plant. A cone and a small spray lately sent us by Mr. Stewart from Mount Hood, Oregon, are quite indistinguishable from it. To Mr. Stewart we are also indebted for the illustration of the tree in its native forest (fig. 31), and which gives a better idea of what the tree is like than any amount of description. It grows on Mount Hood, Oregon, according to Mr. Stewart, at an elevation of about 5000 feet above the heights at which A. amabilis grows, and extend to the snow-line in company with Abies (Tsuga) Pattoniana. There is, therefore, no doubt as to what A. bifolia is, or as to what Murray meant. The second question is more difficult—Is it distinct from subalpina? If we look upon it from a botanical point of view we should be inclined to say no, and to surmise that it might have had, and did probably have, the same parentage as subalpina, as intermediate stages may certainly be found between them; but if we look upon it from a planter's or gardener's point of view,

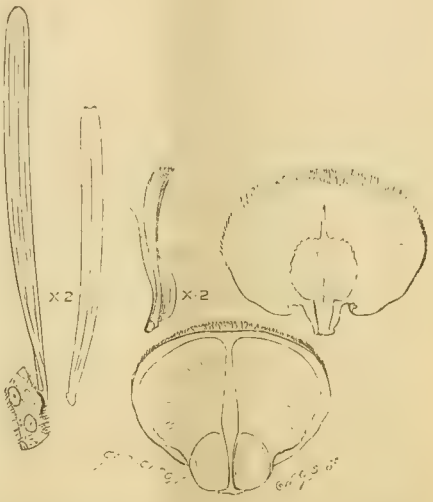


Fig. 23.—Abies lasiocarpa, Hook.: leaves and cone-scales, from Douglas' original specimen.

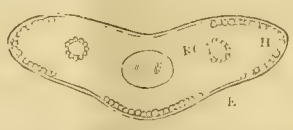


Fig. 24.—Leaf section of Hooker's lasiocarpa. H, hypoderm; RC, resin canal; E, epiderm.



Fig. 25.—Leaves of A. subalpina, garden specimen.



Fig. 26.—Abies lasiocarpa, Hook. (?), from Glasnevin: cones purple.

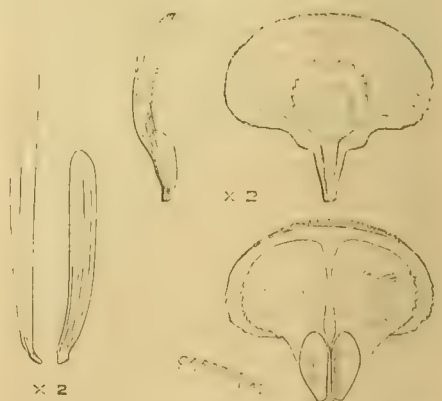


Fig. 27.—Abies lasiocarpa, Hook. (?), from Glasnevin.

then undoubtedly Murray's bifolia is amply distinct from lasiocarpa (= subalpina). A. bifolia is a stouter hardier plant, with much larger buds, covered with resin, while those of lasiocarpa are small, globose, and generally, not always, dry and uncovered with resin. The leaves vary in length on the same plant; moreover, although the arrangement of the resin canals is the same in all, the canals themselves are much larger in bifolia than in lasiocarpa. The cone scales are deeper and larger and the bracts are less than half the length of the scale. In gardens, while subalpina is a slow grower, conveying in the young state an appearance of being checked and crippled in growth, the bifolia is vigorous, robust, and, we believe, perfectly hardy.

We conclude that, for garden purposes, the best arrangement consistent with our present knowledge is to abandon the name subalpina and to distribute the forms as following:—

A. lasiocarpa, Hooker (not of English gardens); syn., A. subalpina, Engelmann and others, and of gardens partly.

A. bifolia, Murray; syn., A. subalpina, Engelmann and others, as well as of gardens partly.

The A. lasiocarpa of gardens is A. Lowi or Parsonsii with many other aliases.

All the abovenamed plants may be called Picea by those who prefer it. We deem it right to conform to the authoritative standard. *M. T. M.*



Fig. 29.—Cone-scale and bract of A. bifolia.

VIOLET CULTURE.

(Continued from p. 138.)

Planting.—Having got the border or piece of ground into order, I will suppose planting time has come round, and that some beginner has bought a few plants from a nurseryman—plants that have borne flowers all the winter, or has got some fine strong plants from a friend; I will take the latter case. The friend has sent a letter giving some instructions. The plants are to be taken to pieces and planted—say, a foot apart—in a well manured and deeply dug piece of ground, to be watered in dry weather and kept clear of weeds, and the runners to be taken off, and it has been a constant taking off, as instead of planting single side-shoots only, the plants were broken up into, say, four or five pieces, and planted with the sure and certain result of a splendid crop of runners, always troublesome enough when planted, and grown in the proper way. Instructions were also given to lift the plants with good balls of soil to them at a certain time, and to plant them in cold frames, which has been done, and the beginner is rewarded with a few flowers of middling size, and seems to be pretty well pleased with the result—a small bunch of Violets now and then. But there comes the time when Violets are at their best in frames. Our beginner pays a visit to her friend, and sees her Violets at their best, and exclaims, "Oh! what a splendid mass of Violets! I never saw anything like it. Did you send me the same kinds?" "Oh! yes, the very same. I have no others."

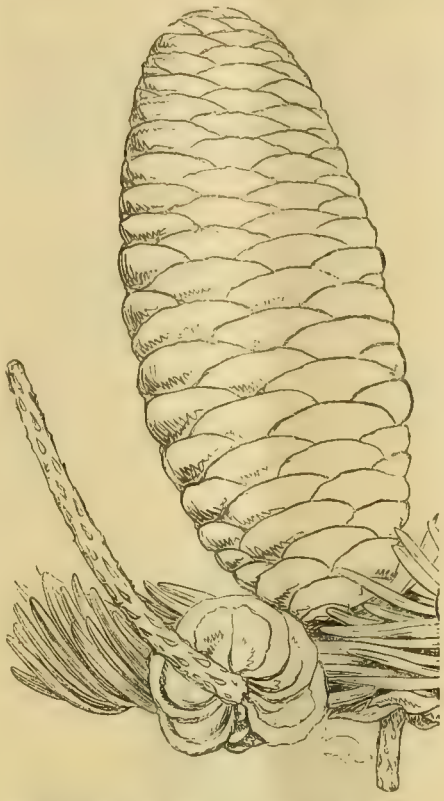


Fig. 28.—Branch and cone of A. bifolia, Murray type.



Fig. 31.—Tree of A. bifolia (? subalpina) on Mount Hood, Oregon.

"Well, mine are not anything like these, and I did as you told me." Then explanations follow, and it is quite natural to suppose that the friend will lay down a thorough code of cultural directions to the beginner, and that is just what I now intend to do for the benefit of all inquirers. I will suppose some beginner has got some plants that have grown and flowered in frames all the winter and spring, and are of a good size, and will, if properly handled, make a good number of plants for the next winter and spring. In choosing the shoots for planting, do not make use of the old hard centre ones, but take the strongest side-shoots; those having some roots are best; but if a sufficient number cannot be got with roots, then take them without, pulling them off with a heel, and cutting the ragged ends with a sharp knife. My own experience is, to get them with roots if possible; but then I have plenty of plants to choose from, and I take only the strongest side-shoots, which have not flowered much, or at all. I never plant wiry runners or old centres. The centres are easily distinguished from the side-shoots I speak of, as they are the shoots that have been flowering all the season, and have stems that look as if they would grow into little trees. Now that the offsets are ready for planting, I will proceed to describe my own practice in carrying out that operation.

Where Violets are expected to grow, and make

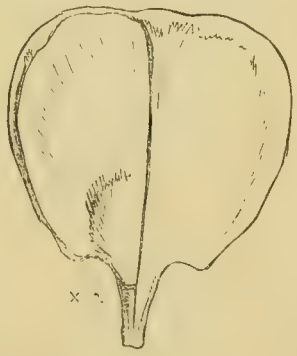


Fig. 30.—Cone-scale and seed of A. bifolia.

good-sized plants by the autumn, the proper distance to plant is 1 foot apart each way. I mark the rows first with a measuring-rod, putting in a short stick at every row on both sides of the border; then a line is stretched across the border from stick to stick, then the plank is laid down, and the planter, standing on it, takes a marked lath or the rod, and lays it parallel with the line, and on the opposite side of it to that on which he stands, a plant is laid down at every foot, and with an ordinary planting trowel the planter slips in the plant, making it firm with his fingers. When three or four rows are planted, they are watered with a fine-rose can—and so on to the end. I do not put in the plants opposite to each other, but alternately, as by planting in that manner the most space is given to each plant. The distance of the first plant from the edging is never less than 8 inches. After the planting is finished the marks caused by the plank are raked out, and the border made to look neat and tidy. The second or third week in May is the time I have usually chosen for planting. I am aware that many growers plant earlier, but I do not see any advantage in doing so, and one reason I give is this—from time to time the newly planted border is looked over to see if any blanks have occurred, as frequently happens from various causes, either failure to root, or from being thrown out by worms, and blown away, or nibbled over by mice, or eaten by slugs; the blanks are immediately filled up, and I have frequently noticed that the plants put in the latest take the lead of the others, and keep it throughout the growing season turning out the finest plants at lifting time. I think

the cause is owing to this:—the side shoots taken to fill the blanks are stronger and better rooted than others taken at the earlier period. So much am I convinced of this that if it were not for the work clashing with the summer bedding out I would not hesitate in the least to defer planting till the last week of May or June 1. Of course the frames have been lifted off to do duty elsewhere a month before planting time, but I always allow a large part of the plants to stand until those newly planted are all in the way of doing well. There is another way of preparing plants for planting out, and it is to take cuttings in March—the strongest side-shoots of course—and to treat them like any other cuttings—by cutting them square across below a joint, then prepare a frame of nicely riddled leaf-mould and sand, or any light sandy material; insert the cuttings pretty closely, put on the sash and keep close, and shade until the rooting process begins or until the cuttings will stand sunlight without flagging, then when rooted gradually harden off, and plant out as already described. Splendid plants and grandly flowering ones can be grown in this way, but I think the labour and trouble would be too much for most amateurs.

The Growing Season.

Now that the border or piece of ground has been planted a sharp look-out will have to be kept to make good blanks at once. The plants will require to be watered in dry weather with a rose-can, and until they are fairly started into growth it is a good thing to dew them over with the syringe between 4 and 5 P.M., which will help to freshen the foliage and keep away red-spider. I never shade my plants in any way, and do not think it at all necessary to do so. After a time weeds will make their appearance, and as the ground has been made rich with manure, there will be sure to be a good crop of them; they must be got rid of by hand weeding, and the soil between the rows stirred with a Dutch hoe. Always avoid treading on the ground, and use the plank as much as possible. As the plants grow, what are called runners will begin to make their appearance; these are small wiry-like offsets growing straight out on all sides of the plants; these must be nipped off with the finger and thumb, or cut-off with a sharp knife, the aim and object being to get plants with upright centre growths only. They will require to be gone over frequently for that purpose during the growing season, and also after they are put into their flowering quarters. These runners prevent good flowering, lessen the size of the flowers, and are useless, except as a means of increase. As there is nothing created without a use, I must find some use even for Violet runners. Before taking up the next subject, I would like to say what I consider a good thing to do, in order to procure good, strong, nicely rooted side-shoots for planting: it is to draw the soil well up about the plants in the frames a fortnight or so before planting time, and also put a few handsfull of soil right into the centres of the plants, and water with a rose-can to settle it; this will facilitate the making of roots on the shoots that are to be taken for planting. The above hints are not for beginners, but it will be a good practice to follow in time to come. *John Heath, Sedgewick, Kendal.*

(To be continued.)

Cultural Memoranda.

SPARMANNIA AFRICANA.

This easily grown plant is one of the most useful, and will do well under the same treatment as Eupatorium during the summer, and in any common soil. In this way large plants may be obtained by the autumn, which will flower throughout the winter. In making a compost for it sandy loam will be found very suitable, and the potting should be done firmly, otherwise rapid rooting will demand very large pots to flower it in. This Sparmannia does well for training up the back walls of conservatories, and even along rafters they make a good display.

Abutilons

of all kinds are at present very gay, and some plants placed on the back wall of a mid-season vinery, with their roots confined in a narrow border have made a display for several months, and the flowers are much used for vases, either by taking the flowers individually, when small glasses are used, or cutting them off in bunches, which they readily form when plants are large and have been spurred in.

Habrothamnus elegans,

on the back wall of a Peach-house, supplies large quantities of cut flowers between November and spring, and in that way is very serviceable. Grown to a large size in pots whose bottom is knocked out, and which are plunged half-way in soil made firm, is a suitable way to grow this rampant growing plant, this treatment inducing free flowering. Many of the plants grown in pots would give less trouble were they planted out in confined borders. The length of time they continue to supply flowers in abundance is



Fig. 32.—Type figure of A. subalpina Engelmann.

a strong argument in favour of planting out these plants and many others where there is suitable space for them. Cytisus, Acacias, Kenedyas, Chorozemas, and Aotus are among the free-flowering kinds of special value for the purpose indicated. *Caledonian.*

Bignonias and Tecomas.

These require some little discrimination as to the best time and mode of pruning, otherwise failure will result. The species Streediana, speciosa, Cherere, capreolata, and others, will shortly be in bloom, according to the heat kept up. Although the last named is quite hardy, yet it is seen to best advantage in a cool greenhouse. Along with the others named, any pruning which these may require should be deferred till after they have flowered; indeed, it is the general rule, but there are some exceptions, viz., B. argyrea-violascea, that may be cut in frequently, as much of the beauty of this plant lies in the prettily marked young growth; others, which are better with but a small amount of pruning at any time, are B. purpurea and Chamberlaynii; and even Cherere, a thinning-out and regulating the shoots being all that is needed with these Then there are others belonging to the allied genus, Tecoma, which should not be severely pruned, viz., T. australis and T. jasminioides. On the other hand, T. radicans, T. capensis, B. grandiflora (hardy in some localities), and B. venusta, are all the better for being freely cut back after flowering; but the deciduous species, radicans and grandiflora, are best left till the wood is ripe.

Bignonias take a fair amount of head-room, a good rich holding soil to grow in, as much light as possible, and copious waterings, both at the root and overhead, with the garden-engine while growing. When thus treated they are splendid subjects for furnishing the roofs or domes of large conservatories; but B. venusta does best in an intermediate temperature; for the others the cool greenhouse will suffice.

Plumbago capensis and P. zeylanica.

Plants of these which have been resting, either as climbers or in pots, may now be closely pruned in, and put into a moist growing house, at a temperature of 50°. They will break in a very short time, but before the buds have pushed far, any repotting or top-dressing should be done. A rich, friable, loamy compost answers well, potting firmly, without disturbing the roots much. Return them to their growing quarters, syringe frequently, and the result will be nice decorative stuff for the conservatory in a very short time. P. zeylanica is a Cingalese species, often sold under the name P. capensis alba. It is, however, not so lasting in flower as the blue Capensis, nor as hardy. *F. R.*

Crotons.

If cuttings a few inches long are made from the points of the shoots of Croton, and inserted singly in 3-inch pots filled with sandy soil, watered, and placed in heat, they will soon take root; and by following a careful course of shifting into larger pots when necessary, pinching the points of the shoots, and keeping the plants moist at the roots as well as overhead, useful decorative stuff will be obtained by the autumn. *H. W. W.*

Odontoglossum grande.

The culture of O. grande is simple. It should be grown during the summer months in a cool, moist house; it will then be in active growth, and should be supplied with plenty of water. When the new pseudobulbs have become fully developed the plants should be kept dry, so as to thoroughly rest them. In the early part of September the plants require a warmer atmosphere, ranging from 60°—65° Fahr., as this increased warmth will induce the plants to produce strong spikes. When these have pushed up, the plants must be again kept well watered after the flower season is over; and repotting, if necessary, should then be done. This Orchid grows naturally in damp, shady woods, where the temperature seldom exceeds 70°, with a minimum of 36° in winter. Though the plants require shade from direct sunlight in summer, excessive shading is harmful. *Reichenbachia.*

The Apiary.

The weather is still very mild for the time of year. Bees are beginning to get active, and where there is any food at all, the queens are beginning to breed. If bees are not flying in the middle of the mildest days we have had lately, then suspect that something is wrong. If dead bees are now being pitched out of the hives things may be considered as prospering inside, for directly the living bees mean business their first thought (?) is to remove everything useless; and it is a good thing to assist them by hooking out any dead bees that are near the entrance. If it is suspected that the bees are short of food, give them some in the shape of candy, but no liquid food must be given for some time to come. I always recommend people to buy their candy, as it is somewhat troublesome to make. However, there are

many beekeepers who are determined to wait on their bees themselves, and a very good food can be made as follows:—Make some very thick syrup, such as is used to feed up bees in the autumn; while this syrup is hot keep adding powdered loaf-sugar and stir well. Keep this boiling till the mass is solid, and leave it to cool. Then put this food on the top of the frames. It is advisable before putting the food on to ascertain whether the bees are alive or dead. If placed on a hive of dead bees it will only teach bees to rob, and will be worse than useless.

By the time this appears the second week of the month will have commenced, and bee-masters must be up and doing. Get hives ready, so that bees will not have to wait for a home. He is not a master of his craft who allows the bees to swarm before there are any hives prepared for them. Further on, when hives have begun to get really dry, a coat of paint may be given. If March is seasonable, and there are dry cold winds, this ought to be done then, as the bees would not come out in any numbers, and the wind would soon dry the paint. Colour is a matter of taste. If, however, you have your hives pretty close together, it is well to have them of different colours. Sir John Lubbock has proved, in his valuable book, *Wasps, Ants, and Bees*, that bees do distinguish colour, and if the hives are made to look different to each other, it may cause more than one queen to find her way home after marriage. *Bee.*

Plants and Their Culture.

The Stove.—Many of the plants in this department will now require repotting, the potting materials for the different kinds of plants being ready to hand, all dirty pots washed, plenty of clean crocks for drainage purposes prepared, and the different kinds of soils placed where they will be warmed. Failing a warm potting-shed a space in the stove may be cleared for the work. Anthuriums require special attention, a different kind of soil to that used for other stove plants being needed for them. The compost for Anthuriums and similar plants should consist of one part fibrous peat, one part turfy loam, plenty of clean river or silver sand, broken charcoal, and chopped sphagnum moss. When repotting keep the root well up above the rim of the pot, which should first be half filled with clean crocks, an inverted flower-pot being placed in the middle. Alocasia metallica and A. Veitchii also require a special compost, which should be chiefly peat, broken charcoal, some dry, decayed cow-dung manure and sand. When repotting shake away all the old soil from the roots. A. macrorhiza and A. zebrina should have a portion of good turfy loam added to the above, and more manure be used. Crotons should have plenty of drainage in the pots, so as to allow of the excessive moisture these plants receive in syringing to keep down yellow thrips to draw away. Crotons also require a liberal proportion of loam in the compost, and quarter inch bones or bone-dust, which are very beneficial to the plants. Marantas should be repotted, and divided if this is required, using plenty of peat in the compost. Dracænas should be shifted, and in repotting them, the ball should be placed a little nearer the bottom of the pots than before, and to do this 2 inches of the tap-root may have to be removed. These detached pieces soon root and make good plants if placed in bottom-heat.

Palms should be repotted where necessary, but overpotting in too many instances is practiced. The plants may be top-dressed and kept healthy and growing for several years, care being taken that the drainage is perfect. Many of the strong-growing, larger-rooted stove plants will be benefited by the use of bone-dust, or quarter inch bones in the compost. Any plants that are deficient of roots should for a time be plunged in a mild bottom-heat to assist them in forming new ones. Any training or tying should now be done, using as few stakes as possible; the house thoroughly cleaned and rearranged, the temperature slightly raised, that is to 65° by night, and 10° to 15° higher during the day, the house being kept close for a time after re-potting, with increased atmospheric moisture.

Greenhouse.—Many of the imported Lilies will now be showing signs of growth, and should be potted, and in case the old stock was not potted in the autumn no time should be lost in doing so now, using good yellow loam, decayed cow manure, and a sprinkling of sand, potting the bulbs deeply, and afterwards plunge them in cocoa fibre or hard tree leaves, protecting the pots from rain and snow.

Pelargoniums.—These plants should now be shifted into their flowering pots, giving them a moderate shift, using good loam, some dry, decayed cow manure, and bone-dust, and a little sand. In repotting the soil should be firmly rammed, to encourage the plants to make short-jointed wood, and they should be carefully watered until new roots are formed. The plants should be dipped in diluted tobacco-water before repotting, if green-fly is present. Zonals should, now the flowering season is past, be cut back, the strongest cuttings inserted in thumb-pots, and placed in a warm house, where they will soon make root, and may then be transferred to a cooler house. *W. Withes, Sion House, Brentford.*

The Hardy Fruit Garden.

Pruning and Nailing Peaches, &c.—In gardens where a great amount of space on walls is devoted to Peaches and Nectarines, the annual pruning and training may now be proceeded with, and if a good number of young shoots were laid in in summer to take the place of those which have borne fruit (the latter may be cut back as also any of the older non-fruitful branches when necessary). Practically speaking, the chief part of the pruning should have taken place soon after the fruit was gathered; and at the same time the young fruitful shoots laid in at a distance of 6 to 8 inches apart, as a means towards getting them ripened satisfactorily. All trees infested with insect of any kind should be taken entirely from the walls, and get a thorough cleaning as recommended by me at p. 79. The amount of pruning will now depend entirely upon the sort of shoots made last summer and the way in which they were treated as regards disbudding and the pinching. I do not adhere to the shortening back of shoots practised by many gardeners, but if the shoots are healthy and of medium length lay them in at full length, taking care not to crowd them together. All shoots not ripened well may be shortened as far back as the matured wood, cutting, if possible, to a triple bud; and weaker shoots may be cut back to a couple of wood buds near to the base. Remove any shoots that bore fruit last year, and which can be spared, replacing these with young shoots with plenty of bloom-buds, keeping the trees furnished from bottom to top with this fruitful kind of wood. In fastening the main branches to the wall with tar-twine or willow, first place a piece of cloth under the tie to prevent the latter cutting the bark, and arrange them at about equal distances apart, so that a well balanced tree be formed. The young shoots may then be filled in, allowing plenty of space in the shreds or ties for them to swell, and be careful in the use of nails, and the best of the old shreds may be used again, but they should be steeped in boiling water and partly dried before using them. Young trees must receive timely attention, and where the shoots are very strong, but not matured they may be shortened back more or less, as required. Keep the side branches balanced, and if there is a doubt as to whether the two centre shoots will break sufficiently low, bend them down until the lower buds have broken, when they may be placed in their proper position. All newly planted trees should be left unfastened until the last, and should have a thorough trampling over the roots in a dry state of the soil before securing them to the wall. There is still time for the planting of young trees, but care must be taken that they do not suffer for want of moisture later in the season. It is advisable to plant a few, even if not in a good fruiting position, and train them properly, so that they may be used for replacing any trees which may have become useless. I do not favour the planting of late sorts, as they seldom ripen satisfactorily outside, however good they may be with the aid of a little glass. Waterloo, Alexander, Hale's Early, Grosse Mignone, Noblesse, Old Alexandra Noblesse, Stirling Castle, Bellegarde, Early York (always good), Barrington, Crimson Galande, Diamond, and Royal George in some places. Nectarines: Lord Napier, Pitmaston Orange, Pine-apple, Humboldt, are the best to ripen, and which give the most satisfaction here, Royal George is rather subject to mildew outside, but, it notwithstanding, is one of the finest indoor Peaches grown.

Protecting the Blossoms.—The very mild weather we have experienced of late, the glass registering from 45° to 52° night after night, is telling greatly on fruit trees, and the buds of Apricots, Peaches, &c., are swelling up very rapidly, and it will be necessary to make an inspection of the protecting materials, to see that all is in readiness. Those who use glass coping have the least difficulty in securing a good set of fruit; but there are other means which may be employed with the greatest satisfaction; Birch and Spruce boughs, Frigi Domo, fish-netting, and other blinds, all answer the purpose. The fish-netting is in use with us principally, and answers well when doubled. This we fasten to light poles stuck into the earth at a distance of 4 feet from the wall, the upper ends resting against the top of it. The poles are placed 5 feet apart, and the netting is stretched from top to bottom, thus not only warding off the frost but also cold cutting winds. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

Horseradish.—This is sometimes cultivated as it should not be, and we understand that for market purposes a great quantity is imported from Holland and Germany. That Horseradish can be grown in this country equal to any that is imported has been clearly demonstrated. My practice is to trench up the whole of the stock of Horseradish roots every winter, laying them in in some handy place—all the useable portions with the crowns intact, after disrooting. The string-like roots of a diameter of three-quarters of an inch are preserved for future planting, and are cut into lengths of 9 or 10 inches, all roots being scraped off to within an inch of the bottom, and they are then laid into soil until planting time arrives. The ground the crop occupied is well dressed with manure, trenched as deep as the staple will allow of it being done, turning the manure into the bottom of the trench, so as to prevent as far as possible the emission of side roots. Towards the end of the present month the sets are planted with a dibber 3 inches in diameter, and having a short piece of round iron run through it at 12 inches from the point, which secures uniform depth in the holes; a distance of 18 inches is preserved between the rows, and 12 inches from set to set. Place each set in the centre of a hole, and pack it round with some finely screened porous soil; thus the crown will be about 3 inches below the surface, and as the ground subsides the depth becomes less. All the attention needed during growth is to keep the ground well hoed until the foliage meets, when the crop will take care of itself. The crop is always ready for lifting at the end of the month of November, and the above method should be repeated, or new ground may be taken for the crop. By this method of growing it, Horseradish is clean and straight, 10 inches long by 2½ inches in diameter, one stick being sufficient to last an ordinary establishment the greater part of one week.

Frames.—Lettuce, Endive, Cauliflowers, &c., in frames, should receive all the air possible and if these require watering a mild day should be chosen for the work. Draw a little of the surface soil to one side, and pour sufficient water between the rows, but avoid damping the leaves, then replace the dry soil. Keep down weeds in store beds of Lettuce, Cabbage, &c., Cauliflowers under protectors should have all the air possible in the absence of frost, but do not admit cold rain. Run the hoe between the rows of early Cabbages when the weather and ground are both favourable for doing so, it being a matter of importance to keep the surface soil in an open state. Where the Cabbage plants are large, draw some soil up to the stems to secure them against wind waving. Look over winter Broccoli and remove those heads which are turning in, or tie up the leaves over the head; a quantity of dry Bracken is useful for strewing over Broccoli in the event of frosts occuring. Get the ground on which Onions, Parsnips, Shallots, Parsley, are to be grown, prepared against the first favourable day for getting these things sown and planted. Parsnips require a long season, and where the ground is light it is an advantage to get these and Onions established before drought lays hold of them. On heavy soils the work is better when deferred to the month of March.

Spinach.—A sowing of the round variety should be made between the rows of Peas. It is perfectly hardy, and will be quite uninjured by frost.

Jerusalem Artichoke.—The entire crop should now be lifted, a dressing of rotted leaves or manure applied, and the ground well trenched and sufficient tubers be again planted. *W. M. Baillie, Luton Hoo.*

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THE GARDENERS' CHRONICLE,

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W. RICHARDS, 41, Wellington Street, Strand, W.C.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY,	Feb. 11	Chambre Syndicale of Ghent.
TUESDAY,	Feb. 12	Royal Horticultural Society: Fruit, Floral, and Scientific Committees, and Annual General Meeting.

SALES.

MONDAY,	Feb. 11	Lilies, and other Bulbs, at Protheroe & Morris' Rooms.
TUESDAY,	Feb. 12	Carnations, Roses, &c., at the City Auction Rooms, by Protheroe & Morris. Oncidium macranthum and other Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY,	Feb. 13	Roses, Fruit Trees, Shrubs, Azaleas, Border Plants, and Bulbs, and Collection of Orchids in Flower and Bud, at Stevens' Rooms. Lily Bulbs, Cocos Seed, &c., at Protheroe & Morris' Rooms.
THURSDAY,	Feb. 14	Imported Orchids, from Messrs. H. Low & Co., at Stevens' Rooms. Nursery Stock, from sample, at Protheroe & Morris' Rooms.
FRIDAY,	Feb. 15	Fourth Portion of Barvins Park Collection of Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—39°.1.

Royal Manchester and Northern Counties Botanical and Horticultural Society.

The report of the annual meeting of the Royal Manchester and Northern Counties Botanical and Horticultural Society which took place in the Town Hall, Manchester, on January 30 last, is before us, and we extract some particulars from it to show in what a flourishing state the Society is. Mr. Bruce Findlay, we observe, modestly disclaims any exclusive share in the realisation of this success, but "those who know" are fully aware that much the largest amount of the credit for such successful operations is due to his exertions. It would not be fair to institute comparisons with the Royal Horticultural Society, as the conditions in London and Manchester are widely different, the objects of the two Societies are in many respects distinct, and much is expected of the representative Society which does not come within the scope of the provincial association. Nevertheless, there is much in the report of the Manchester Society which may profitably be considered by those who have the management of the Royal Horticultural Society.

"From the commencement to the close of the season the duties of the Council have been fraught with the anxiety consequent upon the enlarged scale of their operations. Adverting to the last report, in which the Council stated their intention of increasing the number of fruit and flower shows and to perpetuate the musical features connected with the Jubilee Exhibition of 1887, it is desirable to place on record (what is already known to the proprietors and the public of Manchester) that this promise has been carried out, and the results have proved very satisfactory. The success of the Society's operations depends, to a large extent, upon influences beyond all human control, namely—

"The Weather.—Capricious as the weather usually is in this country, the past year will take its place in the meteorological records as an altogether exceptional one. The following figures will confirm this statement:—The musical season extended over a period of sixty-nine days; forty-eight of these days were wet and unfavourable, and twenty-one partly fine. The receipts at the gates on the twenty-one fine days amounted to nearly double the amount received on the forty-eight wet and unfavourable days.

"Horticultural and Floral Exhibitions.—A larger number of these have been held than in previous years. Two exhibitions of spring flowers were held in the Town Hall, and the Chrysanthemum show in the same place. The annual Whitsuntide show was held in the Gardens, also the Rose, Carnation, Tulip, autumnal fruits and flowers, and Apple and Pear shows, and from the floral and horticultural point of view they were all that could be desired. A great variety of interesting new plants and flowers have been submitted for adjudication; upwards of £1000 has been distributed in prizes, besides several gold and silver medals for special exhibits. These prizes and medals are highly esteemed, and the Council have proof that much emulation is caused among the exhibitors by the desire to obtain them. This healthy competition cannot fail to raise the standard of horticulture and floriculture.

"The Musical Arrangements formed an important feature of the year's proceedings, and the Council are glad to know gave great satisfaction to visitors.

"Finance.—The statement of receipts and expenditure for the past year, and the liabilities of the Society, are given, from which it will be seen that the income from subscriptions is over £3000 in advance of the preceding year. It will also be seen that about £5000 has been expended upon new buildings, in the alteration and adaptation of the erections left in the grounds by the Jubilee Exhibition Committee, and in the restoration of the gardens. It need hardly be stated that the initial expenses connected with a new departure like the one made during the past year are necessarily heavy. The financial result of the year's labour is that the Society has acquired buildings valued at £5181, a very considerable extension of membership, and a surplus balance of £400. The acquisition of this plant has not only increased the capabilities of the Society for carrying on its botanical and horticultural work, but has also provided means for the supplying of a want which will tend very much to make the social life of Manchester and the surrounding districts more enjoyable.

"State of the Gardens.—The collections of plants and trees, to which many important and interesting additions have been made during the year, are in a satisfactory state of health and vigour, and the garden and houses generally are in good condition. The rapid growth and excellent health of the plants in the new Palm-house bear ample testimony to its suitability to their requirements. The fernery is a source of never-failing attraction. The demand for specimens to artists and others is on the increase, and a very large number are annually distributed. The botanical lectures, which for many years have been delivered annually by Mr. Grindon, continue to be highly appreciated. The grounds and buildings were illuminated each evening with the electric light, and it is arranged that the same be done during the forthcoming season.

"Provisional Arrangements for 1889.—Spring flower show, at the Town Hall, March 19; second spring flower show, at the Town Hall, April 30; National Horticultural Exhibition, at the Gardens, June 7 to 15; Rose show, at the Gardens, July 20; autumnal fruit and flower show, at the Gardens, September 20 and 21; Chrysanthemam show, November 19 and 20; botanical lectures, by Mr. Grindon, at the Gardens, every Tuesday evening during the months of June, July, and August. In addition to the above, the exhibitions of the National Auricula, Tulip, Carnation, and Picotee Societies will be held; the times and places will in each case be duly announced.

"Joseph Broome, *Chairman.*
Bruce Findlay, *Curator and Secretary.*"

Royal Horticultural Society.—If the weather should be mild, it is anticipated that the next meeting of the Royal Horticultural Society, on Tuesday, February 12, will be an interesting one, as a large number of Fellows are expected to be in London to attend the annual meeting, and several persons, both amateurs and nurserymen, have already signified their intention of sending exhibits. The Fruit and Floral Committees will meet in the Drill Hall, James Street, Victoria Street, S.W., at 11 a.m., after which the Hall will be opened to all Fellows at 12 o'clock. The Scientific Committee will meet at 1 p.m. At 3 p.m. the annual meeting will be held in the Library at 117, Victoria Street, when the Council will present their report for the past year, together with the balance-sheet and revenue account of the Society. The Fellows will then proceed to ballot for members of the Council and officers for the year 1889-90, and also to elect Fellows; and any persons wishing to join the Society should send in their names to the Hon. Sec., 117, Victoria Street, S.W., on or before Monday, February 11.

United Horticultural Benefit and Provident Society.—The annual meeting of the above Society will take place at the Caledonian Hotel, Robert Street, Adelphi Terrace, Strand, on Monday evening, February 11, at 8 o'clock.

Durham, Northumberland, and Newcastle-upon-Tyne Botanical and Horticultural Society.—The schedule of prizes of this Society for the present year lies before us, and from it we observe that a show is to be held in conjunction with the visit of the British Association to Newcastle on September 11, 12, and 13, and at which the local committee of the Association will offer special prizes. The Veitch Memorial trustees have also offered two special prizes of £5 each with Medals, for a collection of hardy fruit, and for six distinct plants in bloom. The balance-sheet and annual report for the year 1888 show that a balance remains to the credit of the Society, after payment of £1650 4*s.* of more than £19. W. D. Cruddace, Esq. (of Armstrong, Mitchell & Co., Limited), Elswick Works, Newcastle, has been elected President for the current year; the Right Worshipful the Mayor of Newcastle, Thomas Richardson, Esq., Vice-President. The schedules can be had on application to the Secretary, Jas. J. Gillespie, Esq, Cross House Chambers, Westgate Road, Newcastle-on-Tyne.

M. Godefroy's Work on Cypripediums.—In speaking of this work in our last issue, we omitted to mention that the reproduction of Mdlle. Koch's drawings by means of chromo-lithography was effected by M. Severeyns, of Brussels. This was an inadvertence on our part, which we hasten to repair, as the lithographs in question are undoubtedly among the most perfect and successful of their kind.

The Southampton Horticultural Society.—The twenty-sixth annual report of the above Society shows, after a somewhat disastrous season, greatly diminished funds. The balance of money in hand is very small, and much prize-money remains to be paid to exhibitors; to obtain which a grand concert has been arranged for by Mr. A. Rowland. The Council hope, if the weather be favourable on the various show days this season

and if the public patronise them largely, that their financial difficulties will be surmounted. The dates of the shows are as yet not fixed, but will be shortly.

Tenacity of Life in a Cycad.—Growers of Cycads know that stems of such genera as Cycas, Encephalartos, and Macrozamia, when imported into this country without roots, will, when properly treated, develope new roots freely and become well established in a year or two. Also that old stems which have ceased to develope good foliage may be reinvigorated by washing the roots free of soil and leaving the whole plant exposed to a dry atmosphere for a few months. This treatment usually kills all the old roots, but the stem, when replaced in soil, soon developes fresh ones, and makes perfect foliage as well. At Kew this treatment invariably has the desired effect. The following case, however, is, we think, quite exceptional:—In June, 1882, the authorities at Kew received from Baron Sir F. von Mueller, Melbourne, a stem of Macrozamia Moorei, which measured 10 feet in length by 2 feet in diameter, and was as thick at the top as at the bottom. It had neither roots nor leaves, but was apparently quite sound. It was planted and placed in a warm position in the Palm-house, where, in a few months, it made weak attempts at growth, but never started properly. In October of 1883 it was taken out of the soil, and it was then found that, although sound in appearance, the lower 6 feet of the stem was quite dead and dry. Cutting the dead part from the living was extremely difficult, owing to the hair-like nature of the dead woody bundles. The top, which had been living on itself at Kew nearly three years and a half, was planted in soil and treated as before. It is now well rooted, some of the roots having grown through the bottom of the large pot; they are as thick as a man's finger. Healthy leaves also have been developed. Moral: (1) a Cycad is never past recovery till the growing point is dead; (2) never hesitate to lower a Cycad by cutting away the base of the stem, as the top, if healthy, is certain to strike root.

Curiosities of the London Drug Sales.—Some interesting facts relating to the commercial importance of vegetable products may frequently be gathered from the reports of the drug sales at Mincing Lane. Thus, during the week ending December 15 last there were offered for sale 168 lb. of the fruits of Embelia ribes, which, however, found no buyer, and were bought in at 2*s.* 6*d.* per pound. The plant is a scandent shrub, common throughout India, Malaya, and South China, belonging to the natural order Myrsineæ. The fruits or berries much resemble black Pepper in appearance, which, indeed, they are used to adulterate, and they are also used in India as an anthelmintic. Another drug which appeared in the same market to the extent of 74 lb. was the Australian asthma herb (Euphorbia pilulifera), which has been introduced during the past few years as a remedy for bronchial affections. It comes into the market in the form of broken leaves, and realises about 3*s.* per pound. The report on Coca leaves was that they "sold cheaply." Ten bales of South American leaves, Huanoco character, good pale green and yellowish mixed, sold at 1*s.* per pound, and six bales, more or less damaged, at 11*d.* down to 6½*d.* per pound. Two consignments of Java Coca leaves just imported were also brought to auction. One of these consisted of eleven tin-lined boxes (25 lb. each), the current season's crop of the "Sockamadgoe" plantation. These leaves were of excellent green colour and good flavour, and apparently of the Truxillo character, but cut small. No bids were made for them, and the lot was bought in at 3*s.* per pound nominally, 1*s.* being solicited. The other parcel consisted of three packages of very common, small and almost black leaves, such as have on one or two previous occasions been shipped from Java. For these not even 2*d.* per pound was obtainable. Under the head of Strophanthus it is reported that a parcel of 271 lb. of the small orange-brown Wrightia seed, which is worth nothing for pharmaceutical purposes, as it contains no strophantin, was withdrawn. The parcel arrived from Bombay.

Profitable Fruit Culture on Farms.—A paper on this subject was read at the Farmers' Club, St. Albans, on Saturday, the 2nd inst., by Mr. R. Dean, the members of the Club having invited him to do so. The paper dealt with three leading points—What to grow; How to grow it; and How to profitably dispose of the produce. Some discussion took place at the close, and a hearty vote of thanks was passed to Mr. Dean for his paper.



Fig. 33.—Terrace Gardens, Easton Hall, Lincolnshire. (see p. 178.)

The Minor Products of our Forests.—Uses are constantly found now for minor products of our forests which, until recently, were considered valueless. A conspicuous example of this fact is pine-fibre matting, which is manufactured in North Carolina from the leaves of the Long-leaved Pine (Pinus palustris). The industry is a new one comparatively, but it has already become important, and it is likely to grow as the value of the matting made from pine leaves is better known. A bagging material is also made in the same way, which can be used for covering cotton-bales. The fact is now creating much interest in the cotton-producing states, because the price of jute-bagging, which up to the present time has been the only material used for covering cotton-bales, has been enormously increased by the manipulation of a combination of importers

who control the supply, and who have formed a jute-bagging trust. It is now believed that pine-leaf bagging will prove the best substitute for jute. Should this expectation be confirmed, the productionof this article may be expected to be very large in the course of the next few years. The green Pine leaves, collected in the forest for the purpose, are purchased at the factories for 15 cents per 100 lbs. They are first cleaned, and then placed in large iron cylinders set on end and surrounded with steam-pipes. They are then thoroughly steamed, the vapour being conveyed through pipes into an ordinary distillery-worm in an adjoining building. Pine-leaf oil, a valuable antiseptic, is obtained in this way at the rate of about one-half gallon for every 100 lb. of leaves. The leaves are then boiled to remove the silica, which is found in their outer covering, and which can be used in tanning leather. The leaves are next boiled again and bleached, and are then ready to be dried, which is done in machines, by means of which all moisture is evaporated from them. The fibre is then ready for manufacture, and is put up in bales weighing 25 lb. The pine-leaf fibre has also been found valuable by surgeons in the treatment of fractures and in dressing wounds. It is an excellent disinfectant, and probably many other uses will be found for this long-neglected product of the forest.

"BOTANISCH JAARBOCK."—This is the first number of a new publication in Dutch issued under the auspices of the Dodonæa Society of Ghent. Professor MACLEOD contributes a paper on the statistical data relating to the fertilisation of flowers by insect agency, with a *resumé* in German. Another paper by the same author on the structure and fertilisation of some Belgian plants has an English summary. Mr. G. STUES has a communication on the flowers of the Carrot, and there are numerous other minor communications, many with illustrations, occupying on the whole 319 pages.

READING CHRYSANTHEMUM SOCIETY.—The negociations rendered necessary by the objections of the Borough Council to the use of the Town Hall because of possible injury to the organ have resulted in the granting of the hall for the use of the Society, and the date of the show has now been fixed for November 14.

HOW TO GET RID OF PRICKLY PEAR.—The following, from the pen of T. G. HEWLETT, Deputy Surgeon-General, late Sanitary Commissioner for the Government of Bombay, appeared in the *Times* of January 29:—

"As one who has for many years past waged war against this noxious plant, on account of the filth it accumulates in the close vicinity of every village in India, I have much pleasure in informing you that at length a perfect solution of the problem has been discovered by Mr. RENOLD, the able executive engineer, to whom the duty of rendering the ancient city of Bijpur fit for reoccupation has been intrusted by the Government of Bombay.

"The city within the walls covers an area of 2½ square miles, the greater portion of which is uninhabited, and largely covered with dense forests of Prickly Pear, and with *débris* of ruined buildings. . . . Places outside the Arkilla, which I remember to have been unapproachable from impenetrable jungles of Prickly Pear, and are now cleared of this noxious plant, although very much still remains to be removed. Broad roads have been cut through the city, which open up parts which were formerly quite inaccessible. One of these, which passes through the walls to the west of the Futteh-gate, is not only a most important thoroughfare, but has opened up a part of the city which formerly could not be approached on account of Prickly Pear.

"Mr. REINOLD, I believe, first tried burning, as Professor MACOWAN did, and with a similar experience. He was then led to try burial under at least 2 feet of earth, and he has found this method to be perfectly effectual. He now, I believe, recommends 3 feet of earth as safer, the object being to insure as much as possible the exclusion of light. This plan has now been in operation for at least three or four years, and it has been followed with the greatest success, and it cannot be too widely known, for no one who has not seen the rapidity with which this plant advances would believe in its power of propagation. The unrestricted growth of Prickly Pear in the immediate vicinity of villages in India is one of the chief insanitary conditions which so largely prevail in them, and the Government of India would effect the greatest possible good if it were pleased to order or if necessary to pass a law enacting that all Prickly Pear growing in the vicinity of inhabited areas is to be cut down and buried under at least 3 feet of earth."

PUBLICATIONS RECEIVED.—*Twenty-five Years' Rainfall in Wirral.* By R. BUSHELL (Liverpool: E. HOWELL, Church Street).—*Irish Home Rule* (London: E. TRUELOVE, 256, High Holborn).

EASTON HALL, GRANTHAM.

AMONGST the many residences which the south-west of Lincolnshire can show, the residence of Sir Hugh Cholmey, Bart., is one of the most charming. Lying some five miles to the south of Grantham, on the left side of the London Road, and in the centre of a well wooded park, it is one of the most picturesquely situated country-houses to be seen anywhere. The chief entrance to the mansion from the highway road passes by a pretty lodge, well covered with the Virginian Creeper, which, at the time of our visit (October 1) was in its brilliant autumn array, and which blended beautifully with the various other autumn tints of decaying foliage of Chestnut, Oak, and Beech. The approach, of nearly a mile in length, is not a straight level road, but is marked by changing levels and beautiful bends, which open points of much beauty in the scenery. The park, of some 200 acres in extent, contains many a minature hill and dale, and has not the monotony of a level surface. On each side of the drive, dotted here and there over the whole area of the park, is much fine timber, particularly Oak, Beech, Ash, and Elm, the latter apparently being of great age. One point in the connection with the drive we noticed may also be worth recording, inasmuch as many would do well to follow the same plan. Standing, as the mansion does, on a hill of some considerable height, it necessitates the approach to take rather a steep incline of some few hundred or more yards in length. Down the sides of this the water during heavy rains would naturally rush with great rapidity, carrying gravel and nearly everything else before it were steps not taken to prevent it. This is done by having each side of the road, the gutter as it were, made in asphalte.

The pleasure grounds consists principally of unlevel ground, and is laid out with numerous flower-beds filled with many old-fashioned flowers. From an arboricultural point of view, too, the garden scenes are charming, for amongst the numerous shrubberies in close proximity to the mansion, we noticed a great variety of shrubs of all kinds, and also of Conifers, amongst the latter good specimens of Wellingtonia gigantea, Cedrus Deodara, and others were noticeable.

The principal flower garden, a portion of which is portrayed in our illustration (fig. 33), is laid out, as will be seen, in a number of well-kept terraces, from the highest of which a fine view of the whole is obtained. The beds are laid out in geometrical pattern, and at the time of our visit, although it was late in the season, presented a gorgeous display of colour. Foliage plants are largely used, and small kinds, like Alternantheras, Echeveria glauca, Iresine, Perilla, and Pyrethrum, were much employed.

Another point, which adds greatly to the appearance of the place, is the unrestricted growth and use of creeping plants, which is carried out here as much as possible; in fact, every available place is well clad.

Passing from the terraces by a bridge, an ornamental sheet of water divides the principal part of

THE KITCHEN GARDENS

from the terrace garden, and which, in several portions, slope towards the flower garden. Direct through the centre of them runs two magnificent Yew hedges. These are some 14 or 15 feet in height, and about the same in thickness. These were, up to the severe winter of 1881, as perfect as could possibly be seen, but the frost in that year did much damage to them. The gardens, too, are well stocked with fruit trees. Mr. Nixon, the gardener, is a strong advocate of the extension system of training, and to this he attributes his success in Apple culture.

At Easton there are many forcing and plant houses, and although everything betokens excellent cultivation, nothing calls for especial notice at the present time.

SCOTLAND.

EDINBURGH BOTANIC GARDEN.

AT last the Roridula has been introduced into cultivation, and three or four plants are at present alive and well in the Edinburgh Botanic Gardens. They are about 3 inches high; the leaves, except the seed leaves, are much divided, and about half inch long. Both leaves and stems are covered with quantities of viscid glands, and have already begun to catch flies. The Roridula appears to be a difficult plant to grow during the earlier stages, being apt to damp off. Plants raised here last year lived long enough to have their picture taken, and then died. The seed was sent by Miss Jan Dyk from her father's farm at Tulbach, Wittenberg Mountains, Cape of Good Hope, where the climate is very warm from October to the beginning of January; but it then becomes gradually colder, and even snow sometimes falls in June or July. The viscidity of specimens preserved in alcohol is much greater than that of Droseras; but whether this is due to natural viscidity, or merely the result of alcoholic treatment, is still uncertain.

Drosera cistiflora, sent to Mr. Lindsay last year by Miss North (who procured plants of it from South Africa), is growing well, and will probably flower this year. The plant is evidently deciduous and probably bulbous; it died down early in autumn, and has now again started into vigorous growth. This species, which has scarlet flowers, will be a decided acquisition, not only from a botanical, but from a gardening point of view. There is a picture of this Drosera in the Marianne North Gallery at Kew. *O.*

THE FLOWER GARDEN.

HERBACEOUS PERENNIALS.—Reference was made to these in my last note, and I return to the subject because we still have part of the offsets to plant that were taken from the plants when being re-arranged. I wish also to add, that though the planting of the more important borders and beds of these plants has long since been completed, it is not yet too late to plant with a fair amount of success, but no time should be lost in setting about the work as all plants are now on the move. Root disturbance may not be of much consequence to Funkias, Helianthus, Solidagos, Asters, and such-like, but to Pæonies, and bulbous and tuberous-rooted plants generally, uprooting after growth has started results in weakly growth throughout the season. Let alone till next autumn or early winter is therefore the policy to adopt in respect of these; but it is quite another matter if the plants are bought in, and have, as is usual, been grown in pots; they can then be planted out without the least risk of injury. The plants still to be planted are the surplus on hand after the re-arrangement of the beds, and which are intended as reserve stock. Meanwhile the plants will be planted in good soil, and have equal attention with the others, and will be of great service in the production of cut flowers. Other plants to be planted in the permanent herbaceous borders as soon as the severity of the winter is past, and it becomes safe to move them from the frames, are Carnations, Pinks, Violas, and Pansies, also Lilium auratum and Hyacinthus candicans in small clumps of three bulbs, Gladiolus in large clumps of from seven to twelve, Spanish

Iris, Ranunculus and Anemones wherever there is space in small groups near the front of the borders, not forgetting to leave a few vacant spots on which to sow Mignonette, Candytufts, Larkspurs, and a few other dwarf annuals.

Herbaceous Lobelia (Lobelia cardinalis).—It is an old saying that "History repeats itself," and in gardening matters it is not difficult to vouch for the accuracy of the saying, as instance this section of Lobelias. Thirty years ago they were very popular as bedding plants, and I have a vivid recollection of how amazed and delighted I was on first seeing an arrangement of a long, straight line of these planted between lines of the large yellow African Marigold as the front line, and the old white bedding Dahlia Zellinda behind, with a final back line of purple Zellinda. At that time this arrangement begat general admiration, but to-day it would be considered vulgar in design. I am free to confess that I should condemn it solely on the ground of gaudiness and lack of variety; but, as far as the plants themselves are concerned, I have not a word of disparagement to write; whilst as regards the Lobelia, I have much to say in its favour, and therefore rejoice in the signs that there is of a revival of its cultivation. This Lobelia, with its erect habit and brilliant flowers, is amongst the best of plants for dispersing as standards over beds planted in the mixed fashion. Moderate-sized clumps will throw up from three to six spikes of flowers, and if tied neatly but somewhat loosely to one small stake the spikes are sufficiently massive to admit of the planting of any description of flowering bedding plants, without risk of their growing too strong to overshadow the Lobelias. Heliotropes, Ageratums, Cupheas, variegated Pelargoniums, Harrison's Musk, and Violas are all excellent for planting in conjunction with this Lobelia. It can also be used as a central plant for colour massing where this mode of arrangement is still in vogue. If tied to stout stakes the spikes will withstand the highest wind, and they are not easily damaged by rain or frost. It is now time to split up the old roots that have been wintered in any out-of-the-way place free from frost, and either to pot or plant them out in a cold frame, growing them on gently, and finally transplanting them to the beds early in May. *W. Widdsmith, Hackwood, Winchfield.*

Fruits Under Glass.

Vines in Pots.—The berries on these will now be swelling. Remove laterals as they appear, push on the plants as fast as possible by day, as the object is simply to ripen the crop early without regard to the Vines, and with this end in view a night temperature of 65° to 70° and 80° to 85° by day may be maintained, shutting up early at 90° with sun-heat; damp the paths and bed twice or thrice a day, more or less liberally, according to the weather, using manure-water for that purpose at closing time. Examine the pots two or three times a day, giving clear manure-water, and now and then a spoonful of Thomson's manure sprinkled on the surface of the soil, to be washed in with clear water, and encourage root-action by a top-dressing of turfy loam in a rough state; and when the pot is full, cut some pieces of zinc 6 inches wide and 3 feet long, for a 10-inch pot, bend this round and press down inside the rim, and the space formed by this should be filled as time goes on.

The Second Vinery.—The Vines here will be in bloom, and the stopping and tying down must be attended to; maintain a nice buoyant and rather dry atmosphere, with just sufficient moisture to make it feel comfortable, for a week or so; 60°–65° will be sufficiently high at night. Distribute the pollen by tapping the shoots two or three times a day. Take off all superfluous bunches at once, and thin the bunches as soon as they are well set; at this stage do not damp at night except in the case of the pipes getting over-heated, or when flues are used, which at all times make a much drier atmosphere than pipes. Any neglect in this respect will result in an attack of red-spider, but where there is a great surface of inside border, with walls and paths that can be damped at closing time, and plenty of pipe surface, damping at shutting-up time is quite sufficient until the next morning at this time of year.

Third Vinery.—If this house contains mixed sorts, and these are sufficiently advanced to determine the best bunches, the number of bunches to be left may be determined upon. Disbud, stop, and tie down shoots gradually as they advance. A warmth of 55° at night, rising by day 10°, will be the right one, shutting up with sun-heat, and give as much air as possible during mild, fine weather, taking advantage in every way of fine days to force the Vines during sunshine.

Later Houses.—One house may now be started with a temperature of 50°, carrying out former directions in this matter. *W. Bennett, Ranjemore, Burton-on-Trent.*

Home Correspondence.

☞ *Correspondents will greatly oblige by sending early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

RYE-GRASS IN PASTURES.—Considerable discussion and interest is just now being attached to the question of the prevalence and value of Rye-grass in our meadows and pastures, arising out of an important paper on various British pastures contributed by Professor Fream to the last issue of the *Journal of the Royal Agricultural Society*. In this paper it is shown conclusively that Rye-grass forms an important element in all the pastures famous for their cheese, butter, and meat producing qualities, constituting in some cases as much as one-half the whole herbage, and ranging from 75 to 90 per cent. of the total grasses. Sir J. B. Lawes says, in reference to this subject:—"It is an undoubted fact that in a pasture in Leicestershire which was selected for examination on account of its extremely high fattening character, Rye-grass was first in amount in eight out of eleven samples taken at as many different periods, over four different years, and it came second in order in the other three. It contributed an average of 29 per cent. of the total herbage in the eight samples, and of nearly 15 per cent. in the remaining three, corresponding in the eight samples to about 43 per cent., and in the three to about 24 per cent. of the total grasses. The plant next in order of amount was white Clover, which, on the average of the eleven samples, contributed more than 23 per cent. of the total herbage; only very small amounts of any other leguminous plant being present." Referring to the Rothamsted pastures, 100 acres of which are very old, and about 150 acres which have been laid down between the years 1838 and 1879. Sir John says, in laying down arable land to grass, he has always used a good mixture of seeds, but he finds that whatever kinds are sown it is the conditions of soil, climate, manuring, and treatment as to mowing or grazing that eventually determines what the ultimate composition of the pasture shall be. In those pastures which have been frequently mown for hay it is found that both Rye-grass and white Clover gradually diminish in quantity, while on those which are constantly grazed by cattle receiving cotton-cake, Rye-grass remains in abundance. And instead of extirminating Rye-grass from his pastures Sir John says he is not at all certain that his old pastures that have been frequently mown would not be improved by sowing some of its seed, and that he shall certainly try the experiment this spring. *J. J. Willis, Harpenden.*

JENSEN'S NORWEGIAN FISH POTASH.—This is a very valuable manure, and is making headway in favour. It is made from the heads and bones of the codfish, which are dried and ground to a powder. This manure suits all sorts of plants and trees, except perhaps peat-earth plants, and of these I have no experience. I have now used it for some years, and can speak of it most favourably, especially as a dressing for Vine borders. It is sprinkled over the top, raked into the soil, and followed by a good watering. If the Grapes are not colouring, it would be well to try this manure. Even the Buckland Sweetwater with me last spring developed a tint of pink after the dressing, having the appearance of that lovely Indian Grape, Ahbee, as grown at Chiswick, and exhibited some thirty years ago at South Kensington. A friend of mine in the autumn of 1887 had the worst lot of Cinerarias he had ever housed, but on repotting them with a dash of this manure added to the compost, the result was most satisfactory. In my own case, a houseful of Pelargoniums were cut of health, but on applying 3 tablespoonfuls of manure to the surface of the pots (24's), they recovered, and bloomed for eight weeks in succession. There is very little smell with the use of this manure, and even that soon passes. *J. Rust, Eridge Castle, Tunbridge Wells.*

CYPERUS NILOTICUS.—This plant is seldom met with but it may nevertheless be strongly recommended for various purposes in house decoration. Three years ago we had a packet of seed which gave us hundreds of plants. The species has a graceful habit of growth, the leaves a pleasing green, which are retained for a long time under a variety of hardships. We have at present some that were potted into thumbs two years ago, and look quite fresh. It has also been used here as a dot plant in carpet bedding with pleasing effect. *H. R. H.*

LILIUM NEILGHERIENSE.—In answer to Mr. Lawrie (p. 147), our Lilium neilgherriense was grown in a pot in a cool-house, the soil about three parts light loam to one of leaf-mould. I have not yet raised this Lily from seed. *George F. Wilson.*

FUELS AND STOKING.—Your correspondent, "W. H." (p. 29), touches upon a subject of unquestionable interest to gardeners, and with most of what he says I quite agree, but there are some points that need considerable simplification. In my opinion a great many head gardeners have got themselves to thank in the main for the inferior stoking abilities found in many young gardeners. Stoking at the best of times is not agreeable work, and there is probably no part of a young gardener's education that comes in for more neglect, both on the part of the student and the teacher. After eighteen years' experience with a great variety of heating apparatus, I have come to the conclusion that good stoking consists of four points, viz., 1st, a clear ash-pit; 2nd, a good fire-iron, made so as to readily slide backwards and forwards between the bars from the underside, at the same time expeditiously turn out a clinker inside; 3rdly, an even distribution of fire and fuel over all the available space of the fire-bars; 4thly (and this is the kernel of the whole matter), a proper regulation of the damper and ash-pit door. I am strongly of opinion that dampers and ash-pit doors are in many instances used in the most reckless haphazard way, and are by far the most fruitful causes of bad stoking. A young gardener is told to get up the heat, as the saying goes; he forthwith opens the bottom door pulls out the damper to its fullest extent, which causes a rapid through draft, and quickly has the desired effect and gets up the heat, but where?—up the chimney. Assuredly the major part of it, as can often be seen by the rapid volumes of heat ascending many feet from the chimney. With an empty ash-pit and a judicious use of the fire-iron and ash-pit door, I find it seldom necessary to have the damper touched, beyond keeping it drawn out about 2 inches; this gives economy of fuel and the maximum amount of heat in the houses. While speaking of dampers, are we always to have them made up of a rapid heat-conducting medium like iron? Surely it is possible and desirable to have some non-conducting material such as asbestos or carbon, or something to keep such large quantities of heat escaping up chimneys. This also, to a great extent, applies to heating apparatus. Enormous quantities of heat escape owing to the present mode of setting boilers. As an instance of this we have a cement tank beside a boiler, but quite a yard distant, unprotected and exposed to all weathers: it is 4 feet square and 7 feet deep; the water in this tank is quite warm, in spite of the severe frosty weather of the last week. I must join issue with "W. H." respecting coke. I entirely dispute the good qualities of this fuel for small boilers, unless it is considered desirable for gardeners to be up until the small hours of the morning in sharp frosty weather, and even then I have known houses to stand 10° and 15° below the proper standard. A far better fuel for small boilers, unless the draught is bad, is anthracite coal. The remarks of Mr. T. Christy (see issue for Dec. 29, 1888) on stoking are very pertinent. Anthracite must not be stoked in the ordinary way; it must first be broken fairly small, but avoid making it like dust; keep the fire-bars clear on the underside, and draw out what small clinkers there are only when necessary—that is, about twice a week. Intelligently used this fuel is admirable. It is so very regular in burning and durable that it is quite a pleasure to go into the

houses in the morning and find the temperature just what it should be. A fire will go very safely in the worst of weather for eight hours. I have a record of temperatures in the houses by coke and coal respectively. *F. W. Seers.*

LYGODIUM SCANDENS.—This climbing Fern is superbly grown at Normanhurst, Lord Brassey's residence near Battle. The plant is situated in a narrow border, and allowed to run up bars of iron as thick as one's finger to a height of twenty feet. This Fern has many distinctive features and is a good help to the gardener where much greenery is required. Asparagus plumosus, when treated in a similar way, is equally satisfactory. *H. R. H.*

A RUDE TREE GUARD.—The other day I was at Barking, in Essex, which under its newly-formed Local Board seems to be "setting its house in order," the old, neglected streets, &c., having been improved, and, in one instance (the Longbridge Road), trees have been planted on one of the pathways. These young trees have, out of the anxiety of the Board, been duly protected from injury in a manner which surpasses in grotesqueness any plan I have ever before seen. Each tree is encased in a veritable box, made of four thick planks about 6 feet long. On each of the four sides a few small holes have been bored, (as peep-holes no doubt, through which the progress of the inmates may be noted), and which are the only air spaces in the structure. Moreover, the branches of several of the trees are held together in a most unnatural way by the top end of these tunnels, and the whole results in the most blundering style of tree-protection I have ever observed, and one which the parochial authorities ought to remedy. *W. E.*

HOME-GROWN LILIUM AURATUM.—[The following note accompanied a photograph of two plants in flower of Lilium auratum. Ed.]:—These fine many-flowered plants are from English-grown bulbs. The bulbs were taken out of a large bed in the open ground and potted. We grow a large quantity of this Lily every year in beds well prepared for them, and which do well with us. We begin to lift the bulbs generally about the beginning of September, selling them principally to the trade. *Thos. Piper & Son, Marcsfield, Sussex.*

TABERNÆMONTANA FLORIBUNDA.—I have frequently seen inquiries in the gardening Press asking respecting the treatment this plant requires to get it to bloom freely. Knowing how difficult it is found by some to get it to expand its lovely sweet-scented white flowers, I will state the method of cultivation pursued here. As soon as the plants have done flowering they are turned out of their pots, the roots examined, and if found to require it they are repotted into larger pots, the drainage of the pots having thorough attention, this being a most important point in their culture, and I find that they do much better if their roots are rather confined, and as a consequence they require water frequently. The plants are then plunged in bottom-heat of 80° to 85°, top heat being kept at about 70° to 75°. Syringing the fcliage is practised twice a day so as to assist the formation of young growth. They are grown in this way until the middle of the month of June and then gradually hardened off, finally being set out-of-doors in a sunny corner to thoroughly ripen the young shoots, and carefully noting at all times that they do not suffer from want of water. Late in August or early in September the plants are taken indoors and brought along by degrees, finally removed into the warm house where bottom-heat and top-heat, as before, can be afforded them, and during the time they are in flower weak manure-water given occasionally is beneficial. *A. Bishop, Westley Hall, Bury St. Edmunds.*

CELERY RUNNING TO STALK.—Mr. J. Williams is anxious to learn if others are in the same bad case in regard to their Celery running to stalk as himself. My Celery has bolted just as his has done, and there is little doubt that it is due to the prevailing mildness of the season (especially in this county—Kent), and not to early sowing, as the Editor remarked. My plants were raised from seed which were not sown till early in April, and every attention was paid to it afterwards until lifting time, which commenced in September, when, to my surprise, about half way through the first row I began to find stalks were forming. The variety was Wright's Grove White, a well known and excellent Celery in ordinary seasons. There was no alternative but to try another variety—Major Clarke's Red, one of the best red celeries for general purposes we have, but this had also bolted. Sandringham White, the seed of which was sown at the same time as the foregoing, but planted out somewhat later, is at present in good condition. *C. Ensoll, Elfords, Hawkhurst.*

THE SEED TRADE AND THE MERCHANDISE MARKS' ACT.—Mr. James Elder's letter, reproduced in your issue of February 2, clearly shows that the above Act is not unnecessary to prevent fraudulent practice in the seed trade. Yet its provisions are not without some hardship in their administration, in cases where by oversight or ignorance of its scope an infringement unwittingly occurs, yet in which no fraud is possible or intended. It may be of interest to importers of Continental flower seeds to know that the words "finest," "choicest," &c., which are usually written or printed on the packets of German and other Continental flower seeds along with the names of the kinds, are by the Customs authorities held to be "quality marks" in terms of the Act: and, further, that the words "produced in Germany," or the name of the country in which the seeds were produced, must be written or printed in that formula on each packet. The result of any infringement of the Act by the use of the above so-called "quality marks," and the omission of the country of production, is detention of the consignment by the customs, authorities with a demand from them for an explanation from the consignee. A case of this kind occurred recently to Mr. Hugh Hanan, seedsman, Bank Street, Edinburgh, in connection with a post parcel of German flower seeds, on many of the packets contained in which were the said quality marks, and on none was the country of production stated as prescribed by the Act. A week's delay was caused in consequence, along with some vexatious correspondence, neither of which can be regarded as convenient or pleasing occurrences by seedsmen in the busy season. It was not made perfectly clear that the use of the words construed into "quality marks" was in itself the infringement in this case, but rather that the omission of the name of the country in which the seeds were produced was the ground of offence; for before consignee got delivery of his goods, the postal authorities in Edinburgh were instructed by those in London to see that this omission was supplied in terms of the Act, while the quality marks were permitted to remain on the packets. In a similar way it appears the Act causes trouble and expense of a needless kind to shippers of grain. At Leith and other ports where grain arrives in bulk it cannot be delivered except the sacks used in heaving it from the vessel have the name of the country of production stamped upon them. It is difficult to see how fraud could be prevented in either case by such a provision, and equally so to conceive motive for fraud. But as it is the law seedsmen may save themselves vexation and delay by instructing their foreign correspondents to carry out its provisions to the letter as regards flower seeds. As for grain dealers there is no help for them except in the abrogation of the obnoxious provision as bearing on their particular case. *W. Sutherland.*

HARDY PRIMROSES.—In view of the present mild weather some alteration in the date of the National Auricula Society (Southern Section) show for the ensuing year will have to be effected. I find at the present time that hardy Primroses are fully six weeks more advanced than last year at this time, and if no check to growth come, although the blooming season may be a prolonged one, yet the height of the bloom will probably be found during the middle of March, and perhaps earlier. How the plants are behaving in warmer soil I cannot say, but the soil here—a stiff clay—is now saturated with water, and yet, with growth of unusual vigour, there is already a charming show of flowers, and every prospect of full bloom in a short time if no untoward change of weather occurs. *A. D.*

COW MANURE FOR RHODODENDRONS.—It may not be generally known that Rhododendrons are benefited by the application of cow-manure in a green state as a top-dressing in the spring. It may be borne in mind that any beds which require replanting by reason of the plants having become crowded, may be taken in hand during March and early in April. Where the soil is unsuited to Rhododendrons some fresh peat, half-decomposed leaves, and silver-sand should be mixed with it, and when the planting is done a mulching of cow-manure may be laid over the roots to a depth of 4 inches; and if the appearance of the manure is not liked a slight covering of soil may be laid over it. This mulching of the soil will save much labour in watering, should the following summer be a dry one; moreover, the plants will derive benefit from the manure when it is decayed, and also from the various manurial salts, which will be carried down to the roots by rain and otherwise, leading to greater size in the flowers and richer colour in the new foliage. *E.*

STEAM HEATING.—In Mr. H. A. Bunyard's interesting article on the nursery of Mr. Peter Henderson, of New York, in your issue for January 26, he states that heating greenhouses by steam instead of hot water, so far as he is aware, has not been attempted in England. It will interest many of your readers to learn that Mrs. William Clibran & Son, of Altrincham and Manchester, have successfully used steam to warm several large greenhouses 150 feet long. *F. C. Edwards.* [Of course there is nothing new in steam heating. It was tried here long ago but has been discarded as unsafe and not economical. Ed.]

TESTACELLA MAUGEI.—Is this curious and cannibalistic slug peculiar to certain soils? I find it to be plentiful here in certain portions of the ground, but rarely turned up in others. Probably there are many gardens in which it is never found. I have often seen it gorging itself with earthworms, but never with slugs. How long it requires to swallow a worm perhaps four or five times its own length it would be hard to say, but curiously enough, whilst I have often seen two-thirds, or perhaps one-half of the worm still to be absorbed, I have never noticed one with only a very small portion of the unfortunate worm projecting. I never destroy these buff-coloured tail-armoured slugs, but all the same I am not sure that the destruction of earthworms is sufficient excuse for permitting them to live. If, however, they do not prey on vegetable life—and I do not think they do—then to kill these slugs would be wanton cruelty. *A. D.*

FIG TREES IN SOUTH HANTS.—Fig trees bear capital crops of fruit always, whether against walls or in the open as standard bushes, and covering the trees is never required, no matter what the weather may be; and in fact it would be almost impossible to afford protection to standards. One of these which I have in my mind is growing in a garden at the foot of Portsdown Hill. This is a tree of large size, some of the largest branches of which it has been found necessary to prop up. The fruit is very large, and none finer is anywhere to be found, and as regards flavour it is superb. At another place, 12 miles in a northerly direction from Portsdown, many trees are growing on a wall with a southerly aspect, which, being a low one, the trees have grown over the top it for about 5 feet, and are allowed to go unpruned, still they always have fruit in abundance. There are several varieties, Brown Turkey being included. The position of the branches, now that they have topped the wall, and are exposed to north and north-easterly winds in April, is a cold one, but affording the trees any covering is never thought of. *Bishop's Waltham.*

THE PRESERVATION OF HARD FRUITS.—How to keep Apples and Pears in really good fresh condition for a lengthened period is a problem which needs solution. In some cases, perhaps rather rare ones, we see Apples turned out in excellent condition, that is, so far as appearances go, even so late as March and April. At the recent mid-winter exhibition of the National Chrysanthemum Society there was shown, with some other Apples, a dish of Worcester Pearmain, which is ordinarily ripe in October, apparently in good condition. Too often, however, in regard to these late kept fruits of early sorts, the body is there but the soul has fled. To keep Pears late into the winter is very much more difficult than is the keeping of Apples. Ordinarily we have few good Pears left fit to eat by the end of the year, and sometimes few are good after the end of November. To be able to keep good table Pears some two or three months longer would be, indeed, a boon to gardeners, who have often to throw away of their fine fruit as many prematurely decayed as they consume. We have not in our fruit conferences faced this matter as we should do, and before we go much farther in relation to culture it would be well if the problem of good keeping of Apples and Pears could be fully solved. Those gardeners who have found buried in leaves or partially in the soil beneath a tree some Apple or Pear fruits perhaps a couple of months after the crop has been gathered, have not

failed to remark how wonderfully fresh, firm, and sound the fruit has been preserved. One explanation of this result seems to be found in an equable moist and cool temperature, just such as leaves or grass or the soil itself would afford beneath trees. Such fruits always seem to be, when thus found, as fresh and firm as if they had just been gathered from the tree. Now, if such be the case, is it not possible to furnish cool chambers in cellars, or in contiguity to ice-houses, or through the aid of large refrigerators, as shall afford the needful low equable temperature, and prevent the fruit from maturing or softening. A temperature of from 32° to 34° —that is, just above freezing point—would no doubt serve to keep fruit from rapid maturation. To freeze the fruits would be to destroy their value, as the moment they were exposed to a higher temperature they would rot. Were the selected fruits thus preserved in an equable low temperature, which should practically preserve the fruits as gathered for a long period, it is evident that ripeness might be secured in a few days by exposing the fruits to warmth in a temperate-house. It would be a very important aid to a gardener could he thus have absolute command of the season, assuming that he also had ample fruit wherewith to maintain the supply. Of course, no one would be expected to subject all fruits to this cool preserving process, but it would be well to specially select the best samples for late winter use, all those needed up to the end of November being stored in the usual way. Still, all hardy fruit stores should be cooler as a rule, and the temperature kept very equable. Changes of temperature inflict great harm on fruits especially during midwinter. It would be well if some experiments were conducted with a view to determine not only what temperature was the most desirable for preserving hardy fruits late, but how far fruits so kept suffered or benefited. If we could keep our best November Pears over till the New Year, what a boon that would be. *A. D.*

ORNAMENTAL-LEAVED BEGONIAS.—How soon fickle fashion changes, causing the banishment of plants in favour with us but a few years ago. This lot seems to have befallen the once favoured Rex Begonias, some of which were purchased at that time for a guinea a plant. B. Rex, which was one of the first to appear, caused quite a sensation, and a throng of onlookers were always to be found wherever the plants were to be seen. This Begonia has lost none of its beauty, and why it and the many finer varieties of leaf Begonias should have dropped out of cultivation in the way they have is a puzzle to me. It was, perhaps, due to their being so easy to propagate and grow, as all one has to do is to throw down a leaf, and where the conditions are favourable a lot of plants spring up, and these will thrive when put in small pots if they receive plenty of water in the growing season. As subjects for furnishing vases to stand on brackets, or in other positions in rooms or halls, there are few plants more striking, but where they are even more effective, in masses on the rockwork, in ferneries, and when the work is well done they look as if they were in their natural home. The shade and humidity which suit the Ferns are just the conditions that they delight in, for so fond of moisture are they that plants which get their leaves splashed by a waterfall, do better than others in dry spots. When the materials of which the rock-work is made are porous the plants extend their rhizomes and travel on it, leaving soil behind, and getting all they require through the hosts of hair-like roots they send out. I have often wondered why the hybridists, who have done so much in the improvement of the tuberous Begonias have not tried to effect a cross with those and these, for if the two kinds would breed together fine results might be looked for. To get an almost perpetual flowering hybrid with bright-coloured flowers and the foliage handsome also is a result which I, for one, would like to realise. *J. S.*

CALLAS.—I saw a fine batch of these plants at Burghley a few days since flowering profusely. The pots they were in were 9 and 10 inch, and they were standing on turves over some hot-water pipes in an intermediate-house. Mr. Gilbert has lost faith in the planting-out system, and keeps his plants in pots. I opine the cold summer of 1888 injuriously affected those that were planted out last season, the absence of sun-heat having caused a corresponding scarcity of flowers. We planted out our roots, and the treatment has been as usual, and although the foliage could not look better than it does, the plants are not carrying so many flowers as in former years. *W. H. Divers, Ketton Hall.*

ORCHID ROOTS EATEN.—I have frequently seen Orchid roots gnawed and injured in a manner beyond my power of accounting for as the work of any of the insects in the house familiar to me.



FIG. 34.—ORCHID ROOTS EATEN BY THE EMBIA.

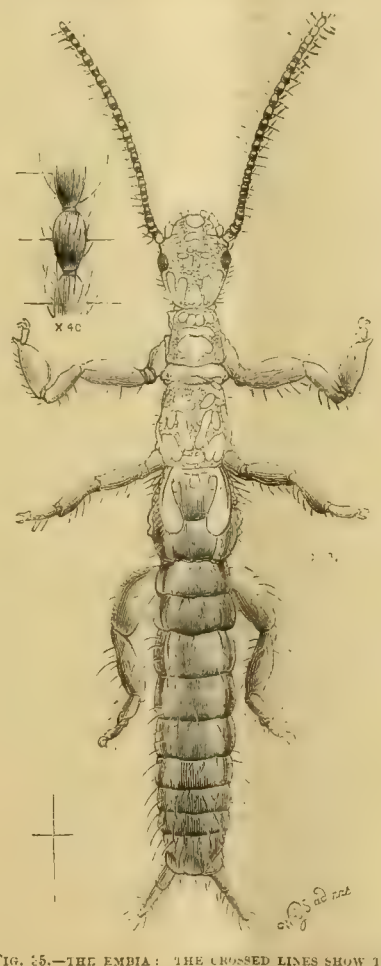


FIG. 35.—THE EMBIA: THE CROSSED LINES SHOW THE REAL SIZE.

Sometimes the points are wholly destroyed, at others the partly hardened upper portions of the roots. I have not succeeded catching the delinquent—can it be an imported creature? *J.* [Perhaps the insect to which you refer is the Embia, of which we give illustrations at figs. 34 and 35. Ed.]

AMERICAN APPLES. In the article on American apples in your issue of February 2, the writer states that the export trade in apples from America only dates from about twenty years back. I suppose he refers to the export in any great bulk, for Apples were certainly sold in this country, either from Boston or New York, from forty-five to fifty years ago. When, some forty-seven years since, I was a very small concern in the knickerbockers of the period, I saw barrels of American Apples in the shop of Thomas Isbister, grocer and wine merchant, Greenside Street, Edinburgh, and consumed some excellent samples of the same on many occasions. They were, I believe, imported by a relative of Mr. Isbister's, resident in Glasgow, and in 1851 a young scion of the family was, I have been informed, located in New York engaged in the business. I am under the impression that I saw heaps of barrels lying ready for shipment on a North River wharf in the lower part of the City of Knickerbocker in the fall of 1850. But the matter could be easily set at rest by anyone having access to the "Returns" of the period. As to the Apple butter referred to in the article above noted, I have an idea that it is our very old friend (in the "North Countrie" at any rate) Apple jelly. Dried fruits and Apple jelly were not uncommon in Transatlantic boarding-houses kept by Germans thirty odd years since. It is pleasant to read of the vast strides made in hard fruit culture of recent years by the folks of the Dominion of Canada. Times have changed. Many years since I went up that remarkable river, the Sagueray, which finds its outlet in the St. Lawrence—up as far as a wide-spreading portion named Lake St. John (?)—from a hill adjacent to which I first gazed on a far-extended sea of waving tree-tops of all shades of green—our good ship at anchor half a mile away, every rope mirrored in the placid waters surrounding her. Not a bird was there, nor a fruit to peck—nor mavis, thrush, or blackbird's sweet call was to be heard at the strange voiceless time of sundown. Farm after farm was passed, but not the least sign of an orchard. I have since thought that the French *habitans* were wise in their generation, and did not parade their fruit trees to the gaze of seamen and travellers by the sea, tired of sea fare, and hunting for fresh vegetables and such fruits as might show. An English stevedore, all the way from Lincolnshire, and who rejoiced in the society of an Indian wife, told me he had no time to look after fruit trees. I have no doubt that the many pleasure-seekers nowadays frequenting the banks of the Saguenay are not denied fruits in their season, including Canadian Apples. *E. C.*

FRUIT TREE CULTURE ONE HUNDRED YEARS AGO.—I think some of our ancestors, at least, knew more about some of the principles applied to fruit growing in the present day than is generally supposed. I have in my possesion an advertisement, extracted from the *Morning Chronicle* of October 3, 1788, which commences by stating, "Life being short and time precious, gentlemen who are fond of choice fruits should not delay planting their gardens. Such as have doubted the superior quality of foreign trees at the nursery, No. 5, Sloane Street, Knightsbridge, are earnestly requested to view the most capital show of delicate large fruits in Europe on young trees, *en plein vent*, all planted within these two or three years, some even late as December and March last. The great merit of the foreign trees is, they are worked upon stocks that throw them into bearing immediately, and the fruit is large and ripens early; whereas the Pear and Apple trees that are worked in England upon the Crab and free stocks run all to wood, and the best kinds seldom give fruit sooner than ten or fifteen years. To plant such is planting for posterity." This establishment was known as the foreign nursery, and at it could be seen "a great variety of trained Peaches and Nectarines, trees of all ages; also Figs, Peaches, Nectarines, and Cherry trees for forcing." Really this advertisement might have furnished a text-book for much that was stated at the recent Fruit Conferences. Is there any record extant as to when the Paradise stocks were first employed for grafting Apples upon in this country? The name of the proprietor of the foreign nursery in Sloane Street in 1788 is not stated, but it would appear that but little public attention was attracted towards the methods of the advertiser, or we should not a century afterwards be hearing so much about the

advantages of working Apples upon dwarfing stocks. I wonder what Sloane Street was like in 1788. *R. D.* [Was this the nursery held by W. Catleugh in Hans Place—a part of Knightsbridge lying just westward from Sloane Street? ED.]

CLETHRA ARBOREA.—There is at this place a large specimen, the dimensions of which may be of interest to some of your readers. The plant is grown in a greenhouse, in a large square tub, and measures 15 feet in height, 9 feet in diameter, and the girth of stem at the base is 16 inches. Doubtless the plant would grow much larger, but it has been cut back several times to keep it within bounds. I may say that it stands in a rather dark part of the house, and this may be the reason why it does not flower so freely as it would do in a lighter position. *J. S. Upex, Milton Park, Peterborough.*

PINE-APPLES.—The large importation of foreign Pine-apples into England during recent years, has caused home culture to be discontinued; but home-grown fruit is still in sufficient demand to receive the attention of gardeners, and long may it continue so, for a fruit-growing establishment is incomplete without the Pine, which is one of its chief ornaments. Notwithstanding this, it has been said that Pine-apple culture will soon become a lost art to British horticulture. The successful culture of the Pine depends in a great measure on the kind of structure it is grown in, low hip-roofed houses of moderate dimensions being those most to be preferred. These should have a situation sheltered from the north and east, be well heated, that is, pipes should be in sufficient quantity to maintain heat in hard weather without making them very hot. The beds in which the plants are plunged should be on a level with the surrounding ground. Plants may be kept near the glass in houses of this description and where they enjoy the utmost degree of light, and at the same time are guarded from injurious draughts. The soil which seems to suit the Pine-apple best is a moderately light fibrous loam, the more fibrous the better, and the best description is that cut from an old pasture, and which has been stacked a sufficiently long time for the verdure to die. In preparing it for potting it should be torn into moderately rough pieces, freed from much of its fine particles, and mixed with a good sprinkling of soot and crushed bones, if they can be obtained; and in potting it should, when it is in a tolerably dry state be rammed rather firmly around the roots of the plants, the pots being clean, and well drained. Very large pots are not desirable, as fruits of the finest proportions may be produced in 13-inch pots; and when plants are properly attended to in pots of this size they readily fill the soil with roots, and consequently can be freely supplied with manure-water. Perhaps nothing is better as a plunging material than the leaves of Oak and Chestnut; these should be firmly trodden together to the depth of about 2½ feet, if hot-water pipes are beneath the bed. A genial moist warmth, invigorating the plants, arises from a bed of this description, and when the plants are properly plunged in them at the time of being placed in their fruiting pots, it is unnecessary to shift them again until the fruit is cut; but should the material shrink away from the sides of the pots it may again be made firm around them with a short stout stick, and some small quantity of fresh leaves added to the bed. This is of importance, as it is impossible to replunge large plants without doing some injury to them. With regard to watering the plants, the nature of the foliage is enough to inform the gardener that a constantly wet state of the soil would cause ill-health; at the same time injury is not infrequent by reason of an inadequacy of the supply of water during the season of active growth, and when the pots are well filled with roots. In some instances I have seen the soil so dry at that time as to cause it to leave the side of the pot, and the leaves in consequence had become quite flexible instead of firm and brittle, as they should be. The exact requirements of the plants can only be ascertained by long experience and observation; and they should be examined one by one, and not collectively, and when that is done it will be found that very little water is necessary for a considerable period of time after repotting, or during the period of rest, when a low temperature is maintained. Pines are not liable to be attacked by insects, and by ordinary care a stock may be kept clean; but the mealy-bug and white-scale, when suffered to gain a footing, are difficult to extirpate, unless the stock of affected plants be destroyed; no pains should therefore be spared to prevent their introduction to the pinery. Respecting varieties of Pines, the best are Queens, which are generally preferred for use in the summer; while smooth-leaved Cayennes and Charlotte Rothschilds are unsurpassed for the winter supply; but Enville, Black Jamaica, and Providence, find favour also. In concluding, I would note that the selection of suckers is an important point in Pine growing, and only those which are sturdy and clear of insects should be chosen. These should be placed in pots according to size, the smallest going into 60's, and the largest into 82's, and at the proper time moved into their fruiting pots, as the second shift system is, in my opinion, not only unnecessary, but it actually creates work. *Thomas Coomber, Hendre Gardens.*

PLANT COLOUR.

WE are all a little too apt to look at colour in the abstract, so to say—that is, as confined to the floral leaves; whereas, perhaps, a better way would be to study the whole plant—root, stem, leaves, and all, in reference to this most interesting subject. We are, as gardeners, far too apt to look on flowers and fruit as the *summum bonum* of plant life, instead of studying the plant as a whole. In a great many cases we find all the three primary colours—viz., yellow, red, and blue—present in plants, as in the common Primrose (Primula vulgaris), where blue and yellow, mixed together, form the green leaf colouring, the flowers being pale yellow, while the red element is confined to the root-stock and the bases of the petioles or flower-stems. Naturally this local distribution of the primary colours is but rarely disturbed, but cultivation and cross-fertilisation in the garden soon transposes more or less of the red colouring into the flowers.

Practical gardeners have a sneaking regard for red colouring matter as mixed with the leaf green of the plants they cultivate; and this seems founded on a notion that such plants are hardier or of stronger constitution than those in which red is less evident. For example, the red-stalked Chinese Primrose seedlings are less liable to damp off than are the green-stalked varieties, and that the same is true of Celery is a well-known fact. In watching the sale of imported Odontoglossum Alexandræ, Cattleyas, and other Orchids at auctions I have repeatedly noted that the red or bronzy-leaved plants always fetched more money than the paler or green-leaved forms. But when this red colouring matter is developed to excess in the leaves, I should not like to say that the constitution of the plant is rendered more robust and vigorous, as, for example, in the Purple-leaved Beech or Hazel, or in Dell's Crimson Beet, none of which, so far as I know, is so vigorous in constitution as are their respective green-leaved prototypes.

What I particularly wish to point out is the fact that whenever we find red colouring matter in the root, stems, or leafage of a plant we may reasonably hope by cross-breeding, or in some cases simply by cultivation and selection from seedlings, to obtain red colouring in the petals, even if it does not become developed there in a state of Nature. Lindley (*Theory and Practice of Horticulture*, p. 110) says:—"That the absence of healthy [leaf-green] colour is sometimes owing to low temperature is certain; but the cause of the formation of different colours in different plants is too obscure a subject to suit the purpose of this work." Most writers agree in considering plant-colour obscure enough to be overlooked. All the botanical and gardening dictionaries seem to have neglected to allude to it, and even the great general encyclopædias are lamentably deficient on the colour of vegetation. Because the subject is obscure, as Lindley puts it, is no excuse, but, indeed, the very reason why this subject should be taken up and worked out as well as may be. [See the works of Sorby, Church, and others. ED.]

In Brown's *Manual of Botany*, pp. 589—593, the subject is alluded to, and the results of De Candolle, and Schübler, and Frank are summarised.

By the above observers the colours of flowers are divided into two series, as follows:—

Xanthic series of De Candolle (oxidised series of Schübler and Frank).—Red, orange-red, orange, orange-yellow, yellow, yellow-green.

Green, colour of leaves.

Cyanic series of De Candolle (deoxidised series of Schübler and Frank).—Blue-green, blue, blue-violet, violet-red, red.

When we examine the plant microscopically (says Brown *l.c.*) we find that in general the colours of the cyanic series are in solution in the juice of the cells, while those producing the xanthic series and the green are in the form of granules, which are only modifications of chlorophyll. Exceptions to this rule, however, exist—according to Mohl and George Lawson—in the flowers of Strelitzia Reginæ and Salvia splendens, in both of which the colouring matter exists in a granular form.

"The different shades of the same colour in flowers, are produced by the greater or less number of colourless cells, interspersed through the substance of the coloured ones, and the different colours are often caused by layers of cells with one colour lying above another, with a different colour (*e.g.*, brown, by red above green; orange, by yellow above red, &c.)."

That white is only a transition from yellow is proved by the number of flowers like Madame des Granges Chrysanthemum, which open yellow and gradually change to white under the influence of heat and light. It is a curious but well-ascertained fact that when white-flowered species are hybridised with those having orange flowers, the result is a pink or rosy-red hybrid the yellow-colouring of the orange-flowered parents having been driven out, or become absorbed by some other portion of the hybrid product. We have many instances of this effect having taken place, and may cite two or three as examples:—

Begonia weltonieneis × with pink or rosy flowers was raised at Welton Place near Daventry by Col. Trevor Clarke, its parents having been the white B. Dregei, crossed with orange B. cinnabarina. Again, when Mr. George Taylor years ago crossed the white Jasmine-flowered Rhododendron of Malacca with the orange-red R. javanicum, the rosy-flowered variety known as Princess Royal was the result, and also where Mr. Wentworth Buller raised from the same parents a very similar hybrid (*vide Jour. Hort. Soc.*, 1866, p. 31). When we remember the vanishing tendency of yellow colouring in Chrysanthemums when removed into greenhouses from the open air, as above alluded to, we get a glimpse of why yellow is the first colour to vanish from the orange (*i.e.*, red and yellow) celled flowers, under the disturbing influence of hybridism. The red cells remain, and the yellow being absorbed, the colourless or white cells soften the red into a paler-rose-colour.

I have given the above arrangement of colours from Brown's *Manual*, but I still firmly adhere to the idea I expressed at p. 108, viz., that yellow, red, and blue is the order in which colour development or evolution takes place in flowers, and that these three colours are to be met with in many, if not in most plants, is pretty certain.

Since I wrote at p. 86, pointing out that what we are accustomed to call sports (*i.e.*, changes of form and colour in the same individual plant, as Chrysanthemums, &c.), are simply reversions, I have found out that De Candolle long ago had pointed out the same view—viz., that all so-called "sports" are in reality "reversions." I think we had better accept this view since it is generally so well borne out by Mr. Davis' list of Chrysanthemum sports as given at p. 42. Mr. Nicholson, in his *Dictionary of Gardening*, word "sport," says "a bud variation or seed variation;" but I think we must make a distinction here, since a seed variation may mean possible progressive improvement (*i.e.*, evolution); but a bud-sport is nearly always a step backward, *i.e.*, a reversion wholly or in part to some previous state of a species. [Not always surely. ED.]

I have said that in considering colour as developed in plants we must not confine our attention to the flowers alone, since there are many instances in which, while the flowers are pale greenish-yellow and inconspicuous, the roots, stems, or leaves are

most brillant. A good many dye-producing plants have anything but high coloured flowers. Some foliage plants, as Dracæna terminalis, Caladia, &c., have most brilliant leafage, but by no means showy blossoms. The same is true of Atriplex, Coleus, Acalypha, and many other of the so-called "foliage" plants. Here, indeed, we have something approaching a rule, viz., that plants having bright coloured foliage, are deficient in flower-colour, while the most brilliant of blossoms are borne by plants having ordinary green leaves. The most brilliant of blood-red Beetroots and Mangel Wurzel, or of Rhubarb, the leaf-stem of which is often bright crimson, have inconspicuous green or whitish flowers. In Euphorbiaceæ the true flowers are seldom beautiful, the colour being localised in the leaves or bracts. The same is true of many Aroids; and in Bromelias, again, the flowers are often greenish, inclining to blue (a rare combination), while the bracts and even the leaves are often brilliant red or crimson. In two of the above orders we have incomplete or petalless flowers, the essential parts being yellow, as is so often the rule, whereas the red cells are confined to the leaves. In Bromeliaceæ, although the flowers are complete, still the leaves, as a rule, display the most brilliant colouring during the flowering season. The transient colours of many Bromeliaceous leaves, of the calices of Hellebore, and of some Orchid flowers which revert to green after fertilisation has taken place, furnish us with a curious analogy to the plumage of some birds, which becomes most brilliant for the breeding season only.

I am deeply aware how vague and unsatisfactory the above ideas really are, but I am anxious to draw attention to a subject of which but little is as yet really known.

The main facts as to vegetable colouring seem indicated when we say that blue and yellow as combined in green leaves carry on the real plant-work of the world. Red colouring is the next in abundance in leaves, stems, and roots. Flower colour generally is made up of these three primary colours, generally more or less blended together, and often softened by white or air-cells containing no colouring matter. Seeing that so many plants possess all the three primary colours, it need not surprise us that their shades, hues, and combinations should be so infinite as developed under different climatic conditions. At any rate, so long as plant-colour remains unexplainable by any well-defined laws, we may fairly say that the chemistry of vegetation remains unknown. *F. W. Burbidge.*

COLONIAL NOTES.

NATAL TO THE TRANSVAAL.

FOR a long time I had wished to take a trip to Pretoria, the capital of the Transvaal, partly to collect certain rare and fine plants known to exist thereabouts, and also to glance at the late wonderful progress of the Transvaal gold fields. In the middle of September last—early spring, I left Maritzburg by train to join a waggon at Ladysmith, the extreme point of our railway system at present, and about 100 miles from this city. Although the month corresponds with March in Europe, yet, owing to an early season, many plants were in bloom which generally expand six weeks later. Imantophyllums showed up in moist, bush-shaded nooks, along with the bright blue Thunbergia natalensis and Richardia æthiopica, Cyrtanthus angustifoliis, bright crimson, and the beautiful blue Pentanisia variabilis were seen on dry hillsides. This last is a dwarf perennial herb, with heads of Ixora-like flowers 2—4 inches across. Its roots resemble those of the common Rhubarb, and, treated like a Dahlia, it would perhaps succeed in England. On hillsides (altitude 3500 feet), the little purple Nemesia fœtans is common, and is seen in company with Cineraria cruenta, Gethyllis sp., Gladiolus longicollis, Tritona natalensis, and Gazania serrulata. At Highlands (altitude 5000 feet), and the highest railway station in Natal, I noticed Sparaxis pendula in three distinct varieties, rose, white, and pale yellow, all very graceful. Here, too, grow Anemone Fanninii, Nerine pudica, the large white, Daisy-like flowers of Gerbera Kraussi; Calliopsis laureola, with its large black disc and white rayed flowers; also a fine red Satyrium, and a yellow Bulbine much like B. asphodeloides. We crossed the river Tugela, 3400 feet, which was much swollen from the melted snow high up along its sources in the Drakensberg. Hereabouts Buddlea salvæfolia was finely in bloom, a mass of sweet-scented white and yellow corymbs; it is a very fine flowering shrub. In wet places was a purple Crinum, a bushy Lagarosiphon finely in bloom, and an Œnothera new to me. At last Ladysmith was reached—a little town situated in a most desolate tract of country (3500 feet); nothing but Acacia horrida with a few Aloes, and Cabbage tree, Cassonia sp. I put my things into the waggon, not forgetting a copy of Harvey's *Genera* and the latest *Gardeners' Chronicle*, and we started for the Transvaal. Nearing the Berg—short for Drakensberg—running water was often crossed, soil and grass improved. A green-tipped form of Cyrtanthus angustifolius was met with, and a pretty dwarf yellow Gladiolus. At the foot of the Berg—4000 feet—Greyia Sutherlandi was really gorgeous in crimson bloom, yet I was informed that the snow here had melted but a fortnight back. Here, also, was Dais cotinifolia, Dietes Huttonii, Antholya sp., and a very fine Scilla natalensis, with bulbs as large as a football. Slowly advancing, the famous Berg stood up before us, the backbone of South Africa—a seemingly perpendicular mass of sandstone, furrowed with mountain streams, and thinly sprinkled with bush. Drawing nearer, a road is seen winding corkscrew-like up the mountain-side, and this we followed, ascending 1500 feet in rather less than five miles. Near the top, which I found by aneroid measurement to be 5500 feet, a little bush was met with, consisting of Protea grandiflora, Clematis sp., Podocarpus sp., Ochna sp., &c. Many herbs and bulbs grow on these high grassy slopes. Galtonia candicans was common, and in some places the ground was literally purple with a lovely little Drimia. Not uncommon here was a dwarf Barleria, with sky-blue flowers; also a Thunbergia, 2 feet high, with salver-shaped primrose flowers, the throat a deep yellow.

Arriving at the Berg top we turn round and survey the Garden Colony of Natal lying sunk far beneath us—a dim blue chaos of mountain, plain, valley, forest and river. In front the boundless, undulating, grassy plains of the Orange Free State spread out before us, like a much magnified Salisbury Plain, but here the underlying rock is sandstone. Scattered about over these plains are vast isolated mountains, often 1000 feet high, composed of horizontal sandstone, with generally a capping of vertical blue granite. The Berg is the true watershed of the country. In Natal all rivers flow east to the Indian Ocean; in Free State all flow west to the Atlantic. The scarcity of trees of any kind in the Free State is remarkable; we used cow-dung for fuel the whole way except in wet weather when wood was burnt, which had been dragged up from Natal. Rivers are rather scarce, but large rain pools are common enough, and nearly all over the country water can be found by sinking shallow wells. On the border (altitude 5500 feet) where the flora of Natal and the Free State merge into each other, I found many interesting plants. In swamps was the lovely Cyrtanthus breviflorus and a dwarf Tritoma, with the habit of T. Macowani, but the lower florets were yellow, the upper dull red. In low-lying places was Gladiolus papilio (*Bot. Mag.*, t. 5565), a variety of Dietes Huttoni, with flowers half as large again as the Natal form and a tuberous-rooted Pelargonium 3 feet high, with maroon and yellow flowers a quarter of an inch across in tier above tier like Primula japonica. I must mention Gladiolus tristis (*Bot. Mag.*, t. 272), and the white Ixia radiata, figured in *Bot. Mag.*, t. 573, both very fragrant; and a fine large Ranunculus with marbled Cyclamen-like leaves and a robust stem, 3 feet high bearing many golden flowers the size of a shilling. Hereabouts we see the last of three Natal plants so common before—they are Watsonia densiflora and Helichrysum fœtidum and H. umbraculigerum.

Slowly we moved on over some 100 miles of this very elevated grassy plain, passing the huge mountains, to each of which the Dutch have given a characteristic name. Asvogel Kop, the Vulture's Hill; Praem Kop, Pointed Hill, Leo Kop, Lion's Hill; and Tafel Kop, Table Hill—all grass covered and quite destitute of bush. Ericas, Ferns, and succulent-leaved plants are very rare here, though I met with one Mesembryanthemum. Hypoxis elata is spread everywhere, and so is Morœa polyanthos, I believe, an Irid with yellow and brown potted flowers not unworthy cultivation. The young leaves are a strong poison to oxen, causing complete paralysis and quick death unless remedies are promptly given. I saw not one terrestrial Orchid—perhaps it was too early in the season. A very pretty blue-flowered herb—Cyclonema hirsutum, one of the Verbenaceæ. A few desolate looking Dutch farm houses are scattered about over this tract of country, each marked by weeping Willows, Populus alba, and Peach, Apricot, and Fig trees. The Colonial Dutch have lost the love of floriculture and cleanliness of house and farm, which their forefathers at home have always been noted for. The Dutch "farming" with apologies for the word, is the most primitive imaginable. Sheep, horses, cattle, and goats all do well, for the climate is a good one, and summer rains rarely fail over the Free State. Crops there are none, save a little Wheat and Oats, but I believe that, given shelter, varied crops could be grown—it is not a very cold climate, else why should a perennial Acalypha be seen growing wild everywhere?

Nearing the Vaal River, by rain pools, some fine Crinums were noticed, varying in colour from pure white to deep rose. No wonder botanists have found there other genera of the same order and many of our Irideæ very difficult to discriminate. In wet places near these Crinums was a very distinct Tritoma, with spikes of fine rich yellow flowers.

At last we crossed the Vaal, 4700 feet, and found ourselves in the Transvaal. One plant which had been seen along the road from Natal now ceased—Gazania serrulata. A new form of Vieusseuxia fugax drew attention, also a pretty dwarf blue-flowered Scrophulariad, Aptosimum depressum, I believe. Two plants which I must mention as our constant companions from Maritzburg to Pretoria were the white-flowered Scabious, Scabiosa columbaria, and a pale blue "Bugle," Ajuga ophrydis. By such very slender ties are the British and Kalahari floras united. By degrees the rolling grassy plateau was exchanged for long low ranges of very stony hills, composed of a quartz and ironstone conglomerate. A change was visible in the flora directly. Patches of a Lobelia made blue spots on the hillsides; amongst rocks grew a dwarf rosy Helichrysum, and by the roadside a perfectly stemless white-flowered Composite grew in such quantities as resembled a fall of snow. Here I lighted on a Brunsvigia new to me, with large rosy sweet-scented flowers. We came to the village of Heidelberg (5000 feet), in which Pinus insignis and Pinaster, Eucalyptus globulus, Acacia dealbata, Casuarina tenuissima, and Cupressus of different sorts were all thriving well. In one garden was a shrub I had not seen for fourteen years—an English Laburnum in bloom. Moving onward, we passed a lovely pale purple Calliopsis, and a good yellow Eulophia, spice-scented, quite new to me.

We now entered Johannisberg (5500 feet), the mining centre of the Transvaal, Two years ago gold had just been discovered in this part of South Africa, and now the monthly output of retorted gold is 1 ton. A ton of gold, I may remark, is worth nearly £90,000 sterling. A town with a population of about 10,000 has sprung up, and a produce market forced into existence. Potatos fetch about £20 per ton: Oat-hay, £8 per ton. All

vegetables very dear, fruit and flowers hardly procurable. Grafted fruit trees are unknown in the Transvaal, hence the fruit is, generally speaking, very inferior.

It is needless to say that these gold fields are fast lifting the country out of the depression it has so long laboured under. Leaving this astonishing town, of which every fragment, except the brick and stone walls, has been conveyed hither at huge cost from a distance of some 8000 miles, I made for Pretoria, 30 miles distant. This town, situated 4300 feet above the sea, is much warmer and more sheltered than Johannisberg. On the outskirts is a tract covered with large Acacia horrida, and here I found a plant which, thanks to an exact description which appeared in this paper some years ago, I recognised at once. Trichodesma physaloides a compact-growing herb, with large Rhubarb-like roots, which send up annually a mass of stems 2—2½ feet high, well furnished with glaucous oblong, opposite leaves, each stem bearing a good-sized panicle of pure white flowers about an inch across, with brownish-purple sepals. If introduced and treated like a Dahlia it should do as a summer bedding plant. It belongs to the Borage order, and I was able to secure a few good roots, which I trust will survive the very rough journey down country. Near the last plant, and growing only in crevices of quartz rock, was a rare and fine plant, which also deserves more than passing notice. It is an Amaryllid, and its name, Mr. Bolus informs me, is probably Vellozia equisetoides. In habit it is very distinct from most plants of the order. Imagine a tough fibrous stem 3—4 feet high, as thick as one's wrist, with a fibrous root bearing near the top a drooping tuft of long, narrow grass-like leaves, intermixed with many long-stalked, drooping, solitary, bell-shaped, light purple flowers. I have often brought down stems of this remarkable plant, only to find them dead when unpacked, but two years ago good seed was sent to Kew, so young plants may now exist there. Near Pretoria, in a moist, shady place, was a scarlet Hæmanthus, the first one seen since leaving Natal; also a large-leaved Plantago, and an Asparagus 8 feet high. Just outside the town was a fine Gomphocarpus, with large white flowers, and a black spot on base of corona; also Cyanotis nodiflora, and C. elephantorhiza Burchelli, a leguminous herb, with very large roots, which furnish excellent tanning material. Pretoria itself does not present anything beyond other South African towns. Vegetation consists of Eucalypti, Acacias, Casuarinas, and hedges of monthly Roses, Pomegranates, and Quinces.

I have now given a rough account of such plants as I saw in a 300 mile waggon journey from Natal to Transvaal, and which took me a month to accomplish. *R. W. Adlam, Maritzburg, Natal, South Africa.*

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

The annual meeting of the members of this Society took place at Anderton's Hotel, on the 31st ult, Mr. R. Ballantine, Vice-President, in the chair, there being a very large attendance of members and delegates from affiliated societies. The minutes of the last meeting having been read, the Hon.-Secretary submitted the annual report of the committee, which referred to the highly successful exhibitions which had been held during the year, and especially to that which took place at the Royal Aquarium in November, when the National Trophy offered for competition by affiliated societies was won by the Weald of Kent. The new issue of the catalogue had been largely applied for, applications coming from France, Germany, Belgium, Turkey, America, and Australia. The provincial show at Sheffield brought together the largest assemblage of growers of the Chrysanthemum ever seen in the country, and the Conference held in connection with it was in every respect a success, and highly encouraging. The Conference held at the Royal Aquarium was equally a marked success, and the committee see the necessity for both maintaining and extending this phase of the Society's work. Although the expenses of the Society have largely increased, the income has proved adequate to its requirements, and the accounts for the past year show a balance in hand. The report regretted the resignation of the President, Mr. E. Sanderson, and bore testimony to the zealous and unwearying services he had rendered to the Society. The general arrangements for 1889 are not quite completed, but several schemes for bringing the Society even more prominently before the public are under consideration. The principal items of income in the balance-sheet consisted of:—Annual subscriptions, £201 6*s.*; donations and special prizes, £110 8*s.* 6*d.*; from Royal Aquarium, £215 1*s.*; from the Sheffield provincial show, £102 9*s.*; and other items brought the total income up to £851 15*s.* 11*d.* Of this sum prizes had been paid to the value of £431 13*s* 6*d.*; and the balance in the hands of the Treasurer is £33 15*s.* 2*d.*, out of which the sum of £16 has to be deducted for the Challenge trophy. There were recoverable arrears of subscription, &c., of about £25. The Hon. Secretary stated that the accounts of the provincial show at Sheffield had closed in the most satisfactory manner; and that a sum of £54 19*s.* had already been promised as special prizes.

The report was duly received and adopted, a resolution expressive of the regret with which the Society had heard of the intention of the President, Mr. E. Sanderson, not to offer himself for re-election; their appreciation of his past work, and the assurance that their hearty good wishes would follow him into his retirement, was heartily carried; and a copy of the resolution was ordered to be sent to him. The sub-committee appointed to make arrangements for filling the Presidential chair, and also for revising the rules, then made a report—the principal alteration being that henceforth the officers of the Society shall consist of a President, Vice-Presidents, Treasurer, Chairman of Committees, Vice-Chairman of do., and two Secretaries. The sub-committee had endeavoured to secure the services of a gentleman of position to fill the office of President, but at present the matter had to stand over until a future report could be made. The rules as amended were agreed to with a few verbal alterations. The Hon. Secretary reported that the sub-committee appointed to arrange for a provincial show in the present year had concluded a very satisfactory arrangement with the Hull Society, and it would take place on November 21 and 22 next.

The election of a President and Vice-President was deferred until an adjourned meeting that day four weeks. Mr. R. Ballantine was elected Chairman, and Mr. E. C. Jukes, Vice-chairman, of Committees; Mr. W. Holmes re-elected Hon. Secretary by acclamation; and Mr. C. Harman Payne, Foreign Corresponding Hon. Secretary. Mr. Holmes stated that, during the past year he had received 3037 letters in connection with the Society, The following twelve persons were elected upon the committee for the ensuing three years:—Messrs. Addison, Bevan, Owen, Drain, Swift, Kendall, Prickett, Langdon, Cannell, Taylor, Kemp, and Shoesmith. Five new members were elected, and three societies admitted into affiliation. Special prizes offered at the November show were announced from Messrs. Sutton & Sons, and Mr. E. C. Jukes announced his intention of offering a 5-guinea cup for competition at the provincial show with Anemone-flowered Chrysanthemums. The re-election of the auditors, and a vote of thanks to the Chairman, brought the proceedings to a close.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

The ordinary monthly meeting of this Association was held on the 5th inst., at 5, St. Andrew Square, Edinburgh, Mr. Malcolm Dunn in the chair. A paper on the Begonia, by Mr. Alex. Hutton, F.L.S., Dundee, was read. The labours of the late Mr. Richard Pearce in Bolivia were alluded to, not only in connection with the introduction of these and other species of tuberous Begonia, but also in connection with the introduction of Lapageria rosea and other valuable ornamental plants, for which we were indebted to his energy. In alluding to the hybridising of species, it was stated that only healthy plants should be operated on, and that although there had hitherto been little success in crossing the tuberous with the best forms of the fibrous-rooted species, perseverance in that direction was urged with the assurance that it would no doubt eventually lead to splendid results. Since 1873 many double flowered varieties had been introduced, at first chiefly from France, and the race had been much improved by such nurserymen as Mr. Laing, of Stansted Park, and others. Of exhibits there were some fine samples of the old red Tomato from Mr. Bell, gardener, Morton Hall, and a magnificent spray of Clematis indivisa, about 30 feet in length, with 1500 blooms open and in bud. In reference to the forthcoming Centenary Chrysanthemum Show to be held in the Waverley Market in November next, under the auspices of the Association, it was announced by Mr. McKenzie Treasurer, that guarantees to the amount of £150 had been already received from members of the Association, who were the only persons who had as yet been directly appealed to.

LAW NOTES.

A SEED DISPUTE.

At the Westminster County Court on Friday, the 1st inst., an action was brought by Messrs. Carter & Co., seed merchants, of Holborn, E.C., to recover £28 6*s.* 5*d.*, for seeds supplied to Major Bolton. The plaintiff's manager was called, and said that in May, 1887, he went to the island of Madeira, where Major Bolton was then residing, and he then suggested to the Major that the account for seeds which they had supplied should be settled. A complaint was made about a quantity of Potato seed which had been sent out, but which had not proved to be a success. He then agreed to make a reduction of £13 2*s.* 6*d.* on the account upon receiving a promise from Major Bolton that the balance should be at once paid up, but all efforts to obtain the money up to the present time had proved futile. Evidence was called to prove the packing and shipment of the seeds, after hearing which his Honour found for the plaintiff, with costs.

MARKETS.

COVENT GARDEN, February 7.

Market dull, with supplies more than equal to the demand. *James Webber, Wholesale Apple Market.*

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6	0–18 0	Foliage plants, various, each ...	2	0–10 0
Arum Lilies, p. doz.	9	0–15 0	Ficus elastica, each	1	6– 7 0
Azaleas, dozen	24	0–42 0	Genista, dozen	9	0–18 0
Cineraria, per dozen	8	0–12 0	Hyacinths, dozen	6	0– 9 0
Cyperus, per dozen	4	0–12 0	— Rom., doz. pots	9	0–10 0
Dracæna terminalis, per dozen ...	30	0–60 0	Lily-of-Val., doz. pts.	18	0–30 0
— viridis, per doz.	12	0–24 0	Marguerites, doz.	6	0–12 0
Erica hyemalis, doz.	9	0–18 0	Palms in var., each	2	6–21 0
— caffra, dozen	6	0–12 0	Pelargoniums, scarlet, per dozen	6	0– 9 0
Euonymus, in var., per dozen ...	6	0–18 0	Poinsettias, dozen	8	0–12 0
Evergreens, in var., per dozen ...	6	0–24 0	Primulas, per dozen	4	0– 6 0
Epiphyllums, doz.	18	0–30 0	Solanums, dozen	8	0–12 0
Ferns, in var., doz.	4	0–18 0	Tulips, dozen pots	6	0– 9 0

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutillons, 12 bun.	3	0– 6 0	Mignonette, 12 bun.	2	0– 4 0
Anemone, Fr., 12 bun.	2	0– 6 0	Narcis., paper-white, (French), 12 bun.	2	0– 6 0
Arum Lilies, 12 blooms	3	0– 6 0	— double, 12 bun.	1	6– 3 0
Azaleas, 12 sprays	0	9– 1 0	Pelargoniums, 12 spr.	1	0– 1 6
Bouvardias, per bun.	0	9– 1 6	— scarlet, 12 spr.	0	6– 1 0
Camellias, 12 blms.	2	0– 4 0	Poinsettias, doz.	3	0– 6 0
Carnations, 12 blms	2	0– 3 0	Primroses, 12 bun.	1	0– 1 6
Christmas Roses, 12 blooms ...	0	6– 1 6	Primulas, dbl., 12 sp.	1	0– 1 6
Chrysanthemums, 12 blooms ...	0	6– 1 0	Roses, Tea, per doz.	2	0– 6 0
— dozen bunches	2	0– 4 0	— coloured, dozen	2	0– 4 0
Daffodils, dbl., 12 bun	9	0–12 0	— red, per dozen	6	0– 9 0
— single, 12 bun.	12	0–18 0	— Safrano, dozen	2	0– 4 0
Eucharis, per dozen	3	0– 6 0	Snowdrops, 12 bun.	1	0– 3 0
Gardenias, 12 blooms	15	0–30 0	Sofrano (Fr.), doz.	1	0– 3 0
Heliotropes, 12 spr.	0	6– 1 0	Stephanotis, 12 spr.	12	0–15 0
Hyacinths, Roman, 12 sprays ...	1	0– 1 6	Tuberoses, 12 blms.	2	0– 4 0
Lapageria, 12 blooms	1	6– 3 0	Tulips, 12 blooms	0	8– 1 0
Lilac, white Fr., bun.	4	0– 6 0	Violets, 12 bunches	1	0– 1 6
Lily-of-Val., 12 spr.	0	6– 1 0	— dark, Fr., bunch	1	6– 2 6
Marguerites, 12 bun.	3	0– 6 0	— Parme, Fr., bun.	4	0– 5 0
			Wallflowers, 12 bun.	4	0– 6 0
			— French, 12 bun.	1	6– 2 0

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2	0– 4 0	Grapes, per lb.	1	0– 3 6
— Canada and Nova Scotia, per barrel	7	0– 16 0	Lemons, per case	12	0–21 0
Cobs, 100 lb.	100	0–110 0	Pine-apples, Eng., lb.	1	6– 2 0
			— St. Michael, each	2	0– 8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	...	5 0– ...	Mustard and Cress, punnet	...	0 4– ...
— French, bundle	18	0– ...	Onions, per bunch	...	0 5– ...
Beans, Jersey and French, per lb.	...	1 6– ...	Parsley, per bunch	...	0 8– ...
Beet, red, per dozen	1	0– 2 0	Peas, French, per lb.	1	0– ...
Carrots, per bunch	...	0 6– ...	Potatos, per cwt.	...	4 0– 5 0
Cauliflowers, each	...	0 3– ...	— kidney, per cwt.	4	0– 5 0
Celery, per bundle	...	1 6– 2 0	— new French, lb.	0	6– ...
Cucumbers, each	...	1 0– ...	Rhubarb, bundle	...	0 6– ...
Endive, per dozen	...	3 0– ...	Seakale, punnet	...	2 6– ...
Green Mint, bunch	...	1 0– ...	Shallots, per lb.	...	0 6– ...
Herbs, per bunch	...	0 6– ...	Spinach, per bushel	...	4 0– ...
Leeks, per bunch	...	0 4– ...	Tomatos, per lb.	...	2 0– ...
Lettuce, per dozen	...	1 6– ...	Turnips, per bunch, new	...	... 0 5– ...
Mushrooms, punnet	1	6– ...			

POTATOS.—Beauty of Hebron, 80*s.* to 100*s.*; Imperators, 70*s.* to 90*s.*; Dunbar Regents, 110*s.*; do. Magnums, 120*s.*; and York Magnums, 100*s.* per ton.

SEEDS.

LONDON: *Feb.* 6.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that to-day's market presented no special feature either of interest or importance. Large bulks of seed have this week changed hands amongst wholesale London houses. Meantime the general body of country buyers refuse as yet to operate. Quotations all round show no material alteration, whilst offerings both from America and the Continent do not press. For fine Trefoil more money is asked. Grasses are neglected. For bird seeds the sale is slow. Rape seed still tends upwards. Winter Tares are dearer. Peas and Haricots unaltered.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending February 2: — Wheat, 29*s.* 9*d.*; Barley, 26*s.* 7*d.*; Oats, 16*s.* 2*d.* For the corresponding week in 1888: — Wheat, 30*s.* 8*d.*; Barley, 30*s.* 6*d.*; Oats, 16*s.*

FRUIT AND VEGETABLES.

SPITALFIELDS: *Feb.* 6.—Very good supplies of all kinds, with a slightly improved demand, at prices as follows:—Savoys, 2*s.* to 3*s.* 6*d.* per tally; Cabbages, 2*s.* to 2*s.* 6*d.* do.; Greens, 2*s.* 6*d.* to 4*s.* do.; Turnip-tops, 1*s.* 6*d.* to 2*s.* 6*d.* per sack; Cauliflowers, 1*s.* per dozen; Broccoli, 8*d.* to 10*d.* do.; Brussels Sprouts, 6*d.* to 1*s.* per half-sieve; Spinach, 1*s.* to 1*s.* 6*d.* per bushel; Seakale, 1*s.* 3*d.* to 1*s.* 6*d.* per punnet; Beetroots, 6*d.* to 9*d.* per dozen; Parsnips, 7*d.* to 9*d.* per score of 22; Turnips, 1*s.* 9*d.* to 2*s.* 6*d.* per dozen bunches; Carrots, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Parsley 2*s.* to 3*s.* do.; forced Rhubarb, 1*s.* 6*d.* to 2*s.* do.; Horseradish, 10*d.* to 1*s.* 2*d.* per bundle; Celery, 6*s.* to 11*s.* per dozen bundles; English Onions, 5*s.* to 6*s.* per cwt.; Spanish do., 7*s.* 6*d.* to 9*s.* 6*d.* per case; Dutch do., 3*s.* 9*d.* to 4*s.* 9*d.* per bag; Belgian do., 3*s.* 6*d.* to 5*s.* do.; pickling do., 5*s.* to 5*s.* 6*d.* do.; Endive, 2*s.* per dozen; English Apples, 3*s.* to 5*s.* 6*d.* per bushel; do., 1*s.* 6*d.* to 3*s.* 9*d.* per half-bushel; American do., 6*s.* 6*d.* to 12*s.* 6*d.* per barrel; Mangels, 16*s.* to 18*s.* per ton; Carrots, 20*s.* to 32*s.* do.

STRATFORD: *Feb.* 5.—The above market has been well supplied with all kinds of produce during the past week, and with a good attendance of buyers a brisk trade at the undermentioned prices:—Cabbages, 2*s.* 6*d.* to 3*s.* per tally; Savoys, 2*s.* to 3*s.* do.; Cauliflowers, 1*s.* to 2*s.* per dozen; Turnips, 2*s.* 6*d.* to 3*s.* per dozen bunches; do., 25*s.* to 35*s.* per ton; Carrots, household, 25*s.* to 30*s.* do.; do, cattle feeding, 25*s.* to 30*s.* do.; Parsnips, 9*d.* to 1*s.* per score; Onions, English, 110*s.* to 150*s.* per ton; do. German, 4*s.* to 4*s.* 6*d.* per bag; Apples, English, 2*s.* 6*d.* to 4*s.* per bushel; do., American, 11*s.* to 16*s.* per barrel; Watercress, 6*d.* per dozen; Brussels Sprouts, 9*d.* to 1*s.* 3*d.* per half sieve; Celery, 9*d.* to 1*s.* per roll; Beetroot, 9*d.* per dozen; Carrots, 2*s.* to 2*s.* 6*d.* per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: *Feb.* 5.—Supplies have come forward rather less freely, and the market is steady with a quiet demand:—Regents, Scotch, 90*s.* to 120*s.*; English, 65*s.* to 100*s.*; Hebrons, 90*s.* to 100*s.*; Magnum Bonums, 60*s.* to 100*s.*; Scotch do., 90*s.* to 120*s.*; other varieties, 60*s.* to 90*s*, per ton.

SPITALFIELDS: *Feb.* 6.—Quotations:—Magnums, 65*s.* to 90*s.*; Champions, 60*s.* to 65*s.*; Regents, 75*s.* to 110*s.*; Imperators, 75*s.* to 90*s.*; Hebrons, 60*s.* to 70*s.* per ton.

STRATFORD: *Feb.* 5.—Quotations:—Scotch Magnums, 90*s.* to 110*s.*; do., Regents, 85*s.* to 105*s.*; English Magnums, 60*s.* to 85*s.*; foreign Regents, 70*s.* to 85*s.* per ton.

Imports.—The imports into London last week consisted of 1 bag from Rotterdam, 100 bags from Stettin, 13 cases from Malta, 57 cases from Cadiz.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, old, prime, 120*s.* to 144*s.*; do., good second, 60*s.* to 110*s.*; do., inferior, 36*s.* to 70*s.*; do., new, 85*s.* to 110*s.*; inferior, do., 60*s.* to 80*s.*; Hay, prime meadow, 120*s.* to 126*s.*; old, 110*s.* to 126*s.*; new, do., 80*s.* to 100*s.*; inferior, 50*s.* to 75*s.*; straw, old, 42*s.* to 48*s.*; do., new, 28*s.* to 44*s* per load.

THE WEATHER.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree — a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE. Above or below the Mean for the week ending Feb. 4.	ACCUMULATED. Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1889.	Below 42° difference from Mean since Jan. 1, 1889.
Principal Wheat producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. SCOTLAND, N. ...	2 above	8	28	+ 15	— 40
1. SCOTLAND, E. ...	4 above	14	29	+ 17	— 49
2. ENGLAND, N.E. ...	3 above	14	24	+ 3	— 41
3. ENGLAND, E. ...	2 above	15	29	— 12	+ 10
4. MIDLAND COS. ...	3 above	15	26	— 14	— 4
5. ENGLAND, S. ...	2 above	21	13	— 12	— 13
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	3 above	20	13	+ 28	— 73
7. ENGLAND, N.W. ...	2 above	19	12	— 1	— 56
8. ENGLAND, S.W. ...	1 above	21	9	— 16	— 13
9. IRELAND, N. ...	2 above	21	11	+ 16	— 47
10. IRELAND, S. ...	3 above	27	6	+ 9	— 36
— CHANNEL ISLANDS	2 above	25	0	+ 18	— 41

DISTRICTS.	RAINFALL. More or less than the Mean for the week.	No. of Rainy Days since Jan. 1, 1889.	Total Fall since Jan. 1, 1889.	BRIGHT SUNSHINE. Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1889.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	5 more	26	5.3	8	10
1. SCOTLAND, E. ...	0 (aver).	18	1.7	24	22
2. ENGLAND, N.E. ...	1 less	17	1.3	22	18
3. ENGLAND, E. ...	1 less	16	1.1	22	17
4. MIDLAND COS. ...	0 (aver.)	16	1.4	19	16
5 ENGLAND, S. ...	1 less	16	1.2	16	16
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	2 less	21	4.6	30	16
7. ENGLAND, N.W. ...	3 more	17	1.9	18	17
8. ENGLAND, S.W. ...	1 more	16	2.7	21	21
9. IRELAND, N. ...	4 more	25	4.0	23	13
10. IRELAND, S. ...	0 (aver.)	21	4.5	26	19
— CHANNEL ISLANDS	4 more	19	2.5	15	27

THE PAST WEEK.

The following summary record of the weather for the week ending Feb. 4, is furnished from the Meteorological Office:—

"The *weather* has been changeable and unsettled in all parts of the kingdom. During the earlier part of the period it was very mild, with occasional falls of rain, but towards its close the conditions became cold, rough, and squally, with sleet or snow in most places, and a good deal of thunder and lightning.

"The *temperature* has been (as a whole) above the mean, but during the latter part of the week it was rather below. In most districts the excess ranged from 2° to 3°, but in 'Scotland, E.,' it was 4°. The highest of the maxima were registered either on January 31 or February 1, when the thermometer rose to between 54° and 58° in England and Ireland, and 53° and 58° in Scotland. In the 'Channel Islands' the highest reading was only 52°. The lowest of the minima, which was recorded either on February 3 or 4, varied from 20° in 'Scotland, E.' (at Braemar) to 32° in 'Ireland, S.,' and 37° in the 'Channel Islands.'

"The *rainfall* has been more than the mean in most of the 'grazing districts,' as well as in 'Scotland, N.,' but a little less in the eastern and southern parts of the kingdom.

"*Bright sunshine* shows an increase in the west and south-west, but a decrease elsewhere. The percentage of the possible amount of duration ranged from 8 in 'Scotland, N.,' to 26 in 'Ireland, S.,' and to 30 in 'Scotland, W.'"

NOTICES TO CORRESPONDENTS.

ARAUCARIA EXCESSA: *L. D.* This is a native o Norfolk Island.

BLACK FLY ON TULIPS: *C. Z.* Sponge the leaves with weak tobacco-water; it is better than fumigation with tobacco, which must be applied in dangerous strength to kill this species of aphis.

DENDROBIUMS: *H. A. W.* The D. Wardianum is merely an ordinary form, evidently taken from a well grown plant or from a newly imported piece. The other (D. devonianum) is not of any special value.

DOUBLE-SPATHED ARUM: *B.* Not an uncommon occurrence, but we do not think any one has yet tried to fix the variety, though it would be very desirable to do so if possible.

FORESTRY, *J. T. Arboriculture*, by J. Grigor (Edinburgh: Edmonston & Douglas); *Manual of Conifers* (J. Veitch & Sons, Chelsea); *Practice of Forestry*, by C. Y. Michie (Blackwood & Sons, Edinburgh and London); *The Forester*, by J. Brown (Blackwood & Sons).

FREESIAS: *H. M.* The nomenclature adopted by Mr. Baker is as follows:—Freesia Leichtlinii, Klatt, in *Gartenflora*, 1874, t. 808; *Gard. Chron.*, May 8, 1875, *c. ic.*; Baker, in *Journ. Linn. Soc. Lond.*, xvi., 164. Freesia refracta, Klatt, in *Linnæa*, xxxiv., 673; Baker, in *Journ. Linn. Soc. Lond.*, vol. xvi., p. 164.

GRASSES FOR A LAWN: *A. M.* Lolium perenne, 20 lb.; Cynosurus cristatus, 5 lb.; Festuca duriuscula, 3 lb.; F. ovina tenuifolia, 2 lb.; Poa nemoralis, 2 lb.; P. n. sempervirens, 2 lb.; P. trivialis, 2 lb.; Trifolium repens, 6 lb.; T. minus, 2 lb. Those who do not like Clovers in the lawn, notwithstanding their usefulness in covering the soil, and thereby protecting the grasses from the effects of drought during the two or three years of their duration, may use a little more Rye-grass (Lolium perenne) and Cynosurus cristatus.

NAMES OF FRUIT: *Miss Laura Day.* 1, Winter Hawthornden; 2, Blenheim Orange. — *T. B. Pears:* 1, Carter's Beurré; 2, Beurré Rance. Apples so much bruised that they cannot be recognised.— *Tewkesbury.* 1, rotten; 2, Norfolk Beefing. — *J. H. J.* 24, Dumelow's Seedling; 43, Alfriston; 59, Shepherd's Newington; others unknown.

NAMES OF PLANTS: *G. Mantin.* 1, Oncidium pachyphyllum (*Bot. Mag.*, 67, t. 3807); 2, O. Cavendishianum (Bateman, *Orchids of Mexico and Guatemala*); 3, not sufficient; 4, Bifrenaria racemosa (Maxillaria, *Bot. Mag.*); 5, no specimen; 6, Oncidium volvox; 7, O. ascendens; 8, not sufficient; 9, Epidendrum oncidioides.—*W. M.* The plant, a drawing of which was sent, is Schinus molle. It is commonly planted in the Riviera. Pepper-tree is the

popular name.—*E. W. G. (no numbers).* The specimen without cones is Libocedrus decurrens; the one with the rounded cone is Thuia borealis, *alias* Thuiopsis nutkaensis; the third, with the oblong cones, is Thuia gigantea. All very ornamental in a young state, and destined, in all probability, to form valuable timber trees.—*A. B.* 1, probably the Deodar; 2, Pinus excelsa, probably; 3, Retinospora pisifera or Cupressus Lawsoniana, we cannot tell which from the specimen; 4, Thuia gigantea; 5, Abies Douglasii; 6, Thuia (Thuiopsis) borealis; 7, not recognised; 8, Thuia orientalis variety.—*J. G. L. H.* Phalænopsis Stuartiana (a poor form).—*T. C.* Both good forms of Phalænopsis Stuartiana.—*W. M.* 1, appears to be Cedar of Lebanon. What is the tree like?; 2, Abies Douglasii; 3, Tsuga canadensis; 4, Retinospora pisifera or Cupressus Lawsoniana, we cannot tell which from the specimen; 5, Thuia (Thuiopsis) borealis; 6, not recognised. —*Q. R.* Acacia dealbata.—*G. P.* Probably an uncoloured form of Catasetum longifolium.

NARCISSUS GOING BLIND IN POTS: *C. Z.* The cause is not known. It is common to the bulbs, especially the Poeticus section, to go blind when planted. By some the malady is attributed to heat, by others to frost; and to remaining too long in the same spot without transplantation, which is best done once in three years. Anything likely to induce a weakening of the energies of the plant —such as deep planting in cold soil, shallow planting—too large quantities of manure, always inimical to Narcissi—may cause blindness.

ORCHIDS IN STOVE AND INTERMEDIATE HOUSES: *J. C. B.* So many of the finer species of Orchids will grow in these houses, that a complete list of their names and varieties could not be afforded you in this column. Consult a nurseryman who makes the plants a specialty of his business. We may mention Cattleyas, Brassias, Cymbidiums, many Cypripediums, but not all; Maxillarias, Miltonias, Oncidiums, the best; Sophronitis, Trichopilia, and Zygopetalum. These will do well in the stove. In the intermediate-house you may have Ada aurantiaca, Anguloas, Cattleya citrina, several Cypripediums, viz., acaule, venustum, insigne, spectabile, Dendrobium Hilli and D. speciosum, Epidendrum vitellinum majus, E. Lindleyanum, Lælia anceps and its fine varieties, L. autumnalis, L. majalis, &c., Masdevallias, many; Odontoglossum gloriosum, O. grande, O. Halli, O. Insleayi, O. luteo-purpureum, O. Pescatorei, O. Phalænopsis, O. Rossii, &c., many species of Oncidiums, the Stanhopeas, and the terrestrial Orchids of temperate climes.

PEACH TREES IN POTS: *W. N.* Having painted your trees with flowers of sulphur, clay, and water in which tobacco-paper was soaked (this contains saltpetre), and Fir-tree oil at the rate of a teaspoonful to a quart of this mixture, it was not to be wondered at that the trees shed their bloom-buds. The safest thing to use is Gishurst Compound—a kind of soap, sold by most nurserymen and florists—of which a winter dressing for fruit trees out-of-doors may be made with warm water, using the soap at the rate of 3 oz. to the gallon of water; for trees indoors 2 oz. is strong enough; and for plants with leaves on them ½ oz. to 1 oz. to the gallon. Syringe off as much as you can the paint still adhering to the trees.

PEAT MOSS LITTER: *Rev. C. C.* We have no experience of this material, but should suppose that if well saturated with urine, and containing a large amount of droppings from horses, it would give a mild heat not unlike that obtained from stable litter when prepared for Mushroom beds. It would not stand alone as a hotbed, and the bed would require to be made in a shallow pit, dug in the soil, or be boarded round.

PORTUGUESE HORTICULTURAL JOURNALS: *L. D.* *Jornal de Horticultura Practica*, published in Oporto, and *O Floricultor* referred to last week at p. 145.

COMMUNICATIONS RECEIVED.—H. M., Paris.—W. W.—C. W. D.—W. T. T. D.—W. S.—T. W.—G. N.—Hurst & Son.—R. D. (inquiries are being made).—G. S.—F. S.—G. Meikle (next geek).—E. M.—J. H.—Mertens & Co.—Secretary Royal Botanic Society, London.—W. B.—P. G.—R. A. R. H. M. Ward.—J. D.—W. N. C.—Norman Cookson. J. N.—W. H.—W. H. N.—A. S. (no answer to same inquiry in last issue).—R. F.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week.*

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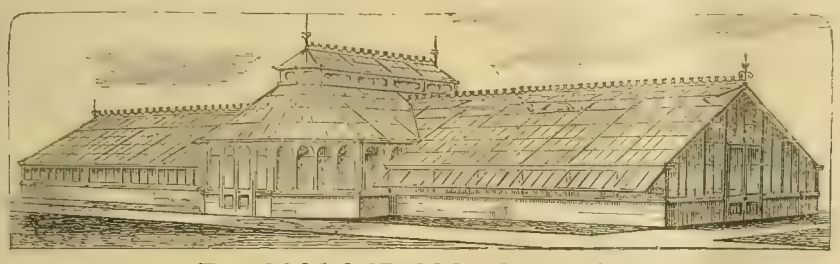
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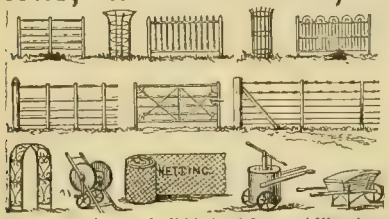
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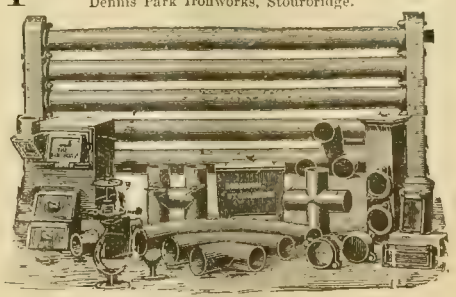
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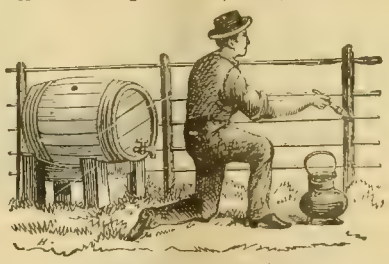
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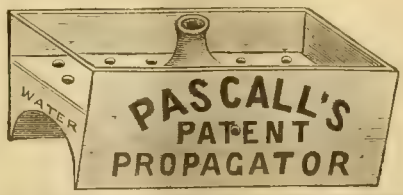
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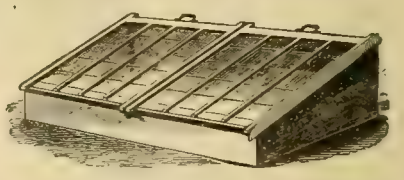
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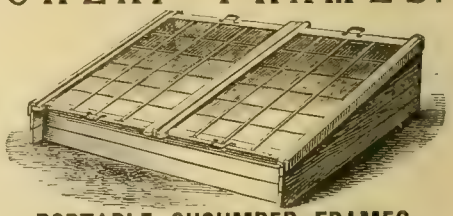
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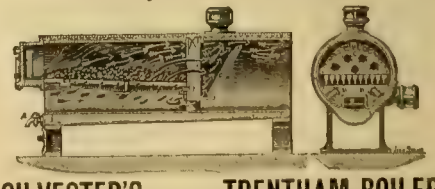
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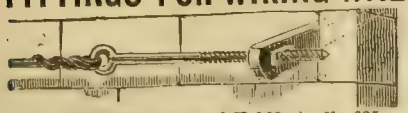
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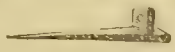
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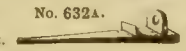




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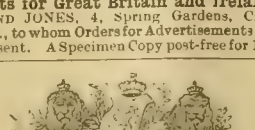
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WANTED, a PROPAGATOR and GROWER, a fine opening for a thoroughly good all-round hand. Cut Flowers a specialty. Also a young Man quick at Potting and Tying, &c.—Address, with references, age, and wages,—W. TROUGHTON, 4, Church Street, Preston.

Propagator in Market Nursery.

WANTED, a smart active young MAN as above, with good references.—W. ICETON, Putney Park Lane, Putney, S.W.

WANTED, AT ONCE, an energetic Single MAN, as Grower of Tomatos and Chrysanthemums for Market. Permanent situation to suitable person.—State where last employed, and wages expected, to TURNER BROS., Allerton, Liverpool.

WANTED, a young MAN, to Grow Plants for Cut Flower, Furnishing Stuff, and General Collection.—State particulars and wages expected to ROBERT GRAHAM, The Newmarket Nursery, Newmarket.

WANTED, an experienced and trustworthy MAN, to Superintend Small Quantity of Glass, act as Salesman, Make Wreaths, &c.—State wages, references, &c., to LAXTON BROTHERS, Nurserymen, Bedford.

WANTED, a respectable young MAN, who has a knowledge of plants, to act as ASSISTANT CLERK and SALESMAN. Must be of good address and a good Penman. Wages to commence, 25s. per week, to be increased according to merit.—Apply personally, or by letter, to WILLS AND SEGOR, Florists to Her Majesty the Queen and H.R.H. the Prince of Wales), South Kensington, S.W.

WANTED, a thoroughly experienced FLORISTS' FURNISHER. State full particulars and wages required. Also a respectable BOY.—LONG AND CO., Florists, &c., 5, Vere Street, W.

WANTED, a SALESMAN, to drive Van to Market with Market Garden Produce, Fruit, and Flower, &c. Young MAN with experience and good manners, and character. Will also be required to assist in Gardens, &c., Apply by letter only to JAMES LAKE, Sheriff's Court, Minster, Ramsgate.

Seed Trade.

WANTED, a young Man, as ASSISTANT SHOPMAN.—Apply, stating age and experience, to JAMES CUTHBERT, 12, Clayton Square, Liverpool.

GARDENING APPOINTMENTS.

MR. FRANK LOWE, for the past seven years Gardener and Forester, &c., to the Right Hon, Viscount BANGOR, has been appointed Gardener to the Marquis of DOWNSHIRE, Easthampstead Park, Berks.

Mr. WM. CRUMP, late of Sandown House, Esher, has been appointed Head Gardener and Bailiff to E. Waterhouse, Esq., Feldemore, Dorking.

WANT PLACES.

Letters addressed "Poste Restante" to initials or to fictitious names are not forwarded, but are at once returned to the writers.

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JOHN DOWNIE (of the late firm of Downie & Laird), has at present on his Register several very superior MEN whom he can recommend with every confidence for Large Establishments or Single-handed places. Full particulars given on application.—114, Princes Street, Edinburgh.

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Telegraphic & Postal Address—"DICKSONS, CHESTER."

NURSERY MANAGER.—Advertiser is open to engage as above, in a Large Establishment. Many years' practical experience in all branches. Eight years' testimonial from previous situation.—JAMES COLE, 106, Eastbourne Road, Birkdale, Southport.

To Market Gardeners and Others.

MANAGER, FOREMAN, GROWER, or SALESMAN.—Age 43, married, no family; twenty years Growing Fruits, Plants, Cut Flowers, &c., for Covent Garden. With option of Partnership preferred. Exceptional character.—M., 41, Wellington Street, Strand, W.C.

GARDENER (HEAD).—Age 32; would be glad to meet with Lady or Gentleman requiring good all-round man as above.—G. C., 2, Hadlow Place, Anerley Road, Upper Norwood, S.E.

GARDENER (HEAD); age 30.—Mr. A. BEECH, Head Gardener to Edgar Hibbert, Esq., Ashby St. Ledger's Lodge, Rugby, will be pleased to recommend a thoroughly practical man as above.

GARDENER (HEAD).—Age 31, married; good practical experience in all branches. Highly recommended. Abstainer.—W. A. HODGE, 15, Lansdowne Terrace, Archway Road, Highgate, N.

GARDENER (HEAD).—Age 28; thirteen years' experience. Three years as Foreman in present situation.—Mr. SMYTHE, The Gardens, Basing Park, Alton, would be pleased to recommend H. Adams as above.

GARDENER (HEAD).—Age 34, married, two children; sixteen years' practical experience. Seven years' good character from present employer.—J. HARTLAND, Canon Frome Gardens, Ledbury.

GARDENER (HEAD).—Mr. PEMBER, Q.C., recommends his Second Gardener for a Head Gardener's place. He is thoroughly competent.—Address, in first instance, E. BROOKS, Vicar's Hill, Lymington, Hants.

GARDENER (HEAD).—Age 35, married, two children; twenty years' experience. Five years Gardener to J. Richardson, Esq., Barn Hill, Stamford. Well known to R. Gilbert, Burghley, where he lived two years.—G. TAYLOR, Gibson's Cottage, Stamford.

GARDENER (HEAD).—Age 34, one child; understands Forcing Vines, Peaches, Melons, Strawberries, &c., Orchids, Stove and Greenhouse Plants. All branches of Gardening. Two and a half years Gardener to General Fielden, M.P.—BLENCH, Wilton Park, Blackburn.

GARDENER (HEAD).—Age 34, married, two children.—A GENTLEMAN, giving up his Garden, wishes to highly recommend his Head Gardener as a thoroughly practical man in all branches of Gardening.—G. WARRINGTON, 1, Cedar Cottages, Herne Hill, S.E.

GARDENER (HEAD).—Age 36, married; late with Lord Hylton, is seeking re engagement. Twenty years' experience in Early and Late Forcing of Fruits and Vegetables, Plants, Orchids, Flower and Kitchen Garden, and the Management of a first-class Garden. Teetotaller.—JOHN F. RAGGETT, 20, Catherine Grove, Greenwich.

GARDENER (HEAD).—Age 40, married; twenty-six years' experience in Vines, Peaches, Melons, Cucumbers, Tomatos, all kinds of Stove and Greenhouse Plants, Orchids, and the Management of a Garden. First-class references. Please state wages.—G. LUCAS, 41, Hampden Road, Upper Holloway, N.

GARDENER (HEAD WORKING).—Age 50; practical Grower of Fruit, Flowers, and Vegetables. Over six years' good character.—E. ATKINS, Hargrave Gardens, Stanstead, Essex.

GARDENER (HEAD WORKING).—Age 33, married; sixteen years' experience in all branches; also good Bee-keeper. Good references.—E. HUNT, Sutton-on-Hill, Derby.

GARDENER (HEAD WORKING), where another is kept.—Age 28; married; twelve years' experience in all-round Gardening. Good references; abstainer. Distance no object.—A, T., 7, Queen's Road, Chislehurst.

GARDENER (HEAD WORKING), where two or three are kept; age 28, married, no family.—I can recommend for a place a good man, a thorough Gardener. Can undertake Management of Cows if required.—GEO. WALL, Breakspears, Uxbridge.

GARDENER (HEAD WORKING).—Age 29, fifteen years' experience in all branches. Six years in last employ. Well recommended as a good, all round, practical man. Married when suited.—LAY, 14, West Place, Wimbledon, S.W.

GARDENER (HEAD WORKING). Age 31, single; good experience in all branches. Good references. Last five years at Waddesdon Gardens, Baron de Rothschild, M.P.—M. C., Gordon Villa, Goldsworth Road, Woking, Surrey.

GARDENER (HEAD WORKING).—In the prime of life, single; abstainer. Trustworthy, energetic, and thoroughly practical in all branches. Five years' high character; also testimonials.—M. M., 283, King's Road, Chelsea, S.W.

GARDENER (HEAD WORKING); Age 32.—ALBERT PARRY, Shendish, Hemel Hempstead, is open to engage with any Lady or Gentleman in want of a practical Gardener in all branches. Seven years' good references from present situation.

GARDENER (HEAD WORKING), where more are kept.—Age 39; married, two children; over twenty years' thorough practical experience in all branches of the profession in large establishments. Highest references as to ability and character.—GILBERT, Brixworth Hall, Northamptonshire.

GARDENER (HEAD WORKING, or good SINGLE-HANDED).—Age 32, married, no incumbrance; has a thorough knowledge of Vines, Peaches, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Five years' good character.—A. B., Crofton, Orpington, Kent.

GARDENER (HEAD, or good SINGLE-HANDED). Age 30; five years' excellent character.—F. SMITH, The Gardens, Marden Park, Caterham, Surrey.

GARDENER (HEAD, or SINGLE-HANDED).—Age 33; twelve years' experience, Inside and Out, in Private Gardens. Total abstainer. Good references.—C. SUTTON, 9a, Beech Road, Sevenoaks, Kent.

GARDENER.—Age 17; two years experience. Good character.—J. LYNCH, Carlton, Selby, Yorks.

GARDENER.—Age 30, single; thoroughly experienced in all branches of Gardening. Four years' good character from present employer.—T. T., 52, Castle Street, Coventry.

GARDENER, good.—Age 41; understands his duties. Could Manage Land Stock, Poultry. Wife good Laundress or Dairy.—Good reference.—JAMES CARLTON, High Brooms, Tunbridge Wells, Kent.

GARDENER, where three or more are kept.—Age 28, married; thirteen years' experience in three large establishments. Can be well recommended. GARDENER, Mr. Brock, Turnford, near Hoddesdon, Herts.

GARDENER, where one or more are kept.—Understands Fruit, Flower, Vegetables, Plants. Good character from previous employers.—Please state wages to R. W., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

GARDENER.—A GENTLEMAN is desirous to recommend a man who has been with him for thirteen years, who is fully capable to undertake any Garden Work and is highly trustworthy.—EDWARD DALE, Wickham Street, Chichester.

GARDENER (good WORKING).—No family; thoroughly experienced. Wife good Laundress; take care of house if required. Good character,—X. Y., 2, Leeson Road, Herne Hill, S.E.

GARDENER (WORKING), where assistance is given.—Age 33, married, one child; eighteen years' experience in all branches of Gardening and Early and Late Forcing of Flowers, Fruit and Vegetables. Good character indispensable.—G. CORDERY, Hambledon, Cosham, Hants.

GARDENER, or GROWER for Market.—Age 28, single; well up in Tomatos, Cucumbers, and Plants. Held last situation as Grower. Good references. Abstainer.—GARDENER, Evergreen Villa, New Estate, Waltham Cross, Herts.

GARDENER (SINGLE-HANDED), or otherwise.—Age 29, married, one child; total abstainer. Experienced in Vines, Stove, Greenhouse Plants, Flower and Kitchen Gardening, Cucumbers, and Tomatos. Three and a half years' previous and present characters.—R. W., 104, Highgate Road, Kentish Town, N.W.

GARDENER (SINGLE-HANDED), or otherwise.—Nine years' experience in Vines, Peaches, Stove and Greenhouse, &c. A fair knowledge of Orchids; also understands Kitchen Garden. Good characters; last with T. A. Titley, Esq., (deceased), Leeds.—State wages, &c., to B. L. SCALES, 318, Meanwood Road, Leeds.

GARDENER (SECOND, or SINGLE-HANDED).—Good character.—H. VERNON, 79, Harwood Road, Fulham, S.W.

GARDENER (SECOND), where four or five are kept.—Age 21; can be highly recommended. Abstainer.—G. JACKSON, Claydon Park, Winslow, Bucks.

GARDENER (SECOND), where three or four are kept.—Age 23, single; good references.—M. T., 31, Hay's Mews, Berkeley Square, W.

GARDENER (SECOND), or under a good Foreman in the Houses.—Age 25, single; ten years' experience Inside and Out. Bothy preferred.—E. REFFOLD, Stone Park, Greenhithe, Kent.

GARDENER (SECOND), in the Houses.—Age 21; four and a half years' experience, Inside and Out. Good character. Leaving through place being sold.—A. UPWARD, Chobham, Woking, Surrey.

GARDENER (SECOND), where three or more are kept.—Young; thoroughly steady and industrious. Total abstainer. First-class references.—F. W., Gardener, The Gardens, Mount Mascal, Bexley, Kent.

GARDENER (SECOND), without bothy. Distance no object.—Age 25; eleven years' experience Understands Fowls. Good character.—T. S., 39, Northfields, Ealing-Dean.

GARDENER (SECOND or THIRD), under a good Gardener.—Age 23; bothy not objected to. Six years' good character.—Mr. RIXON, Westwood, Great Horkesley, Colchester, Essex.

GARDENER (UNDER), under a Foreman preferred.—Age 19; steady and active young man.—H. LASKEY, Careby, Stamford.

GARDENER (UNDER), Indoors or Out.—Age 23; three years' experience from last place.—W. KEEN, Orchard Place, Sudbury, Harrow, N.W.

GARDENER (UNDER), in a Gentleman's Garden.—Age 22; seven years' experience, Inside and Out. Good character.—T. POCOCK, 81, Lots Road, Chelsea, S.W.

GARDENER (UNDER), Inside and Out.—Age 23; good Scythe hand. Good character as to ability, &c.—W. HALL, The Gardens, Hanger Hill House, Ealing, W.

GARDENER (UNDER), Indoors or Out.—Age 20; four years' experience. Good references.—E. LETHBRIDGE, Hope Cottage, Princes Road, Norbiton, Kingston-on-Thames.

GARDENER (UNDER), in a good establishment, Kitchen Gardening preferred.—Age 21; six years' experience. Good character. Total abstainer.—F. JANAWAY, Prison Quarters, Winchester, Hants.

GARDENER (UNDER).—Age 26, married, no encumbrance. Total Abstainer. Used to Nursery Work. Good references.—T. H., 179, Dartmouth Park Hill, Highgate, London, N.

GARDENER (UNDER). Age 24; ten years' experience in Indoor and Outdoor Gardening. Two years' good character from last place.—GARDENER, 4, Dovedale Place, Sudbury, Harrow, N.W.

FOREMAN.—W. P. ROBERTS, Gardener, Cuerden Hall, Preston, would be pleased to recommend his late Foreman, Eldon Quantrill, to any Gardener in want of a man well up in his work.

FOREMAN, Inside, or Inside and Out.—Age 27; twelve years' experience. Two and a half years' good character from present place.—J. TUCKER, Caldy Manor Gardens, Birkenhead.

FOREMAN; age 25.—Mr. MARKHAM, Mereworth Castle Gardens, Maidstone, will be pleased to recommend his present Foreman, who has been with him two years, to any Gardener in want of a steady, reliable man. Several years' experience in good places, including Pontypool Park, Cyfarthfa Castle, Burghley, &c. Strong and healthy.

FOREMAN, in the Houses.—Age 27; well up in all departments. Good character.—A. BAXTER, Mrs. White, Friday Street, Henley-on-Thames.

FOREMAN, in the Houses, where two or three are kept.—Age 27; good experience in Vines, Melons, Cucumbers, Greenhouse plants, &c. Good references.—A. EAST, The Gardens, Maesllwch Castle, Glasbury, Radnor.

FOREMAN. — Age 29; advertiser desires situation as above. Has been Foreman at Whittlebury Lodge two and a half years. Leaving through the death of Sir Robert Loder, Bart. Has a thorough practical knowledge of Gardening in all branches. First-class testimonials from last and previous places.—Mr. S. MILLER, Head Gardener, Whittlebury, Towcester, Northamptonshire.

FOREMAN, in the Houses, or GENERAL in a good establishment; age 27. D. MCKENZIE, Gardener to Lady Siemens, Sherwood Park, Tunbridge Wells, would be pleased to recommend his Foreman, Thos. Porter, as above. Twelve years' experience.

FOREMAN, PROPAGATOR, and GROWER of Roses, Chrysanthemums, Eucharis, and all choice Flowers and Plants for Market, Grapes, Peaches, Cucumbers, Tomatos, &c.; make Wreaths, &c., if desired. Age 35. Last situation four years.—G. HOLLIS, Wilton, North Walsham, Norfolk.

FOREMAN PROPAGATOR and GROWER. —Cucumbers, Tomatos, Roses, Chrysanthemums, and Forced Cut Flowers for Market.—Age 25; good Buncher and Packer.—WALTER, 4, Bloomfield Terrace, Wells Road, Bath.

FOREMAN or GROWER.—Age 23; experienced in Market Nursery, and well-up in Growing Ferns, Crotons, Dracænas, Eucharis, Soft-wooded Plants; also a knowledge of Grafting, Wreaths, and Cut Flowers. Good testimonials. Good scholar.—REX, 41, Wellington Street, Strand, W.C.

FOREMAN, or FIRST JOURNEYMAN; age 23; eight years' experience.—H. HUNTLEY, Powis Castle Gardens, Welshpool, can recommend Benjamin Wood as above.

FOREMAN, or FIRST JOURNEYMAN, In or Out of Houses.—Age 26; thirteen years' experience in first-class establishment. Excellent testimonials from present and previous employers. Bothy preferred. — SKELTON, Pepper Arden, Northallerton.

FOREMAN, or SECOND, in a good establishment.—Age 23; five years' good character. Abstainer. W. H. HAWTHORN, Frensham Hill, Farnham, Surrey.

FOREMAN, or good SECOND.—Age 25; two years' good character from present place.—W. PRATT, 9, Mill Street, Aylesbury, Bucks.

FOREMAN, or good SECOND.—Age 26; twelve years' experience in Plant and Fruit Growing, Early and Late Forcing, and Table Decoration, Kitchen and Flower Gardening. Can be well recommended.—H. GIBSON, The Gardens, Ampfield House, Romsey.

To Nurserymen.

FOREMAN (UNDER), Inside or Out. Nine years' practical experience in leading Nurseries. Good references for same.—H. LEPPARD, Crocken Hill, Swanley, Kent.

JOURNEYMAN (FIRST), in the Houses.—Good character. Bothy preferred.—A. SHAMBROOK, 65, Coombe Road, Sydenham, Kent.

JOURNEYMAN (FIRST), in the House; Age 22; seven years' experience; good character.—A. SMITH, Testwood Park Gardens, Totton, Hants, wishes to recommend a young man as above.

JOURNEYMAN (FIRST), in the Houses. — Age 22; eight years' experience; two years' good character, four previous. Can have good testimonials.—F. MILLS, Brookthorpe, near Gloucester.

JOURNEYMAN (FIRST), in a good establishment.—Age 22; good character from present and previous places. — R. WEBB, Brixworth Hall Gardens, Northampton.

JOURNEYMAN.—Age 21; well used to Soft-wooded Plants, Palms, Ericas. Nine years' good experience.—H. W., Mr. Whitehead, Swanley Junction, Kent.

JOURNEYMAN, in the Houses.—Age 22; five years' good character; other references if required. E. J. D., The Gardens, Cherkley Court, Leatherhead, Surrey.

JOURNEYMAN, in Orchid or other Glass Department.—Age 20; two years' excellent character.—W. ASKEW, The Gardens, Barvins Park, Potter's Bar, N.

JOURNEYMAN, Indoors.—Age 19: bothy preferred. Can be well recommended.—Mr. WARD, Stoke Edith Gardens, Hereford.

JOURNEYMAN, in the Houses; age 21; bothy preferred. — Mr. WARD, Stoke Edith Gardens, Hereford, will be pleased to recommend a young man as above.

JOURNEYMAN, in the Houses, or Inside and Out.—Age 21; abstainer. Good characters.—G. WOODHATCH, Quex Park Gardens, Birchington, Kent.

JOURNEYMAN; age 20.—B. GWYNE, The Gardens, St. Catherine's Hill, Worcester, will be pleased to recommend a strong, respectable young man as above.

JOURNEYMAN, Inside and Out.—Age 21; three years' in present situation. Good reference. HEAD GARDENER, Froyle Park, Alton, Hants.

JOURNEYMAN, in the Houses, or Inside and Out.—Age 21; nine years' experience. Good references. —J. WALKER, Crown Street, Leaston, Suffolk.

JOURNEYMAN, in the Houses.—Age 22; good recommendations. Bothy preferred.—H. SNELL, Upton St. Marychurch, Torquay.

JOURNEYMAN.—Age 19; two years in present situation. Can be well recommended.—A. SMITH, Garnstone, Weobley, Herefordshire.

To Nurserymen.

JOURNEYMAN, Inside, in a good establishment.—Age 22; seven years' experience. —A. J., Granard Nurseries, Putney Park Terrace, Putney, S.W.

JOURNEYMAN, Inside and Out.—Age 22; eight years in present place. Good character.—HEAD GARDENER, Kingscote Park, Wotten-under-Edge, Gloucestershire.

JOURNEYMAN, or otherwise, in a large establishment.—Six years' experience; four years' excellent character.—A. DAVIES, Glewstone, near Ross, Herefordshire.

JOURNEYMAN, in the Houses, age 22; seven years' experience. Good character from present and previous employers.—H. N., The Gardens, Lockerley Hall, Romsey, Hants.

JOURNEYMAN.—Age 19; four years' experience in Orchids and other Glass Departments. Excellent testimonials.—H. COOPER, Barvins Park, Potter's Bar, Herts.

JOURNEYMAN, in the Houses.—Age 20; three years in present place, four in previous. Good waterer. First-class references. — C. LONGMAN, Byams Gardens, Marchwood, Southampton.

JOURNEYMAN, in the Houses.—Age 21; four years' good character among Vines, Cucumbers, Melons, Tomatos, Table Decoration, &c. — H. H., Great Brickhill, Bletchley.

JOURNEYMAN.—Age 22; bothy preferred. Four years' experience Inside or Out. Either, as may be required. Can be well recommended.—T. HUNT, Ratchwood, St. Albans.

JOURNEYMAN, in the Houses.—Age 29; three and a half years' experience. Bothy preferred.—RICHARD CADWALLADER, Chelsea Cottage, Weston, Baschurch, Salop.

JOURNEYMAN, Inside, or Inside and Out; age 21.—BLENCH, Wilton Park, confidently recommends a reliable man to any Gardener. Bothy preferred.—Address as above.

JOURNEYMAN, in the Houses.—Age 19; Gardener's son. Three years' in last situation, in a Nobleman's Garden. Can have good references.—HORTUS, Abel Munt, Hemel Hempstead, Herts.

JOURNEYMAN, in the Houses.—Age 21; five years' experience in present situation. Good character and References. Bothy.—W. BARNETT, The Gardens, Wormley Hill, Witley, Surrey.

JOURNEYMAN; age 23. — HENRY J. CLAYTON, Gardener, Grimston Park, Tadcaster, can recommend JOHN SNELL to anyone wanting a good Journeyman with a Charge. Has been with him four years. Bothy preferred.

JOURNEYMAN, in the Houses; age 21.—Mr. MILSOM, Claydon Gardens, Winslow, Bucks, will be pleased to recommend an intelligent, energetic young man as above. Seven years' good practical experience in the profession. Bothy preferred.

JOURNEYMAN.—Mr. MITCHELL, Gardener to Sir George Elliot, Bart., M.P., Aberaman Gardens, Aberdare, South Wales, can highly recommend for the Houses, under Foreman, a clean active young man, who has been with him fifteen months.

JOURNEYMAN, in the Houses.—Age 24; over three years in present situation.—W. BUGGINS would have much pleasure in recommending a young man as above.—Please address Mr. BUGGINS, Woodlands Castle, Clonsilla, co. Dublin.

JOURNEYMAN (SECOND), in the Houses.—Mr. TILLYARD, Gardener to the Earl of Yarborough, has great pleasure in recommending a young man as above. Eight years' good character. — The Gardens, Brocklesby, Ulceby, Lincolnshire.

To the Trade.

MARKET GROWER. — Age 24; Fruit, Fern, Cut Bloom, &c. Practical experience. Good references.—A. D., 8, American Buildings, Teddington.

IMPROVER, under Glass, in a good establishment.—Age 20; steady; first rate references.—G. HORN, 162, Trinity Road, Upper Tooting, S.W.

IMPROVER, in a Market Nursery.—Age 21; three years' experience, two and a half under glass.—H., Messrs. Vice, Stationers, Nottingham.

To Head Gardeners.

IMPROVER, in Bothy.—Age 18, total abstainer; five years' good character from JOSEPH SHEPHEARD, Gardener, Stradsett, Downham Market.

IMPROVER, in the Houses.—Age 20; fair knowledge of plants. Seven years' good character; can be well recommended.—C. OUTTEN, Latymers, Penshurst, Kent.

IMPROVER, in a good establishment.—Age 20; good character. Had five years' experience. No objection to paying a small premium. ELLIS, Saffron Walden.

TO GENTLEMEN and NURSERYMEN.—Situation Wanted.—Age 20; good knowledge of Growing Plants and Vegetables. Good references.—ROBT. BOLTON, Jun., Warton, Carnforth.

TO MARKET GARDENERS.—A thorough practical Grape, Cucumber, and Tomato Grower; also Cut Flowers, Ferns, &c. Seven years in last situation. Married, age 41.—E. C., 41, Wellington Street, Strand, W.C.

TO GARDENERS.—Wanted, a situation in the Gardens, or in the Houses. Eight years' experience Inside and Out. Good reference. Age 21.—A. C., Mr. Stacy, Gardens, Empshott, Petersfield, Hants.

TO GARDENERS, &c.—Situation wanted by a young MAN three years' experience, Inside and Out.—W. NEWTON, 32, Claremont Road, West Kilburn, N.W.

TO NURSERYMEN.—Wanted by two young men (age 20 and 26), situations in a Nursery. Several years' good experience. Please state wages given.—Z. A., 5, Fountain Villa, The Hall, Tottenham, London.

TO NURSERYMEN. — Wanted situation under Propagator. Five years' good character. Good general knowledge of all branches of Indoor Propagating. Experienced Rose Budder.—W. E. KEARNE, Old Nurseries, Cheshunt, Herts.

TO MARKET NURSERYMEN.—A situation wanted in a Market Nursery. Has been used to the Trade, Ferns, Carnations, Bouvardias, &c.—S. H., 3, Alma Terrace, Park Road, Norbiton.

TO NURSERYMEN.—Situation wanted by a young man in Market Nursery. Quick at Potting, Tying, and General Nursery Work.—RYNOR, 51, Thorne Street, Wandsworth Road, S.W.

TO GARDENERS, &c.—Situation wanted by single man age 24, to attend Cows and help in Garden. Good Milker and fair knowledge of Plain Gardening. Good references.—J. MUNDY, 1, Barossa Terrace, Church Street, Chelsea, S.W.

TO NURSERYMEN.—Advertiser (age 19) seeks situation in a good Nursery, Propagating, or Plant Houses. Five years' experience in good establishments. Strongly recommended.—H. W. A., 41, Wellington Street, Strand, W.C.

TO NURSERYMEN.—A gentlemanly youth (age 19) wishes to meet with a situation where he may Learn the Business in all branches. Small premium given part of which to be returned in salary.—C. W. L., Edmonds, 57, Regents' Park Road, London, N.W.

SHOPMAN, or MANAGER. — Age 30; thorough knowledge of Seed, Bulb, Plant, and Flower Trade. Good references.—W. HARRIS, Harrowmerewood, East Grinstead, Sussex.

SHOPMAN and Counter hand in Wholesale or Retail Business.—Age 23; seven and a half years' experience in first-class houses. Good references. H. M., Princes Park Lodge, Liverpool.

SHOPMAN (JUNIOR). — Well-up in all branches of Seed and Bulb Trade. Open for Engagement. —W. T., Mrs. J. Wilkie, 4, Huntly Street, Edinburgh.

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Thursday Next.
40,000 LILIUM AURATUM, magnificent bulbs, just received from Japan; 500 LILIUM SPECIOSUM ALBUM KRAETZERI; 300 L. SPECIOSUM RUBRUM; PEARL TUBEROSES; a fine collection of CALOCHORTI and English-grown LILIES, the latter including several rare species; Standard and Dwarf ROSES; a good lot of the beautiful Japanese IRIS; GREENHOUSE PLANTS in variety; 2000 GLADIOLUS BRENCHLEYENSIS; 10,000 FREESIA REFRACTA ALBA, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on THUSRDAY NEXT, February 21, at half past 12 o'Clock precisely.
On view morning of Sale and Catalogues had.

Friday Next.
IMPORTED ORCHIDS from Mr. F. Sander.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, February 22, at half-past 12 o'Clock precisely, a large quantity of various IMPORTED ORCHIDS, from Mr. F. Sander.
On view morning of Sale, and Catalogues had.

Friday Next.
ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on FRIDAY NEXT about 50 lots of ESTABLISHED ORCHIDS from Messrs. Seeger & Tropp, including several very rare plants; TERRESTRIAL ORCHIDS, another property, &c.
On view morning of Sale, and Catalogues had.

Westerham, adjoining Railway Station.
IMPORTANT UNRESERVED SALE of thriving and beautifully grown NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. T. W. Edmunds to SELL by AUCTION, on the Premises, the Westerham Nurseries, Westerham, Kent, on MONDAY, February 25, and following days, at 12 o'Clock each day (in consequence of a portion of the Land being immediately required to be cleared for Seed Growing), an extensive quantity of well-grown NURSERY STOCK, in first-class condition for removal, comprising, in all, 150,000 Ornamental, Forest and Fruit Trees, of the usual description; an abundance of very fine Apples, Pears, Plums, Cherries, and Walnuts; 5000 best named Standard and Dwarf Roses, thousands of Evergreen Coniferæ and Deciduous Shrubs, several thousands of hybrid Seedling Rhododendrons, 30,000 transplanted Quick, &c.

Purchasers can arrange with the Foremen at the Nurseries to have their lots lifted and put on Rail at Westerham Station at the mere cost of labour thereby incurred.

May be viewed three days prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Monday, February 25.—Special Sale.
A splendid Consignment of ORCHIDS, received direct from Mr. Roebelen, for Sale, without Reserve, consisting of Vanda Parishii, Marriothiana (true), Saccolabium giganteum var. album, Cypripedium callosum, including several specially marked species; Aerides odoratum Godefroyæ (?), Dendrobiums, &c.; and Three Cases of a new Phœnix, to be named Phœnix Roebelenii.

MESSRS. PROTHEROE AND MORRIS will SELL the above Valuable COLLECTION of ORCHIDS at their Rooms, on MONDAY, February 25.
Fuller particulars will appear next week.

Tuesday, February 26.—Special Sale.
ORCHIDS in FLOWER

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be pleased to receive NOTICE of ENTRIES as EARLY AS POSSIBLE.

Sample Sale.—Thursday, February 28.

MESSRS. PROTHEROE AND MORRIS desire to announce that the next SALE of NURSERY STOCK and GREENHOUSE PLANTS by Sample will take place as above, for which they will be glad to receive ENTRIES AS SOON AS POSSIBLE.
On view morning of Sale, and Catalogues had.

Potter's Bar.
Preliminary Notice of an Important UNRESERVED SALE of LIVE and DEAD STOCK, comprising 41 Heifers, mostly in Calf, Shorthorn Cow and Bull, 100 Sheep, 18 Pigs, Poultry, 200 Loads of Prime Meadow Hay, Implements, Elevator and Gearing complete, 8 Greenhouses and Fittings, Greenhouse Plants, Orchids, and Effects.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from J. R. Wood, Esq., who is leaving the neighbourhood, to SELL the above by AUCTION, on the Premises, Barvins Park Farm, Potter's Bar, N., about 3 miles from Potter's Bar Station, on THURSDAY and FRIDAY, February 28 and 29, at 1 o'Clock precisely each day.
Catalogues may be had, when ready, of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Cypripedium insigne Hallianum.
FOR SALE WITHOUT RESERVE.
The ENTIRE STOCK of this beautiful and new variety, fully described by Professor Reichenbach in the *Gardeners' Chronicle*, February 9 last.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY, March 1, by order of Mr. W. Hall.

The celebrated Sunbury House Collection of
ESTABLISHED ORCHIDS.
IMPORTANT UNRESERVED SALE.
Preliminary Notice.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, March 12 and 13, at half-past 12 o'Clock each day, the first portion of this valuable collection of ESTABLISHED ORCHIDS, by order of Major Lendy, who, in consequence of ill-health, is relinquishing their cultivation.
Full particulars will appear in future announcements.

Wednesday Next—(Sale No. 7873.)
500 choice Named Standard and Dwarf ROSES, Pyramid, Standard, and Dwarf-trained FRUIT TREES; a consignment of AZALEA MOLLIS and A. INDICA from Ghent; CARNATIONS, PICOTEES, and PINKS to name, and other BORDER PLANTS in great variety; Home-grown LILIES, GLADIOLI, SPIRÆAS, and other Hardy Roots.

MR. J. C. STEVENS will SELL the above by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY NEXT, February 20, at half-past 12 o'Clock precisely.
On view morning of Sale and Catalogues had.

Wednesday Next.—(Sale No. 7874.)
200 lots of well-grown ESTABLISHED ORCHIDS, in Flower and Bud, from the collection of H. J. Buchan, Esq., of Southampton.

MR. J. C. STEVENS has received instructions from H. J. Buchan, Esq., of Southampton, whose land is required for building purposes, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., the First Portion of his well-known Collection of ORCHIDS, on WEDNESDAY NEXT, February 20, at half-past 12 o'Clock precisely. Among other choice things will be found:—

Cypripedium Boxalli, 34 flowers	Lycaste Skinneri alba
,, Schlimii album, 12 leads	Dendrobium Ainsworthi
,, Sedeni porphyreum	Cattleya Percivaliana, fine specimen
Cœlogyne cristata Lemoniana with 40 spikes	Lycaste Skinneri, splendid form, with 30 flowers
Odontoglossum ramossissimum, extra fine varieties	Odontoglossum pulchellum majus, with 13 spikes
,, Roezlii, fine plant	Choice Masdevallias

Some splendid varieties of Odontoglossum Alexandræ and O. Pescatorei, &c.
On view morning of Sale, and Catalogues had.

Wednesday and Thursday Next.
Some Choice ESTABLISHED ORCHIDS, many in Flower and Bud, including some fine specimen plants and rare species.

MR. J. C. STEVENS will include the above in his SALES by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY NEXT, February 20 and 21.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7875.)
5000 Grand Bulbs of LILIUM AURATUM and other LILIES from Japan, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, February 21.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7875.)
VANDA KIMBALLIANA (Rchb. f.)
1700 CYPRIPEDIUM BELLATULUM.
2000 CYPRIPEDIUM NIVEUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 21, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a large quantity of choice imported ORCHIDS, comprising Vanda Kimballiana (Rchb. f.), and we have great pleasure in offering this grand novelty, which, Professor Reichenbach writes, is an "extraordinary introduction of Messrs. Hugh Low & Co. It is a fresh species, of the affinity of Vanda Amesiana," from which fine species, however, the flowers and appearance of the plant are totally distinct. The flowers are of large size. Collector writes, it produces 15 to 20 flowers on a spike, colour of petals and sepals pure white, the lip a beautiful rosy-purple; and so profusely does it bloom that young plants 6 inches in height have four bold spikes on them. A full description by Professor Reichenbach of this splendid addition to the genus has been sent to the Editor of the *Gardeners' Chronicle*, and will immediately appear in that journal. The plants are in perfect condition, equal in this respect to established plants. Also splendid specimens of what appears to be a gigantic form of the lovely Vanda Amesiana, 2000 Cypripedium niveum, 1700 Cypripedium bellatulum, and other choice Orchids.
On view morning of Sale, and Catalogues had
N.B.—The above plants were advertised for Sale on Thursday last, but postponed on account of the severity of the weather until the above date.

Piccadilly, on the Sutton Estate.
Re GIBBS, deceased.
VALUABLE LEASEHOLD PROPERTY, for Occupation or Investment.

MESSRS. EDWIN FOX AND BOUSFIELD will SELL, at the Mart, on WEDNESDAY, March 6, at 2 o'Clock, the VALUABLE GROUND LEASES of the commanding Modern Residental and Business Premises, Nos. 24, 25, and 26, Down Street, one door from Piccadilly, immediat ly opposite the entrance to the Junior Athenæum Club, six storeys in height, with capital suites of Chambers on the Upper Floors and Shop, Warehouse, and Counting-house on the Ground Floor. Held for a Term of which forty-four years are unexpired, at a moderate Ground Rent. Part of the Premises is Let to responsible Tenants. Possession of the Business Premises and Manager's House can be had. The total annual value of the whale may fairly be taken at £700. Together with the Goodwill of the Old-established Seed Business, for many years successfully carried on under the style of Thomas Gibbs & Co. Also the Lease of the Warehouse and Stable, No. 2, Bridle Lane.
Particulars of Messrs. HURFORTH AND TAYLOR, Solicitor, 5, Furnival's Inn, E.C.; of J. J. FREEMAN, Esq., Solicitor, 2, Poet's Corner, Westminster; at the Mart; and of Messrs. EDWIN FOX AND BOUSFIELD, 99, Gresham Street Bank, E.C.

Garthlands Arkley, High Barnet, Herts.
About 1¼ mile from High Barnet Station, in a high and rural position, facing south, and commanding views of considerable extent.

TO BE SOLD (Lease expires 1911; Ground-rent £15; Price £1350), a COUNTRY RESIDENCE, in excellent repair, with Carriage-drive; four Bedrooms, one Dressing-room, an Attic, good Hall (tiled) Drawing-room, 21 feet 10 inches by 15 feet 10 inches; Dining-room, 22 feet 10 inches by 15 feet 2 inches; Library, 14 feet 10 inches by 10 feet 10 inches; a Butler's Sitting-room and Bedroom combined; good offices. The Gardens sloping to the south are very tastefully laid out, and exceptionally complete; they include large levelled Tennis-lawn, thoroughly secluded Flower, Fruit, and Kitchen Gardens, Lawns, Shrubberies, Fish-pond, handsome succession Vineries, in houses 50 feet in length. The Vines are in full bearing, and Hothouses about 45 feet in length, all with first-rate Heating Apparatus; large Pottingshed, ornamental Fowl-house—in all nearly 2 acres. Gas and Water, good Drainage; Church and Post-office within 10 minutes' walk. Personally inspected, and recommended to any one seeking a comfortable residence with an enjoyable garden and first-rate glasshouses. For order to view, apply to DERENHAM AND TEWSON, 80, Cheapside, E.C.

To Market Gardeners, Florists, Nurserymen, &c.
HAMPTON-ON-THAMES.

FOR SALE, choice FREEHOLD LAND, in Acre Plots, suitable for above. Rich Garden Soil with gravel and sand sub-soil. The land is considered by the Trade the finest near London for Grape and other Market Products.
Apply, SECRETARY, Estates Investment and Villa Farm Company, Estate Office, Tangley Park, Hampton-on-Thames.

FOR SALE, NURSERY and SEED BUSINESS. The Subscriber is prepared to treat for the Disposal of a Business, established for upwards of fifty years, in a town 10 miles from Glasgow. Sale Shop in town, and Nursery Ground in the vicinity, well stocked and unsurpassed for situation. Good opening for purchaser with limited capital.
For particulars apply to THOMSON M'LINTOCK, C.A., 87, St. Vincent Street, Glasgow.—February 7, 1889.

FOR SALE, SEED, FLORIST, FRUITERER'S, and VEGETABLE BUSINESS, established eight years; 8 miles from London. Doing £2500 per annum. Rent, £80; 19 years' Lease. 3 Large Greenhouses, 2 Horses, 2 Vans, Dogcart, Shop Fixtures, &c. Price £750. Stock at Valuation; part money could remain at 5 per cent.
Apply, in first instance, to Mr. J. UNDERWOOD, Florist, Holloway Road, London, N.

WEST END FLORIST'S BUSINESS for SALE, doing £20 a week now, and £80 a week in the season. About 300 accounts on the book. £400 required. Stock at a Valuation, and book debts can be taken over or not.—Apply, Messrs. FRITH AND CLARKE, Accountants, 26, Bedford Row, W.C.

TO NURSERYMEN and OTHERS.—£250: chance seldom met with. Must be SOLD, Large NURSERY and JOBBING BUSINESS, with RETAIL SHOP. Established N.W. suburb over 50 years. Stock, &c., optional at valuation. Long leases. Principals or solicitors. Apply to GOWING AND CO., Solicitors, 41, Finsbury Pavement, E.C.

SMALL, compact NURSERY and FLORIST'S BUSINESS; Northern Suburb, 8 miles from Covent Garden, Rail convenient. No opposition. Four Heated Greenhouses, Frames, and Useful Stock. Price £100 with Lease and Goodwill. Rent very low; Residence if desired.
Apply to W. WOOD AND SON, Wood Green, N.

TO GARDENERS and FLORISTS.—TO LET, the Lease of a Small NURSERY, DWELLING-HOUSE, SHOP, &c. Useful small Stock at valuation.—Letters to A. B., 20, Parson Street, Banbury.

TO LET, GARDEN: High Walls; several Glasshouses, Vinery, &c., Heated with Hot Water; between 2 and 3 Acres of excellent Tillage Land.—B. B., Mr. Brown, Seedsman and Florist, Chariot Street, Hull.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an Immense Stock of

ESTABLISHED ORCHIDS,

which they offer at the most reasonable prices; and they are continually receiving fresh importations from various parts of the world.

Lists, with Prices and Full Particulars, on application.

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

VERTEGANS' NOVELTY CATALOGUE of "FLORAL GEMS," free by Post to all applicants. VERTEGANS AND CO., Chad Valley Nurseries, Birmingham.

To the Trade.
SEED POTATOS.
H. AND F. SHARPE'S Special Priced LIST of SEED POTATOS has been sent out. It comprises all the finest varieties in cultivation, including several novelties. The quality is very fine, and the prices will be found extremely low.
Seed Growing Establishment Wisbech.

The Best Present for a Gardener.
VINES and VINE CULTURE. The most complete and exhaustive Treatise on Grapes and their Culture ever published.
New Edition.
Price 5s., post-free 5s. 6d.
A. F. BARRON, Royal Horticultural Society, Chiswick.

Palms, Foliage Plants, Heaths, &c.
FRANCIS R. KINGHORN will be pleased to forward LIST of above with low prices. Leading decorative PALMS in all sizes, great quantities, and in finest health.
Richmond, Surrey; and 191 and 192, Flower Market, Covent Garden, W.C.

IF YOU CANNOT GET FRUIT TREES TRUE TO NAME,
Write to GEORGE BUNYARD AND CO.

IF YOU WANT ANY CHOICE SORTS that your Local Firms cannot Supply,
Write to GEORGE BUNYARD AND CO.

FOR FRUIT TREES by the Dozen, Hundred, or Thousand,
Write to GEORGE BUNYARD AND CO.

SEND INTO KENT, and get the FINEST TREES—No Starvelings, No Blight—at
GEORGE BUNYARD AND CO'S.

ILLUSTRATED CATALOGUE OF FRUIT TREES, 800 Kinds, Six Stamps.
SKELETON LIST—Names and Prices—also all Outdoor Stock, Gratis.
ROSE LIST, CONIFER and SHRUB LISTS, Free.
One Hundred Acres Nursery. Liberal terms.

GEORGE BUNYARD AND CO.,
POMOLOGISTS and GENERAL NURSERYMEN,
MAIDSTONE, KENT.

THE MARQUIS of CHOLMONDELEY'S Head Gardener says:—"CARTER'S SOLID IVORY CELERY is dwarf, compact, solid, and crisp." Price, in sealed packet, 1s. and 2s. 6d., post-free, from 237, High Holborn, London.

To Offer, Very Cheap.
GRAPE VINES.
J. PEED AND SONS, Roupell Park, Tulse Hill Station, S.E.

VERTEGANS' NOVELTY CATALOGUE of SEEDS for the GARDEN, free by Post, on application to
VERTEGANS AND CO., Chad Valley Nurseries, Birmingham.

THE MARQUIS of HARTINGTON'S Head Gardener says:—"What an appropriate name is that given to CARTER'S SCARLET PERFECTION CARROT." Price in sealed packets, 1s. 6d. per oz., post-free, from 237, High Holborn, London.

Carriage Paid.
DAHLIAS.—Sound Pot Roots are the best to buy. You get earlier and stronger flowering plants:—
12 Choice CACTUS DAHLIAS for 4s., distinct.
12 Choice SINGLE DAHLIAS for 4s., distinct.
12 Choice DOUBLE DAHLIAS for 4s., distinct.
12 Choice POMPON DAHLIAS for 4s., distinct.
For Cash with order, carriage paid.
CHARLES BURLEY, Nurseries, Brentwood.

Barr's Spring Catalogue, Now Ready, of
THE BEST HERBACEOUS PLANTS, for Borders, Rockwork, and Cutting, contains a select List of HIGH-CLASS AND EASILY cultivated plants only.
Free on application.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

ORCHIDS.—Clean, well-grown plants, at low prices. Specimen Orchids a specialty. Price LIST free. JAMES CYPHER, Exotic Nurseries, Cheltenham.

EUONYMUS (Green).—50,000, all nice bushy well-grown Specimens, 9 to 36 inches, £1 to £10 per 100.
J. J. CLARK,
Goldstone Farm, Brighton.

TO FRUIT GROWERS.—On offer, at the Quary Farm, Bardon Hill, near Leicester, a quantity of short useful RASPBERRY CANES (Red). Would divide up into many thousand plants. There are 25 rows, covering about 2 acres.
Price for the lot, on rail at Bardon Hill Station, to be sent to J. B. ELLIS, The Gynsills, near Leicester.
Offers by the thousands will be considered, if the lot is not disposed of.

FOR SALE, Greenhouse RHODODENDRONS—Countess of Haddington, splendid specimen, 6 feet by 4 feet, full of buds, £12; R. calophyllum, 5 feet by 3 feet, £5. CAMELLIAS, C. imbricata, grand plant, 12 feet by 6 feet, £8; C. elegans, 10 feet, £6; C. alba plena, 10 feet, £8; C. Mathotiana, 8 feet, £3. AZALEA INDICA ALBA, 7 feet, £3. E. COOLING AND CO., Derby.

JOSIAH H. BATH
Offers the following varieties of SEED POTATOS:—

Old Ashleaf	White Elephant
Rivers' Royal do.	Early Rose
Myatt's Prolific do.	Magnum Bonum
Mona's Pride	York Regent
Snowdrop	Scotch do.
Adirondack	Imperator
Village Blacksmith	Red Bog Early
Beauty of Hebron	Schoolmaster
Dalmahoy	Early Don

And other leading varieties. Prices on application to
York Street, Borough Market, S.E.

ROBERT NEAL, The Nurseries, Trinity Road, Wandsworth, begs to offer, in extra quality, the following:—
SEAKALE for Planting, 5s. per 100, 40s. per 1000.
RHUBARB, for Forcing, 50s. per 100.
RASPBERRIES (Fastolf), 6s. per 100, 50s. per 1000.
VICTORIA PLUMS, Standards, 75s. per 100.
DAMSON (Farleigh), Standards, 75s. per 100.
PEACHES, Dwarf-trained, 18s. to 24s. per dozen.
ELDERS, Golden, 2 to 4 feet, extra fine, 20s. to 30s. per 100.
WILLOWS, Weeping, 8 to 14 feet, 6s. to 12s. per dozen.

A New Plant to English Gardens.
HARTLAND'S GOLDEN QUILLED DOUBLE SUNFLOWER. "Soleil d'Or." See *Gardeners' Chronicle*, Jan. 26, 1889, for illustration and full particulars, with a faithful drawing by Gertrude Hartland.
Very large clumps, 2s. 6d. each, post-free, 27s. 6d. per dozen.
Second size ... 1s. 6d. ,, ,, 15s. 0d. ,,
The dozen lots for combined orders, carriage and post-free.
"YEAR BOOK" of SEEDS for 1889, post-free.
WM. BAYLOR HARTLAND, Old Established Garden Seed Warehouse, 24, Patrick Street, Cork.

CHRYSANTHEMUMS.—600 vars., true to name, strong Cuttings, from 1s. 6d. per dozen, 10s. per 100; Plants, 2s. 6d. per dozen, 16s. per 100. Many of the best prizes and Silver Cups are taken by my customers. Price of new sorts, see CATALOGUE, two stamps, of WM. ETHERINGTON, Chrysanthemum Grower, Swanscombe, Kent.

ANDRE LEROY'S Nurseries at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition at Paris, 1878.
Orders must be addressed to Messrs. WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2s. 6d. each; Beauty of Worcester, a magnificent purple, excellent for bedding, recently sent out by us, reduced price 2s. 6d. each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.
H. AND F. SHARPE'S Wholesale CATALOGUE of VEGETABLE SEEDS for 1889 has been forwarded to their customers. If those who have not received it will kindly inform them another one shall be sent.
Seed Growing Establishment, Wisbech.

THE GARDENERS' ORPHAN FUND.

DONATIONS and SUBSCRIPTIONS

WILL BE THANKFULLY RECEIVED BY

A. F. BARRON, Hon. Sec.,
Royal Horticultural Society's Gardens,
Chiswick, London, W.

VICTORIA LILY OF THE VALLEY. Messrs. HAWKINS AND BENNETT, Lily Gardens, Twickenham, Middlesex, have a few more yards of this beautiful variety. Superior both in its blooms and foliage to any yet offered. An engraving, with instructions for planting, &c., is sent with all orders. Price 25s. per square yard. They have also extra large plants, clean and healthy, of STEPHANOTIS FLORIBUNDA.—Apply as above.

BEGONIAS.—Tuberous-rooted, of best quality, by the 100 or 1000. See the best Descriptive and Illustrated CATALOGUE published. ASPARAGUS PLANTS, 2-yr. and 3-yr., in quantity. Good and cheap.
B. R. DAVIS, Begonia Grower, Yeovil Nurseries, Yeovil.

THE GARDENERS' MAGAZINE says:—"CARTER'S LEVIATHAN BEAN MUST HAVE SPECIAL MENTION; the pods attain an average length of 15 inches, and examples over 20 inches long being by no means uncommon." Price, in sealed packets, 2s. 6d. per pint; post-free, 2s. 9d., from 237, High Holborn, London.

SPECIMEN CONIFERS.—Trees for Avenues, Evergreens, and Forest Trees in great variety. CATALOGUE free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ROSES! ROSES!! ROSES!!!—The best and cheapest in the World. 40 choice Perpetuals for 21s. Purchaser's selection from 400 best varieties. CATALOGUES free on application. Ten acres of Roses, 100,000 grand plants to select from. Plant now.
JAMES WALTERS, Rose Grower, Exeter.

PRIMROSES.—12 distinct varieties of Double Primrose, one flowering-plant of each for 8s. The common varieties of Double Lilac, Double White, and Double Yellow, 2s. per dozen.

PRIMULAS.—50 distinct varieties of Primula, one flowering-plant of each for 5s.
CATALOGUES free on application.
MORRISON BROTHERS, Nurseries, Aberdeen.

DAHLIAS.—Pot Roots, all the best varieties—Show, Fancy, and Pompons—from 4s. 6d. per dozen; Cactus and Decorative, 6s. per dozen; my beautiful new Decorative Dahlia of 1888, Sidney Hollings, 2s. 6d. each. Trade supplied.—HUMPHRIES, Nurseryman, Chippenham.

CHRYSANTHEMUMS to and from all parts of the Globe. By far the best collection of new and old varieties in commerce. Descriptive Catalogue with Cultural Directions by E. Molyneux and C. Orchard. Acknowledged in Europe and America as the best Descriptive Catalogue. Price 6d.; free to customers. Awarded 3 Medals and 20 First-class Certificates. I never exhibit for prizes in competition with Gardeners or Amateurs. Open to purchase new varieties of merit.—R. OWEN, F.N.C.S., Floral Nursery, Maidenhead.

THE EARL of SHREWSBURY'S Head Gardener says:—"WE GATHERED CARTER'S LIGHTNING PEA TEN DAYS BEFORE FIRST AND BEST." Price, in sealed packet, 2s. 6d. per pint; post-free, 2s. 9d., from 237, High Holborn, London.

To the Trade.
QUICKS or WHITE THORNS, about 2,000,000 to offer. Splendid strong fibrous-rooted stuff can be supplied as follows, for cash on rails:—2-yr.-old, 7s. per 1000; 3-yr.-old, grand stuff, principally 2 to 3 feet, extra strong, wonderfully cheap, 10s. per 1000; 4 and 5-yr.-old, transplanted, 15s. and 20s. per 1000; picked for gap stopping, 30s. per 1000.
PRIVET, 15s., 20s., 30s., and 40s. per 1000.
BEECH, extra strong, principally 3 feet, 40s. per 1000; 5s. per 100. Catalogues on application.
Cheques and Post-office Orders made payable to
FREDK. GEE, Nurseryman, &c., Riverford House, Biggleswade, Bedfordshire.

BIRMINGHAM PRIMULAS.—Exhibitors and judges know well that Birmingham Primulas have been for many years, and still are, far ahead the best known; and the varieties Marquis of Lorne, Princess Louise, The Queen, Emperor, Lady R. Churchill, Pope's Blue, all raised by our foreman, Mr. Rose, are still the best known, and, where exhibited, win. No others have a chance. They have won every prize at Birmingham for many years, except where debarred from competition. Gentlemen, who have not seen a Birmingham Primula Show, we shall be pleased to send a few blooms, on receipt of 3 stamps for box and postage. Mixed Packets of all the best sorts, 5s.; Ditto, small packet, 2s. 6d.; or separate, if required, at 2s. 6d. to 5s. per packet.
POPE AND SONS, Nurserymen, &c., King's Norton Nurseries, Birmingham.

100 ALPINE and HERBACEOUS PLANTS, 25s. Descriptive CATALOGUE, Illustrated, with Cultural Notes, 72 pages (containing much interesting information). Post-free, 9d.
STANSFIELD BROS., Southport.

BUY AND TRY
THE PENNY PACKET SEED COMPANY'S
SEEDS AND PLANTS,

And you will pronounce them the Best in the Market, as none but genuine, good, new season's seeds are supplied.

THE PENNY PACKET SYSTEM
Has been pronounced the most **complete** and **economical** system of supplying seeds.

3000 VARIETIES CATALOGUED
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2000 CYPRIPEDIUM NIVEUM.

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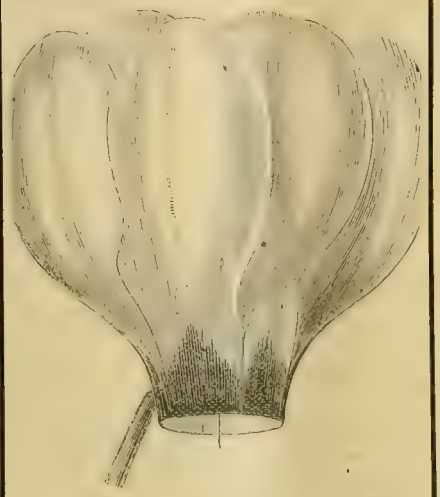
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THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 16, 1889.

JAPANESE FLORAL ART.

THE inartistic character of the work of some English artists, who essay the delineation of flowers, is one of the most obvious certainties of the present day. The various exhibitions, year after year, proclaim, with a solitary exception here and there, an astounding ignorance of the merest rudiments of floral-architecture among artists—and eminent artists, too.

Conglomerations, highly suggestive of models in Turnips stained red, are more often than not catalogued as Roses, when they might be Pæonies, double Ranunculi, or many other things—a fact which, at all events, demonstrates the utility of a catalogue. And the same objection holds good with nearly every other example of floral art. Stiffness, exaggeration, and the most artificial notions of arrangement, are the besetting sins visible on all sides. But perhaps the acme of unintentional caricature is most frequently found in the picture in which floral subjects play only a subordinate part. It may be that English art, so far as we are just now concerned, is in a transitory state, and so, like the Socialists, we must hope for the "good time coming."

We have been induced to commit these few remarks to paper, after having interested ourselves in the charmingly simple and effective character of the floral art of Japan, which, in nearly every possible particular, is distinct from our own. As a consequence, a systematic comparison between the two is scarcely feasible. When it is remembered how much we owe to Japan for a long series of startling novelties, and how characteristic some of these novelties are of the artistic tastes of the Mikado's country, it will be superfluous to apologise for introducing the subject into these pages.

The premier position, however, of the Japanese as floral artists is not only due to an innate perception of the beautiful and the picturesque, but also to the system of education employed in the country. The Japanese write with a brush, and not with a pencil. When they are writing,

they never rest the paper upon a desk or table, but hold it in the hand; and consequent unrestrained use of the arm is accompanied by a freeness of motion and precision of touch which are absolutely unknown in this country. The very fundamental principle of our method of drawing is wrong, for we are taught to delineate forms by the agency of an unpliable pencil. In Japanese drawing there is a characteristic crispness and touch, and a life-like vigour and angularity, which is conspicuously absent from all European art. Mr. Dresser, in his admirable work on Japan, republishes a sketch of Wistaria to indicate the qualities which we have just enumerated. The angularity, he points out, of its leaves, the free winding of its stems, and the firmness with which the buds jut out from the parent stem, give an impression which no other treatment could achieve. The preference of the Japanese for leguminous plants as objects for artistic treatment is rather remarkable; and this class shares with the Chrysanthemum, the Peach tree (which is emblematical of longevity), the Lotus, and the Pæony (which symbolises the produce of the earth) chief honours with the artists of China's sister-empire. In the Buddhist school of artists the value of flowers, either as primary or secondary objects, is everywhere apparent. In nearly every picture in which the Japanese idea of heaven or heavenly bodies is pourtrayed, the leaves or the flowers, or both, of the Lotus are represented. In many pictures of a more mundane type, however, Peaches and branches of Bamboos are common. But in each of the several schools the importance and the effect of flowers are not overlooked.

The Sesshiu school, which is rich in landscapes and flowers, if one of the smallest, is also one of the most select. The founder, from whom the school takes its name, was born in 1421, and is regarded as one of the most eminent of landscape painters, but he also excelled in painting flowers and birds. He appears to have been one of the earliest who painted designs for the arrangement of flowers in vases. At the present day, in fact, in Japan the artistic diplay of flowers holds rank with music and painting, and it has also its special professors of literature. There is a charming painting in the British Museum, of To-sen, after Sesshiu, dated the eighth year of Horeki (1758), from which it will be seen, in the system of arrangement, that branches of trees, natural or trained into capricious shapes, flowerless or with flower in bud or blossom, held an all-important place in the grouping, and that the receptacles made to hold them offered a remarkable variety of form.* The whole art, however, with its numerous appliances, is of Chinese origin.

Until well into the present century it did not seem to occur to English, or, indeed, to European artists, to draw upon the inexhaustible stores of the vegetable kingdom, which is so rich in variety, form, and colouring. From what we have said it will be seen that the Japanese, and particularly the Chinese, are quite four centuries ahead of us so far as excellence is concerned, and perhaps many more centuries ahead in regard to artistic merit and fidelity to Nature.

In putting forward a plea, however, for a radical improvement in the principles of floral art in this country, and in indicating the excellence of Japanese efforts, it should be understood that there are good and bad pictures from Japan as from elsewhere. The innumerable fans and various articles of commerce which meet our view on every side, bear the same relation to the higher class of Japanese Art as do the vapid scribblings of an amateur author to the best work of the experienced and travelled *littérateur*. The opportunities of studying the great masters of Japan and China are within the reach of everyone who cares to examine the rich collection in the British Museum. *W. R.*

* See Anderson's *Catalogue of Japanese Paintings*, p. 272.

New or Noteworthy Plants.

CYPRIPEDIUM CASSIOPE×, *n. hyb.*

Some time ago I received a hybrid Cypripedium, believed to have originated from C. Hookeræ and C. venustum, and which I described as C. Atys×. Briefly it had the leaves almost of C. Hookeræ, but the flowers were much more like those of G. venustum; and, as the majority of hybrids approximate to the characters of the seed-parent in their vegetative organs, I have little doubt that C. Hookeræ was the seed-parent. Messrs. Seeger & Tropp, of Lordship Lane, Dulwich, now send me the reversed cross; C. venustum being the seed-parent. It is one that has just flowered, as they remark, "out of our batch of seedlings, the plants being C. venustum × Hookeræ." Although clearly derived from the same parents as C. Atys×, the characters of the two parents are very differently combined in our novelty. It has the leaves almost of venustum, proportionately a little broader perhaps, and the characteristic markings below less distinct, but those on the upper surface are as prominent. The peduncle, too, is more elongated, and a little more hairy, than in venustum; also the ovary is a little longer. The upper sepal has the markings of the same species, but is relatively broader; the petals narrower, more conspicuously nerved, with from four to six spots only on each, and the light warm brown of the apical portion replaced by a purple similar to that of Hookeræ; cilia as in venustum. The lip is much larger than in venustum, the characteristic nervation almost obliterated, and the whole more suffused with purple; the margins of the side-lobes have also acquired a number of light purple spots, not seen in venustum. Staminode a little larger, a shade less deeply notched, and the markings a little more conspicuous. All these characters have been noted from a comparison with fresh flowers of the seed-parent. It is most praiseworthy that the records of parentage should have been carefully preserved, for it enables us to see the curious way in which the pollen and-parents respectively affect the offspring. *R. A. Rolfe.*

Masdevallia Courtauldiana×, *n. hyb., Angl.*

This was kindly sent to me by Mr. F. Sander, and is another success in hybridisation effected by Mr. Norman Cookson. It is dedicated to Mr. Sidney Courtauld, of Braintree, an enthusiastic lover of Masdevallias even of the most modest ones. It is a cross between M. rosea and M. Shuttleworthii. The secondary axis is more than half an inch in length, and bears a well stalked, cuneate, oblong, blunt, acute, very strong leaf, which is 3½ inches in length, including the stalk, which is nearly 1 inch in length. The breadth is nearly 1 inch, the peduncle is longer, and bears a fine flower of delicate colours, whose shape may be compared with that of Masdevallia Reichenbachiana, though the free triangular parts are larger. It has a long wide tube, broad triangular parts, which are nearly equal to the tails. The upper part of the tube, as well as the triangular part of the upper sepal and its tail, are light brownish-copper-red, the three principal nerves being keeled and brown outside. The opposite part of the tube and the equally-tailed triangles are of a very fine light rose colour. The petals, lip and column are very small and white, the lip and column has a darker tint. Petals ligulate, blunt, with an apiculus at the tip, and with a descending square foot inside. Lip pandurate, recurved at the apex with a blunt apiculus and a channel in the middle, white, with indian-purple spots and an indian-purple apex. Column white, clavate, with a denticulate border to the androclinium. There are some indian-purple spots on it. Upper part of the anthers indian-purple. On the inside of the base of the tube where the mentum is scarcely developed, there is an oblong white area with numerous small purple or blood-coloured spots. The flower is equal to that of a good Masdevallia rosea, yet the general shape with the broad free triangles is nearer those of Masdevallia Shuttleworthii.

It is an interesting fact that Masdevallia rosea, Dr. Lindley's pet, now claims fresh acknowledgments. It was Mr. C. F. Lehmann's merit to bring it over alive, even from a shipwreck. There was then hardly any material evidence, as a good friend declared Masdevallia rosea to be quite like M. Harryana. *Pereant sequentes.* This is the finest system for quenching the enthusiasm of the best collectors.

It was kindly sent by Mr. F. Sander, Now, as to M. Shuttleworthii, recent collections of Mr. W. Kalbreyer have satisfied me that it may be united to M. caudata as caudata Shuttleworthii, and the typical M. caudata may be called caudata Gudoti. It is exceedingly rare. I have had it from Mr. F. Sander and from Mr. Kalbreyer also. *H. G. Rchb. f.*

Eria marginata, *Rolfe, n. sp.*

This is a pretty little Eria, belonging to Lindley's section Cylindrobulbon, sent from the gardens of J. Bonham Carter, Esq., at Adhurst St. Mary, near Petersfield, with the information that it was received from Burmah, with Cœlogyne fuscescens. The little group to which it belongs is marked by the few-flowered racemes, and large, coloured, or petaloid bracts. E. Lindleyi, occasionally seen in gardens, is a typical example. The following are the characters of E. marginata:—Plant about 6 inches high. Pseudobulbs slender below, 4—5 lines diameter above, subterete. Leaves three to four, subterminal, lanceolate-oblong, subobtuse, 2½—to 3 inches long, about 10 lines broad. Inflorescence from lower leaf-axil, villose, with white hairs, two-flowered. Bracts broadly elliptical, subobtuse, 6 lines long by 4 lines broad, petaloid, bright ochreous-yellow, less hairy than the pedicels, which equal the bracts in length. Sepals subvillose, oblong, subobtuse, 7—8 lines long. Petals somewhat narrower, and, like the sepals, white, faintly flushed with pale pink. Lip three-lobed; side lobes narrow, with subacute apex; front lobe suborbicular, villose with short hairs, a short broad claw separating it from the side lobes; crests consisting of an oval hairy patch at the base of the front lobe, and behind this a broad, flat, and hairy plate, with rounded apex, and a more hairy central line. Colour pale yellow, with crimson-red margin, which is especially distinct and sharply defined on the side lobes, the hairy crests deep yellow, the basal or plate-like one also lightly margined with red. The name marginata is given in reference to these characters. *R. A. Rolfe.*

A NEW FRUIT.

Australia is not rich in indigenous fruit trees, in spite of its vast area and variety of climate. What it may be centuries hence, when gardeners and hybridisers have done their work of evolution, may be surmised rather than foretold. There was a time when Europe had not many fruits, in the modern sense of the term. When pomologists began their useful labours is an interesting speculation for the archæologist. Whatever be the result, it must be acknowledged that a beginning must have been made with the native fruits of the earth; and so, no doubt, our Australian kinsmen will turn to good account the Kunzea pomifera, of which, through the kindness of Baron Sir Ferdinand Mueller, we give an illustration (fig. 36).

"This little shrub," writes the Baron, "yields the Muntries of the aborigines, and is one of the few really valuable fruit plants indigenous at the south coast of Australia. Indeed, the plant would be

worthy of being naturalised on the shores of the Mediterranean Sea and elsewhere in mild coast regions. It prefers sandy calcareous soil. The fruits are of a peculiar acidulous aromatic taste, and very extensively collected by people settled on the coast for the purpose of jam making. As the plant has the charm of novelty to horticulturists perhaps it may be worthy of being illustrated in your famous *Gardeners' Chronicle*."

The genus Kunzea belongs to the great family of Myrtaceæ. One or two species are in cultivation here, and K. pomifera might readily be introduced. As will be seen from our cut, the fruit is not unlike that of Eugenia Ugni, and the flavour of the fruit is, as it seems, not dissimilar.



Fig. 36.—Kunzea pomifera: greenhouse shrub with edible purple fruit: nat. size. (see p. 200.)

VIOLET CULTURE.

(*Continued from p. 174.*)

Preparing the Frames.—I will now suppose the time for putting the plants into frames has come round. The first half of September is, perhaps, the best time, although I have generally put it off until the third week, frames and lights not being at liberty till then. It matters little what size the frames are; if they are large, it means more plants; if small, fewer plants—that is all the difference. In choosing a situation for the frames try by all means to get one as high and sunny as possible. I set my frames on a border facing the south; it has a good slope, and I give the frames as much slope as I can towards the sun without causing the lights to slide off. I sink the frames to half their depth in the ground, and then I throw out the soil from the inside to just below the bottom of the frames, giving the bottom nearly the same slope as the frames; I then fill them with leaves from the heap collected the previous year, along with any others that may have just fallen; these are firmly trodden, and the frames are just so far filled up as will allow for 8 or 9 inches of soil, being put into them, the top of the soil being about 5 or 6 inches from the glass. I aim at having the tops of the foliage of the plants just about 4 inches from the glass. The soil that was thrown out is put back on the leaves—an equal depth all over. That soil, be it remarked, is good rich mellow soil, for although I crop the border during summer, with certain kinds of vegetables, I manure it heavily, so that it is in good heart, and the very best material to plant in. I use double light frames, with a one-light odd one, in which I put the varieties of which I have only a few plants. But joiner-made frames are not absolutely necessary; 1½ inch boards will do quite as well—they may be even thicker; but the thicker the boards the more inside space is lost. As it is well to have the lights flush with the outside of the boards, it would be better they should project a little at the bottom, to run the wet clear off. One board, if deep enough all round, will do; if not, then two, one above the other; the front ones need not be so deep as the back and sides, and the slope can be easily made when fixing the boards, which should be done by driving in posts, so many outside and so many inside, jamming them hard against the boards to keep them steady; if properly driven, nailing will not be required. Bearing rafters as in ordinary frames will be required to slide the lights on; let them be dovetailed into the boards as in frames. Brick-built pits, if filled up like frames, will also suit very well. Violets may also be put into frames on the top of spent hotbeds, on which Melons and Cucumbers and other things have been grown. Turf-built pits will also do for the purpose, but very few amateurs will be able to command a sufficient quantity of that material, so that I will not do more than mention it. It will be seen from what I have stated that nothing in the shape of hotbeds is necessary, that is my experience, and I do not hesitate to say that it is even hurtful and should be avoided. In case I may be considered by some to have to a certain extent committed myself, because I use a considerable depth of leaves, and because it is well known to gardeners that leaves alone will make a mild hot bed, I will just say that the quantity used will hardly give off any appreciable heat, and they are not used with that intention, but simply because they make a drier and kindlier bottom than a great depth of cold soil.

Putting the Plants into the Frames.

In lifting the plants from their growing quarters, the spade is put down straight on four sides, of the plant, and the last time, the spade is prized down, and a square mass with the plant in the middle is raised; a little of the rough edges and bottom are then taken off with the hand, and the plant set on a hand-barrow, and so on, until the barrow is full. They are then carried to the frames, a hole is made at the top of the frame, either with a small spade or a planting-trowel. One plant after the other is put in, and the soil packed firmly about them, keeping the same slope as that of the soil. I generally make a mark along the top and down the sides of the frame, about 4 inches from the glass, and aim at keeping the tops of the foliage on a level with this mark. The distance from plant to plant, is according to size of plant; I generally place them so that I can get some packing between ball and ball; I find that leaves a nice space for the foliage of each plant. It is not good to crowd them one on another, as that may conduce to loss of foliage by damp. When the frames are filled and made tidy, I give a good watering with a rose-can, pouring it on gently, not allowing it to run down the surface of the soil. The sashes or lights are then put on, tilting them up at the top at the same time. I never keep them close, nor shade, except there is very strong bright sunshine and drying winds combined, and then only for a few hours for a day or two. The after-treatment consists in giving abundance of ventilation all day, and night as well, if the weather be genial and not frosty. I very rarely give any water after the first good watering until the middle of March, but this is a damp locality, and it is not required; but I have no doubt it will be found necessary to water in some places, and wherever it is necessary to do so, let it be done with the spout of the can—do not use a rose, and pour it on very gently between the plants, not on them. The plants will themselves tell if they want it by their appearance, as they will flag, and have an altogether distressed look. Runners, as already mentioned, will have to be frequently taken off, and that worst enemy—damping off—will have to be carefully watched for. Pick off the damped leaves as soon as seen, and dust a little powdered charcoal on the affected plants.

The Lancaster, Preston, and Kendal Canal, is within 100 yards of my frames, high up above them, and the River Kent down below, on the other side, say, distant 500 or 600 yards, so that any one might think I should be terribly troubled with damp, but it is not the case. I have sometimes thought that the use of leaves only, and entirely dispensing with dung in any form, has helped me considerably. I would never use dung in any case; leaves have a far more kindly action on the plants. I consider heating material very hurtful to Violets. All they want is a little protection from frost; in fact, they will not stand artificial heat in any form—that I have found

out by growing them in pots in the hothouses. In severe frosty weather cover the lights with mats, old carpets, or old sacks sewn together. I never use mats more than two thick, and that only in very frosty weather—thatched hurdles, or even litter only may be used, but litter is always blowing about, and looks untidy. I have sometimes banked up the soil round the outsides of the frames, sloping it down and clapping it firmly with the spade. This is a good thing to do to keep out frost, and the only objection I have to the practice is, that when ladies pick the flowers they have too far to reach, and the soil, should it be wet, spoils their dresses. I prefer to allow the mats to hang over far enough to be fastened down with something heavy in windy weather.

Flowering Violets in Pots.

My practice has been to lift the number of plants required from among the others grown for frames. I have never used a less size than 8-inch pots, the plants being so large that to have tried to get them into a smaller size would have spoiled them; I have even had to take 9-inch pots for some of the plants. The pots are drained in the usual way, with a little rough stuff on the top of the drainage to keep it clear; the corners of the ball and some of the bottom are gently rubbed off with the hand; it is then slipped into the pot, and the spaces filled up with the same soil, and made firm with the fingers. I have reserved a double light frame for them made up in the same way as the others, plunging the pots just over the rim, giving them a good watering at the same time. They can be allowed to come well into flower in that position, and taken thence into the rooms or wherever they are wanted; and let me say that a single pot of Violets with, say, a dozen or a dozen and a half of flowers on it, will scent a very large room. They will require the same attention while in the frames as the others, and that is the only way in which I have succeeded to my own satisfaction in growing Violets in pots. I have tried to gently force them into flower—fine big healthy plants, too—and the result was plenty of leaves for a while, but very few flowers, and very poor ones they were. If greenfly comes on them, and if smoked, the plants soon begin to have a sickly appearance. I have also tried them in the coolest house I have, viz., a Rose-house, and I must say they were much better there; and from two beautiful rows nearly the whole length of the house I could pick a bunch pretty frequently all the winter through. There were not less than fifty 8 and 9-inch pots altogether, but although the plants were faultless and continued to be healthy, I could see that, even cool as the house was kept, it was more than they liked, the simple exclusion of frost seems too much for them. Therefore I give the preference to plunging them in frames, and allowing them to come into flower there. The conclusion I have arrived at with regard to flowering Violets in glasshouses is this, that the warmth sets them into growth instead of flower, even in houses where frost is only just excluded. It is simply anticipating the natural season of growth, for at the end of March or beginning of April growth begins in the frames and the flowering ceases. The plants by that time have fulfilled their function and are preparing for the future.

The Single Hardy Kinds.

I find the best way to grow the single varieties is to adopt the same plan as for those grown in frames, lifting them, with good balls, at the same time, or later, if the place where they are to flower is not empty, planting them about a foot apart. I have had the plants so large that I had to allow them nearly 18 inches; before they were lifted they met in the rows, and fearing damaging, I gave them more room. They do well at the foot of hedges much better than at the bottom of walls, as the wind gets at them from all sides, and keeps them drier, and so makes them so much the more able to withstand the frost. They would do perfectly well where they were grown, if the ground could be spared. Wherever they are put let it be a sunny situation, whether at the bottom of a wall or hedge; and from plants grown in that way the grower may look for a good supply of fine long-stalked flowers. Another way of managing is simply to divide the plants after flowering, always, of course, discarding the old centres; manure and dig the border, and plant them in again about 6 or 8 inches from plant to plant each way. They sometimes do very well that way. They can be grown in beds in the open very well, but as I am writing chiefly for amateurs who will hardly go in for that wholesale method I will not enlarge upon it. From the foregoing it will be inferred that I do not approve of Violets standing over year after year without being at least lifted, divided, and planted afresh, although I have tried them that way, and in many places they stand very well, and also flower well, but the flowers are small and short-stemmed, and cannot compare with those grown as I have described in the two former methods. I strongly recommend all who wish to have fine specimens to try the first method. There is no difference in the labour and trouble between the first and second methods if the plants can be allowed to flower where they have been grown. If that cannot be then the difference will be the lifting and planting again; surely not a heavy task to the lover of a first-rate bunch of Violets.

In writing these cultural directions I have purposely avoided using technical terms common among practical gardeners, so that my meaning might be as clear as possible to amateurs generally. Although I have written these cultural directions chiefly for amateurs, I hope they may be of use to professional gardeners who have not cultivated the Violet in the manner herein described; and to them the following remarks will apply more than to amateurs in general. In localities subject to late spring frosts, and where the summer bedding out of the flower garden cannot be safely begun before June 1, then plant out Violets at the time stated in a previous page. If, on the other hand, bedding out can be begun by the middle of May, or earlier, then plant them before beginning bedding out, but I think there is nothing to be gained by the earlier planting, except the forwarding of the work of the garden. In most places all hands are employed at the bedding out, and for some time little else is done, and after the bedding is finished, arrears in other departments have to be worked up, so that it is well to have the Violets planted out before the summer bedding begins.

With regard to the heading of "Flowering Violets in Pots," I would remark that the plants are not grown in pots, but simply put into them to flower. I have never grown them all through in pots, and therefore cannot say how they would do, nor do I care to do so, knowing how well they do the other way.

And now my task, which has been a pleasant one, is drawing to a close, for who can write or speak of Violets without thinking of their sweet perfume? It seems a great deal to write on such a simple subject, but I want to be as explicit as possible. *J. Heath, Sedgewick House, Kendal.*

THE TIMBER SUPPLY TO REUNION.

The following interesting note on the timber supply to Reunion is quoted from a recently printed Foreign Office Report:—"Western Australia," it is said, "once stood a good chance of supplying this colony with timber, but the apathy shown by our traders on the Australian shores has led the inhabitants of this colony to apply elsewhere, and it is evident that Madagascar will now be looked to. As a matter of fact, it may be mentioned, that some planters in Reunion last year, asked for a quantity of timber from Western Australia, giving instructions as to quality, dimensions, &c. Greatly to their disappointment, when the ship arrived laden with their much needed cargo, they found that not one single beam was of the dimensions they had asked for. They naturally refused to accept the timber, and the ship, not finding any purchaser in Reunion, was obliged to take part of its cargo to Mauritius, where it was eventually sold at great loss to its owners. Such an unfortunate incident resulting from carelessness, caused great inconvenience and was not calculated to act as an encouragement to tree planters to make other demands for Western Australian timber. and, indeed, our colonists have but themselves to blame in the matter. Hitherto, the exportation of timber from Madagascar had been prohibited by the Hova Government, but since the cessation of Franco-Malagasy hostilities, large forest and land concessions having been made to foreigners, that prohibition no longer stands good, and it is to be expected that before many years are over Reunion and Mauritius too, will look solely to the vast forests of Madagascar for their timber supply. The proximity of the islands would naturally offer special advantages to such a trade."

ROSES.

THE MOSS ROSE.

It is delightful to see the claims of the Moss Rose to a more prominent position in the garden, put forward, as they deserve to be, by "Rosa," on p. 84. It may need courage, as "Rosa" says, to make the statement that of all Moss Roses the original variety is the best, but assuredly, on consideration, no one will venture to contest it. Larger ones have been raised, but they lack the grace of the original; darker ones, but their moss is comparatively as nothing; more vigorous, rampant growers, but how dull their colours after the freshness of the old favourite; pure white flowers, but generally their moss "is sicklied o'er" with a pale tinge of yellow, from which even their foliage is not wholly exempt. Perpetual blooming varieties, too, have been raised and put forth with high encomiums, but they are like certain fussy dames that must always be present everywhere, and on every occasion, lest it should be forgotten that they are handsome; lacking, as they do, that perfect beauty which is remembered during a long absence, and which can afford to retire for a period from the public gaze without any risk of failure, to enchain all eyes upon returning.

Of all the myriad Moss Roses that have been raised, summer and autumn flowering sorts, varied in colour, form, and character, none has surpassed the type; the flower that was originally "robed in Nature's simplest weed," is still the most graceful in form, the most fragrant, the best mossed, the most pleasing in colour, the most constant, the easiest to grow, makes the most mess of your coat if you attempt to wear it in your button-hole,—is, in a word, the most beautiful and the most lovable of all the Moss Roses in the world.

Yes: there is only one Moss,—and one other. And the other?—Blanche Moreau. O, of course! "*Cherchez la femme!*" Well, anyhow "Rosa" cannot steel his heart against the fair Blanche; if he admits White Bath as a "noble companion" for the Moss Rose, he will not deny Blanche Moreau to be a worthy consort. Granted that the original is the Moss Rose (why is it, by the way, that our English epithets should be so singularly unfortunate? Why must the most exquisite of Rosebuds be described as "old" or "common"? The sweetest of all Roses still goes by the offensive name of "Old Cabbage," in spite of the long-standing protest of the President of the National Rose Society. "Common China" is not more descriptive of the charming Rose, whose form and delicate tints could hardly be reproduced in the finest porcelain, and we have many such infelicitous appellations. Might not the original Moss, that custom so clumsily styles "common" or "old," be sufficiently and gracefully described as "the Moss Rose," since all others have their varietal names to distinguish them?), yet Blanche Moreau may well be allowed to be the other one. As a plant it is handsomer than the type, and as vigorous with the exception, perhaps, of Lanei, as any of the

varieties; it does not early shed its foliage, its buds are of graceful form, and, though the petals are pure white, they are covered, not like so many other white kinds, with yellowish moss, but with moss most delicate, and having warm brownish tints upon the green.

Were all the other varieties to be lost to-morrow, the Rose world would be comparatively little worse off, provided there were left an abundance of the Moss Rose and of Blanche Moreau. Nothing could be more charming than a great bed or mass of these two beautiful Roses, especially if grown on a plan that succeeds better with varieties of this class than is the case with almost any other kind of Roses, namely, when the shoots are left moderately long in pruning and are pegged down over the entire surface of the bed. The plants may be treated exactly like Raspberry canes, the old wood that has flowered being cut away, and the new shoots of the previous season being pegged down. It is of great advantage in this mode of culture to have the plants on their own roots, as the bed will then in course of time become filled with suckers, and so avoid any possibility of gaps. Also it must not be forgotten that Moss Roses are fond of good living, and at the time when the old wood is cut away, all pegs and stakes should also be temporarily removed, and a substantial top-dressing of manure lightly forked in over the surface of the bed, before the young wood is bent down into its summer position.

If, for the sake of the luck in odd numbers, a third variety were admitted, such a bed might well be bordered with Little Gem (W. Paul, 1880), the most beautiful of the small-flowered Moss Roses. Although a perfect miniature, Little Gem has an excellent constitution with a compact bushy habit of growth; the buds, which are well mossed, are produced in the utmost profusion, and their rich crimson colour renders them exceedingly distinct and attractive.

Such a Moss Rose bed would be infinitely more effective in the garden than a mixed collection of many varieties, and would afford also a far more serviceable supply of buds for cutting. There can be little doubt that at one time raisers lost sight of the essential qualities of a Moss Rose; moss was sacrificed to mere size of bloom; constitution was, to a great extent, overlooked; many varieties were sent out that will not grow; some that should never be allowed the opportunity to do so. But so long as there is an abundance of the Moss Rose and Blanche Moreau, with Little Gem to represent the miniatures, the raisers who will ignore the fact that the chief, if not the only, beauty of a Moss Rose is in the bud (as in the expanded flower the distinguishing feature is concealed), may do their worst, and Moss Rosebuds will still continue to be one of the crowning glories of the Rose garden. *Theta.*

Orchid Notes and Gleanings.

DENDROBIUM WARDIANUM ALBUM, &c.

A fine plant, of this pure white variety, with four flowering growths, is now in bloom in the collection of W. Houghton, Esq., Hoe Street, Walthamstow, where Orchids generally are very well cultivated. A fine plant of Cattleya amethystoglosa has eighteen of its large flowers on one spike. They are wax-like blush-white spotted with crimson. A number of interesting hybrid Cypripediums are just commencing to flower; the first to do so is one which is a cross between C. Lawrenceana and a variety of C. barbatum.

Lycaste Skinneri at Major Mason's.

So great a favourite is this species at The Firs, Warwick, that 1100 plants of it are found in the collection of good showy Orchids. Some of the specimens of Lycaste carry flowers far into the summer, but the chief display is made during the period of November to February. Out of the numbers which were bought as newly imported plants, Major Mason has already flowered three fine pure whites, and a rich selection has been made of the coloured varieties, some of which are very bright and showy. Some novel varieties have been flowered, which soon after the blooms open turn back their petals naturally, resembling those we sometimes see that have been turned back by the hand of the gardener in order to show the rich colouring of the inside of the petals. Some fine Cattleyas are now in bloom; and going out of bloom was a novel and beautiful Lælia anceps, with feathered petals of a rich crimson, the two lower sepals partaking of the colour and character of the lip. A specimen of Oncidium splendidum here also bears thirty very large yellow flowers. *J. O'Brien.*

Sophronites Violacea.

It is strange that the popularity of Sophronites grandiflora and its varieties is not reflected to a greater degree than it is on this equally elegant and beautiful little species. It is figured in the *Botanical Magazine*, t. 6880, and the plant from which the plate was prepared is now flowering at Kew. Although the flowers are not so large as those of S. grandiflora their distinct colour renders the plant well deserving of the little space and attention it requires. The flowers are 1½ inch in diameter, and are produced singly or in pairs from the top of the small, ovoid pseudobulbs of the preceding year. They are almost regular, the lip only being slightly broader than the oblong-lanceolate sepals and petals. If the plant under notice is the typical form, the specific name is misleading, as the flowers are not violet; neither, strictly speaking, are they rose-coloured, as stated in the *Botanical Magazine*, but, more correctly, of a bright purplish-rose. The leaves occur singly on each pseudobulb; they are narrow, coriaceous, and about 4 inches long. The plant, which is a native of Brazil, thrives in the cool-house; and a block of Teak, to which a little sphagnum is attached, seems to adequately meet its requirements at the roots. *W. B.*

Miltonia (Odontoglossum) Bleuana×.

At the meeting of L'Orchidéenne at Brussels on February 10, a *Diplôme d'Honneur* was unanimously awarded to M. A. Bleu, of Paris, for this result of a cross between Miltonia vexillaria and M. Roezli. The sepals and petals are broader than those of M. vexillaria, and the labellum has excellent brown markings. The flowers are white, and the violet marking on the petals of M. Roezlii are much increased and intensified in the hybrid. Otherwise the plant is intermediate between the two species. At the same meeting First-class Certificates were awarded to M. Peeters for Cattleya Trianæ var. Baillonville, to Madame O. Block for Lycaste Skinneri Blockei, and to M. Linden for a fine Phalænopsis Schilleriana; and Second-class Certificates to M. Linden, M. Peeters, and M. Warocqué, for other handsome Orchids. In spite of the frost and snow, fifty-two good exhibits were sent, and the meeting was well attended.

Lælia Gouldiana.

A new Orchid, so lovely in flower, so graceful in growth, and so distinct from its congeners, does not appear frequently even in these days, when Orchid novelties are of almost every-day occurrence. A glorious new Lælia, blooming in midwinter, has been added to the list, and there is ample room for it, since there are at the time it flowers comparatively few in bloom. . . . The fusiform two-based bulbs bear a resemblance to those of L. albida, whilst the flowers resemble those of both L. autumnalis and L. anceps. The slender flower-stem is tinged with a purplish hue, and grows from 1 to 2 feet high, bearing as many as six flowers. The very broad but pointed petals are quite a distinctive character of the flower, and, together with the pointed sepals, are of a splendid deep rose-pink, intensified at the tips. . . . The large trilobed lip is deeper and richer in colour than the petals, to which the waxy whiteness of the side lobes serves as a contrast. . . . Under culture we find it an exceptionally free grower. . . . We grow it in a Cattleya-house with other Lælias of a similar nature. The active growing season commences in May, and from that date until the new bulbs have fully developed the plants require close attention as regards watering and maintaining the atmosphere moist. Until the flower-spikes have quite formed the plants must receive abundance of water, but during the flowering period and afterward until April the plants must be kept dry when the resting season ends. *Reichenbachia.*

Dendrobium nobile Sanderianum.

This new variety combines large size of flower and splendour of colour, in which it is superior even to the variety nobilius. In Sanderianum the flowers are of a glowing purple, and the network of veins is very strongly marked. The broad labellum is adorned with a very dark blotch, bordered by a rich rose-purple, merging gradually into a pure white; while the bases of the petals also are white, not purple, as in nobilius and other varieties of nobile. We recommend pot or basket culture, and in the case of small specimens they should be suspended under the roof. The season of active growth is from March to September, and it then requires a moist and warm atmosphere, ranging from 70°—85°. The plants must be watered copiously, and it is better to soak them thoroughly at intervals rather than to give frequent driblets, as it induces the plant to root more freely. When the new growths are developed, the plants must be kept cooler and drier; a light place in an airy vinery is then the best place for them if the temperature does not fall below 55°. Water should be withheld gradually, and none must be given during the winter until the flower-buds begin to swell; then the plants must be taken to a warm, moist house, and the routine described above repeated. *Reichenbachia.*

Dendrobium tetragonum, *F. Muell.*

A specimen imported from Australia, and sent to me by Mr. B. S. Williams for determination, proves to be the above curious species, of which a figure may be found at t. 5956 of the *Botanical Magazine*. That, however, represents the plant with solitary flowers, while the piece now sent has a three-flowered raceme. Some of the Australian species are notoriously difficult to grow, which may, perhaps, account for a weak plant being reduced to the solitary-flowered condition, in which state I have seen the plant on more than one occasion. The pseudobulbs are very remarkable, being sharply four-angled, with somewhat concave sides—hence the name. A pair of dark green elliptical leaves is borne at the apex of the pseudobulb, the inflorescence being also terminal. The sepals and petals are light yellow, very narrow, the former about 1½ inches long, the latter a little shorter. The lip is three-lobed, the side-lobes rounded, the front one revolute, and broadly triangular-cordate. Colour very pale yellow, with numerous light reddish bars behind, and a few spots in front. Down the centre runs a light yellow thickened line, which, in its basal portion, consists of three minute linear keels, placed very closely together. *R. A. R.*

Angræcums.

During the past few weeks various species of Angræcums have been at their best. Occupying the first position amongst them as regards beauty is A. sesquipedale—an indispensable plant in a warm house. Of a different type, but also very desirable, is A. eburneum, two fine specimens of which are flowering now at Kew. The bold, stiff habit of the plant, with its long spikes of ivory-white flowers closely set in two opposite rows, make this plant a striking object. Several plants of the variety virens are also flowering. This is not so handsome as the type, its flowers are not so large, and it has all the parts tinged with green. Both species are of easy growth; they require to be firmly placed in large, well-drained pots in a mixture of clean sphagnum and charcoal, and well supplied with water throughout the year.

That no genus presents a greater diversity than Angræcum in the size of its flowers is well exemplified by another species, also in flower—the old but rarely seen A. pertusum, a native of Sierra Leone. This Angræcum has a spike 6 or 7 inches long, densely packed with small whitish flowers, which are not more than a quarter of an inch in diameter; the

spur is about the same length, and is curiously inflated at the apex.

Phalænopsis Growing at Prince's Park, Liverpool, and at Kew.

Recently an opportunity was afforded me to inspect the collection of Orchids of D. de Ybarrondo, Esq., an enthusiastic collector. In every house there were subjects of interest, but the chief feature of the place was the collection of Phalænopsis.

Much has been written of late on the cultivation and management of these plants, but with all due respect to those who ascribe their success to the use of salt in the houses, I do not think that it is everywhere due to its use, or is brought about by any particular contrivance in or upon which the plants are grown. To be brief, I maintain that it entirely depends upon the position (not aspect) in which the plants are placed. Admitting the observance of suitable atmospheric conditions, if the positions be rightly hit upon, it is immaterial what they are grown in or upon, so long as ample space be provided for root development. Otherwise, how is it that many of our leading growers fail with them? It would appear to be useless to lay down any precise method for the guidance of others with regard to methods of cultivation, seeing that when these are carefully carried out in every detail failures have been the rule rather than the exception. I could relate several evidences which would prove the importance to these plants of position, and one of which bears directly upon my note. Some time ago an attempt was made by Mr. Smith, the gardener at Prince's Park, to grow the Phalænopsis in another house, and I need hardly add that no pains were spared to bring about satisfactory results. However, despite all the care and attention bestowed on them, they soon began to show signs of decline necessitating their removal to the house they now occupy.

A similar instance occurred at the Royal Gardens, Kew, several years ago, and any fair-minded person acquainted with that establishment will bear me out whenI state that— at least, so far as the houses to which the public are allowed access, are concerned— Orchids are there grown under great difficulties, especially the Phalænopsis. They had a fair trial in these houses and in the old Orchid-pits adjoining, also in the new ones built on the same site, but also without much success; and, lastly, were placed in one of the propagating-pits, where I suppose they will remain, inasmuch as they soon showed signs of returning vigour, and are at the present time in a condition which will compare favourably with many others of repute.

However, to the subject of my notes. Many fine examples of P. amabilis, Stuartiana, Schilleriana, Sanderiana, violacea, &c., were observed, but unfortunately the recent fogs have spoiled the flower-buds, yet the perfect leaf development compensates somewhat for the loss of much of the bloom.

In the warm-house several well-grown examples of Vanda Sanderiana were observed, and fine plants of Angræcum sesquipedale in flower. The collection is rich in Lælias—many dark forms of L. anceps were in flower, including the var. alba, and a plant bearing a four-flowered spike of the superb var. L. Sanderiana. Miltonia vexillaria and M. Roezlii were very fine; some of the latter species were flowering freely.

In the cool-house a great number of Odontoglossum crispum were in spike, and others too numerous to be mentioned. Dendrobiums included some well-grown specimens, especially of D. Dalhousianum, which had made growths of upwards of 6 feet in length; an almost white sport of D. devonianum was here to be seen. *F. Ashton.*

The Weather.—Severe frosts and much snow were the rule over great part of this island on Sunday last and three following days. In Monmouth on Tuesday morning the thermometer registered 20° of frost, in Surrey the temperature fell equally low on that day, and at Dungeness the cold registered was 21°. At the time we write the snow is disappearing rapidly.

VIEWS IN THE GARDENS AT THORPE PERROW.

[See Supplementary Sheet.]

The supplementary illustration to the present number represents portions of the spring gardens at Thorpe Perrow, Bedall, the residence of Sir F. Milbank, Bart. The beds are well filled with a variety of spring-flowering plants, amongst them being the fancy Polyanthus, which is represented to the number of about 6000 plants, in great variety of colours—yellow, white, mauve, and crimson. Pansies, Auriculas, Myosotis dissitiflora, &c., Valeriana Phu var. aurea, for a yellow-foliage plant, has been used rather plentifully, but of late the yellow Polyanthus has been more employed it being very much its superior. Bulbs are also used liberally, but no beds are wholly filled with them. The four beds round the old sundial are planted with the silver Arabis, they are also plentifully filled with Tulips—two with red, and two with yellow. The border is thickly planted with Scilla sibirica, a mixture which has a charming effect, the unsightly stem of the Tulips being hidden. Hyacinths are used in the same way to match the colours among the Polyanthuses.

Scilla sibirica is grown here in immense quantities, forming thick masses round beds, and borders of shrubberies. These bulbs have been propagated in such quantities by sowing the seed yearly—sometimes as much as a quart of seed has been sown at one time, the method of doing it being to draw a drill 3 inches deep, and in which the seed is sown. It is afterwards left to Nature, and in the third year a good lot of flower is obtained, and in after years the whole lot of plants produces flowers, and becomes a perfect mass of blue flowers. Narcissus, too, are grown in large quantities all over the garden.

For the above particulars we are indebted to the kindness of Mr. W. Culverwell, the well-known gardener at Thorpe Perrow. The sundial spoken of above dates back to the middle of the last century, its history—so far as it is known—being courteously supplied to us by Sir Frederick A. Millbank, Bart., in the following letter:—

"The sundial was originally placed in the garden of a farm called Saddlebow, situated in Lunedale, North Riding of Yorkshire, and was purchased from the proprietor by Sir Frederick Millbank. The following inscriptions are on the square block of stone:—

"On the top—'Made for Saddlebow, whose Lat. is 5445.'

"On east side—'*Ut vita sic umbra.*'

"On west side—'*Ut hora sic vita.*'

"On south side—'*Dum spectas fugio* 1747.'

"On north side,

'This fourfold index of swift time
On which ye shadow veereth round
Should men excite to themes sublime
Since none but shadow here are found.'

"The index showing the time is on the top, east, west, and south sides."

To give our readers a fuller idea of these fine gardens, we reproduce a view (fig. 37), of the flower garden as it appeared a few years since, and which also shows the beautiful background to the garden formed by the park and its vistas.

Florists' Flowers.

THE CARNATION AND PICOTEE.

The plants of named varieties, potted in September and October, and placed in frames, have passed through the winter very well so far. The season 1888 being a late one, the old plants were not removed from the house where they had flowered until the layers had been taken off. Those plants which were layered in the borders did not root early, and many not at all. The potting soil should be prepared in January, or at least six weeks before using it, taking care to search it carefully for wireworm. An error is made by some cultivators in not ventilating the frame sufficiently, which in itself is a grave error, and is weakening to the plants, besides encouraging greenfly. The lights ought to be drawn off the frames whenever the weather is dry, and indeed at all times during the day, except when frosty winds are blowing, when it is better to merely tilt them on the side opposite to the direction of the wind. The soil should be moderately dry when used for potting, and it should consist of loam four parts, decayed stable manure one part, leaf mould one part, with a little sand, and pounded charcoal. When the plants are repotted, place them in the frames until mild weather occurs in April.

Carnations out-of-doors are weak this year, the seedlings very much so, especially those planted out previous to the heavy rains of July last, the rains in the last week having been very disastrous to them. The Carnations and Picotees which were under glass have been mainly relied on to give us a supply of plants. The Carnations should now be propagated by cuttings, and the plants so raised grown on steadily without check, when by the end of the season they will have grown into strong stuff in 7 and 8-inch pots. *J. Douglas.*

Colonial and Foreign.

NEW SOUTH WALES.

Bush Clearing—Orange Culture.—The orange orchard is looking well. We had a heavy fall of rain a fortnight ago, which gave the ground a good soaking, and went to the bottom of the light loam. The trees when planted were budded. When the frosts were over I went round with a pair of pruning scissors to cut the top off about 2 inches above the bud.

The sprouts are now about a foot high, and I have tied them to the stakes. When 2 feet high I shall nip off the tops which will case them to shoot out in two or three branches. The Stocks throw out numerous suckers which have to be nipped off from time to time.

Very few weeds have shown up at present. The trees are attacked by numerous parasites which have to be removed. Some of these are aphis, two or three sorts of spiders and caterpillars; the borer, which eats into the stem, and has to be prodded out with a wire; and lastly, a curious parasite called thrip (scale). It is very like in appearance to those small conical shell-fish one sees glued on to the rocks of any seashore, but is only about 1-16th inch in diameter.

The 5 acres on which the house stands are very nearly cleared, and the fencers have commenced work on the west side. The timber was very heavy, and I have obtained enough posts out of it to fence round the whole of my land, irrespective of the posts and rails for the 5 acres itself. I have let a contract for fencing the rest of the property, which I thought it was expedient should be done as soon as possible on account of having to divert two tracks, and to prevent anyone settling on the land, *vulgo*, "jumping," in my absence. . . . There is a lot to learn in bush work. Take two bushmen of equal strength and experience, the one shrewd and the other a dullard, the former will clear a piece of ground in half the time that the latter will take, and he will work out twice as much fencing stuff. The contract for clearing, ploughing, or harrowing the ground was taken at £13 per acre, the clearing being sublet. The first thing to do is to rake up the leaves, of which there was a deep deposit. These form a valuable manure. I have had them tipped between two of the rows in the orchard for fear of fire. The saplings were then grubbed out, and those running to 20 feet removed off the ground and stacked, to be used eventually for a trellis for Passion Vines. The others either cut into lengths for firewood to be stacked near the house or burnt off.

The smaller trees were then grubbed out, and those of suitable timber and straight in the grain were split into fencing rails. Trees not suitable for

splitting were cut up for burning. The large trees only were now standing. The soil was removed from their roots, or the butt, for about 2 feet high and the roots near the butt were chipped all over with an axe. The trees were allowed to remain for the sap in them to fall, and splitting the rails was gone on with in the interval. Logs were then drawn and piled round the trees and fired, and they were burnt down generally in about forty-eight hours. The largest tree was about 3 feet through. When down they were sawn into lengths and split with wedges into fencing posts. The tops of the trees are cut up, piled into large heaps and fired. Last night and to-night we have had huge bonfires blazing all around, I hastened my departure from Sydney on purpose to be present at this burning off, as I feared for the safety of my cabin. For two days we have had the front of the house draped with wet blankets, but the danger is now past. Terrible bush fires have raged in this district and all over the country this summer. Most of my neighbours have lost fencing or outbuildings, but I have so far escaped very luckily. My assistant and I had to turn out last Thursday to assist in putting one out, the thermometer stood at 105° in the shade, but the heat of the sun was forgotten in the heat of the fire. We managed to put it out or rather stop it after an hour's hard work, and returned as nearly baked as live men can be. *X.*



Fig. 37.—the flower-garden at thorpe-perrow. (see p. 204.)

St. Lucia.

A botanical station was, says *Nature*, established early last year at St. Lucia on the most unpretentious footing. A committee appointed to supervise the work of the curator, Mr. John Gray, reports that, "considering the difficulties incidental to the starting of such an undertaking, the peculiar nature of the ground, and the limited funds available for the purpose, the work thus accomplished is satisfactory." The committee says that the most encouraging feature of Mr. Gray's report is the general appreciation shown by the agriculturists of the district in the success of the station, as shown by their increasing disposition to seek advice from the curator, and to try and obtain seeds from him. Already the demand for Cocoa, Coffee, and Nutmeg plants is so great that additional land will have to be acquired for the extension of the garden.

Trinidad.

The *Bulletin* (No. 8) of the Royal Botanic Gardens is devoted to an account of the method of culture of Tobacco, by Mr. J. C. Espin, who was for many years a planter and manufacturer in Cuba and Jamaica. The pamphlet is eminently practical, and should be studied by all who propose to undertake the cultivation of this plant in our warmer colonies.

Agri-Horticultural Society of Madras.

The *Proceedings* of the meeting held on December 15, 1888, contain an interesting account of the history and progress of the Society, which owed its origin principally to the enterprise and energy of the late Dr. Wight. The Society has done good work in introducing and distributing useful and ornamental plants, improved varieties of Cotton, Tea, Sugar-cane, and other plants. The Society

also raised vast numbers of Casuarina trees for planting on the sand-dunes on the coast north and south of Madras, "now the source of almost the whole fuel supply of the town—the power which moves the railway-engine and the spinning-mill, cooks the rich man's banquet and the poor man's rice." Mr. Gleeson is the present superintendent of the gardens, and under his direction various improvements are to be carried out. The cyclone which occurred on October 31 was of a most destructive character, causing great damage to the trees and garden structures.

THE JAPAN LACQUER TREE (RHUS VERNICIFERA).

A good deal of attention has been given from time to time to the old Japanese lacquer-ware, some very fine examples of which are contained in the South Kensington Museum, and a very complete set, showing the whole process of its manufacture, is exhibited in the Kew Museum. At the time this collection was got together, a full report was prepared to accompany it, in which the mode of extracting the lacquer from the Rhus tree, and the entire process of lacquering, was described. Considering the very large quantity of modern lacquered goods that now come to this country from Japan in the shape of boxes, trays, flower-stands, vases, &c., it would seem to be of some importance that the trees which yield the varnish should be preserved, and we now learn from a report from Hakodate that as it was considered that the Lacquer tree (Rhus vernicifera) would not succeed in the North, the few trees first planted were not looked after; but last year 157 young trees, averaging from 5 to 11 inches in girth, were tapped, and the yield was fairly satisfactory. The amount of sap was less than the same number of trees of a similar size would have yielded further South; but the proportion of water and foreign matter was only one-fourth, while the sap of southern trees is said to be generally nearly half water. After refining, the lacquer was also found to give a very high polish, and it is, therefore, intended to promote the growth of the tree as much as possible. The young trees planted last year amounted to 150,582.

THE HERBACEOUS BORDER.

PHLOXES.

These, like most other garden flowers, had been much improved of late years, and the best sorts are among the most valuable plants any one can have in a border; but to get their trusses of bloom as fine as they are capable of being produced, the plants must have special treatment, and be kept well away from the roots of trees and shrubs, which rob them to such an extent as to starve them and make them quite poor. For exhibition and special purposes the best way is to prepare a piece of ground for growing them by heavily manuring it and trenching it up to a depth of 18 inches or 2 feet; but in doing this the subsoil should be kept below, as to bring this to the top—as is too often done—checks the plants at the first by its inertness till the roots can get through. In cases where they are to be planted in borders holes of a large size should be dug, and the same manured, and the top part returned when the plants may be planted. These can be obtained from most of the nurseries, and it will be found that some of them have several shoots, and all except the strongest may be taken off for cuttings and propagated, or the plants divided as soon as the side shoots have rooted sufficiently, as those with one stem invariably send up the best heads of flowers. In borders, however, where Phloxes are grown more for show, several stems should be left, but it is always advisable to limit them to three or four, and without this thinning, plants that stand long throw up a mass. Being moisture-loving subjects, they must have plenty of water during summer, and especially towards the time of blooming—a season when liquid manure is of great service—and to facilitate the giving of this, or water, and prevent the plants from suffering after, they should have a mulching of some kind, which will prevent washing and evaporation, and keep the ground cool. Herbaceous Phloxes are readily increased by seed, which may be sown now in heat when plants can be raised which will bloom in the autumn. *J. S.*

PLANTS AND THEIR CULTURE.

Plants for House Decoration.—The general stock of these should be examined, the required number selected, and fresh stock propagated when this is found to be necessary. Most of the Aralias and Eleæodendrons are graceful subjects for the room and the dinner-table, but they do not in all cases strike readily from cuttings, as, for instance, A. elegantissima, A. Veitchii, A. leptophylla, A. Kerchoveana, and these, and others like them, it is best to increase by grafting on the ready-rooting A. Guilfoylei and A. reticulata. This operation of grafting is better done in the early spring months, but it may also be undertaken after the young shoots have got nearly ripe. The operation is more successful when the grafted stocks can be placed in a propagating case, or handglass, in the propagating pit. Any naked-stemmed plants of species which strike freely may be headed down, and the shoots so detached made into cuttings. The shoots which sprung from the cutback stock may also be taken and propagated in the same way, when they have attained to a partly mature condition. Put them into pots of sandy peat soil surfaced with sand, under a bell-glass, and in bottom-heat of 85°.

Crotons may be propagated, as they strike now very readily. Healthy, clean, well coloured points of the shoots should be selected and inserted in small pots, using plenty of sand in the soil. These early struck plants soon become of use if rapidly grown on. Crotons are excellent in effect in plant houses when intermixed with Palms and Ferns. All unsightly Dracænas should be cut down, the tops being inserted as cuttings under a handglass in bottom-heat. Put to each a stake to keep the cutting steady. The old plants, if plunged now in a mild bottom-heat, will soon produce shoots which may be utilised as cuttings or reduced in number to form a head. Asparagus plumosus may be divided if that be possible, or increased by removing slips with a heel of the old growth attached, and which will soon take root. Cuttings will also strike readily at this season. Cyperus alternifolius and C. a. variegatus may be divided, repotting the pieces into small pots, and young plants may be raised by pegging down the tops of old plants on pans of silver sand, choosing the best coloured and largest leaves. The sand should be kept very moist. Cupania filicifolia is a useful subject, and should, if naked or too large, be cut down and treated like Aralias, cuttings being taken when about half matured. Pandanus Veitchii, P. V. variegatus, and P. javanicus may be increased by taking off the shoots found at the base of most old plants. These should be furnished with a heel of old growth, and should be inserted in very small pots in a mixture of silver sand and sifted loam, making the cutting quite firm. It is good practice to put a pinch of sand at the base of the cutting, and care should be taken to prevent drip falling on the cutting, and not to give much water till it is rooted.

Hints on the Plants in the Greenhouse.—Any repotting found necessary, as well as training, should now be carried out without much delay as regards the hard-wooded plants. In doing so, carefully remove the old stakes as the training proceeds, and use as few new stakes as possible, so that injury to the roots may not ensue. Winter-blooming Epacrises that were cut back and have since started into growth should be repotted, and placed in a close house or pit for a time, or until somewhat established. Epacrises that have been taken to the conservatory should not be allowed to remain a day longer after the best part of the flower is passed, it being difficult to keep them in a healthy growing condition if once they are neglected. Aspidistras which have lost colour or require a shift into larger pots should now be divided and repotted, putting them into an intermediate-house for a time, care being taken not to overpot after dividing the plants. The temperatures named at the early part of last month will still apply to this department—45° to 50° at night, allowing a rise of 10° during the day in mild weather. Afford air very carefully on days when frosty winds blow. All the newly potted plants should, as a general rule, be kept rather close for a time, the house free from draughts, and water supplied but sparingly to the roots.

Conservatory.—Many of the large bulbs will now be advancing into bloom, and should receive some assistance by using Clay's fertiliser or some other manure in the water supplied to the roots; Lachenalia pendula and L. tricolor will be greatly assisted thereby. Amaryllis when in bloom should be kept in a dry atmosphere, so that the colour of the flowers may not fade. Spiræas when fully developed should receive abundance of water. Deutzias ought to be forced slowly, so as to obtain the greatest profusion of flowers; and Callas may receive liquid manure at the root occasionally. The general stock of bulbs for late conservatory decoration may now be examined, and gradually brought to the light, placing some of them in a cool place so as to retard them.

Forcing-pit.—Many plants will now force more freely than at an earlier period, and should be introduced to the forcing-pit as required. Gueldres Rose if forced slowly, is a very useful plant; also Staphylea colchica, Prunus sinensis fl.-pl., Kalmias, Andromedas, Persian and Charles IX. Lilacs, and the early flowering varieties of Rhododendrons; these plants require very similar treatment when forced.

Conservatory Creepers.—These plants in the greenhouse and conservatory, before they commence to grow, should be thinned out where crowded, and regulated. If scale and mealy-bug be present effectual means should be taken to exterminate them. The inert and loose soil on the borders may be removed, and top-dressing of suitable compost done. Plants not thriving should be retubbed or repotted, and if planted out replanting will be found necessary sometimes. For the conservatory Abutilons are very pretty as pillar plants, and they grow quickly. Bignonias are good plants for the roof. Plumbago capensis is always acceptable for its colour and freedom of blooming. Cuttings may be propagated from the young wood, shortly. P. rosea does best when treated as an intermediate or stove plant. It has much decorative value in winter in the warm conservatory; cuttings of it may be struck early, so as to produce long flowering spikes before the autumn, and it is better to propagate it annually, throwing away the old plants. Bougainvillea glabra will grow well in the warm conservatory, and at this period of the year its weakly growths may be removed. Habrothamnus elegans should have a place on a wall or pillar, and be well supplied with liquid manure when growing, and the border or pot is full of roots. It should be kept free from scale. Cuttings of Varieties of Habrothamnus taken with a heel attached will soon strike. Lapageria shoots may be taken down if scale be present, and dipped in some insecticide, the plants being top-dressed afterwards. Do not injure the young points pushing up under the surface of the soil. Tacsonia insignis, Van Volxemii, and exoniensis, also Tecoma capensis and T. jasminoides, are useful for roof decoration, and are graceful subjects. *W. Wythes, Sion House Gardens, Brentford.*

THE FLOWER GARDEN.

Cannas.—There are few foliage plants easier of propagation and cultivation than these, and yet they are not so generally grown as their merits would warrant. Given a rich open soil, a sheltered position, and a moderate amount of attention in regard to watering in dry weather, and staking to prevent the plants being injured by wind, there is no subtropical that excels them in beauty. The manner in which they are most commonly planted—in huge masses—may have deterred some persons from growing them; but this is by no means the most effective way of using them, for they look infinitely better when planted so thinly that each plant can be seen by itself—a mode of planting which necessitates the use of other plants in conjunction with the Cannas, in order to fill out the beds, and the most suitable

plant I have ever used for the purpose is the massive white-foliaged and low-growing Salvia argentea. The very large leaves of this plant, and the contrast of colour between the Cannas and the Salvias make up together a pretty whole. Another effective way of using Cannas is, to plant them in small groups on the lawn. A group of five or seven plants, arranged in a sheltered recess of the subtropical garden, has a charming effect, and though I have not used them in this way, I have no doubt but that they would look quite as beautiful planted on the lawn between shrubbery clumps. The one essential condition to their doing well is shelter. Old plants lifted from the beds in the autumn, and which have been wintered in cellars or sheds, should now be brought out, and the finest crowns selected. Put these selected roots into boxes or pots, and start them into growth slowly, and by planting-out time, at the end of May, they will be nearly full-grown, making a fine show at once. Plants raised from seeds are of but little value the first year, the plants being very small; but in the second year they will grow to their full size. Sow the seeds in strong heat at once, and, as they vegetate, pick out the earliest in the seed-pots, and pot them on as required, planting out in June, for, although the plants will be small, they will do good service if planted near the margins of subtropical beds, and will grow much stronger than if kept in pots the whole of the summer. My experience of the new race of dwarf, large-flowering Cannas, is limited to seeing them planted out in one garden only, but from their appearance there I think that they will prove to be desirable plants for the flower garden. A well-drained bed and rich soil are the chief *desiderata*.

Lilium auratum.—These are now to be bought at such a cheap rate that I ought not to be thought extravagant in advising that they be used as bedding plants; for the last two seasons we have so used them, and no flowering plant has met with greater appreciation. That they seem to be in their most appropriate place in the herbaceous border I readily admit, and would not like that they should be ousted thence, but, for the sake of variety I plead that they also be used in the bedded-out garden. Having a number of beds in this garden arranged in what, for want of a better term, I call the promiscuous mode—*i e*, plants of many kinds are planted in mixtures, with just sufficient regard to formality to hinder tall plants from destroying the effect of dwarfer ones, or, in fact, of causing an uneven balance of either foliage or flowers. In beds arranged on this principle three clumps of this Lily, of three bulbs each, produced a most telling effect all through the month of September last. They were also employed in large vases, and though they flowered somewhat irregularly, that is, at different times, yet owing to the free use of other tall-flowering plants, such irregularity was hardly noticeable. The bulbs for the beds, arranged after a formal pattern, were selected as near of a size as possible, and by this means we had them nearly all in flower at the same time. The bulbs may now be planted, and in no case should planting be deferred later than March. *W. Wildsmith, Hackfield.*

Fruits Under Glass.

Strawberries.—Plants swelling their fruit should have the latter thinned, leaving from six to ten fruits, according to the strength of the crown. Water liberally with warm manure-water, and keep the plants from draughts of cold or frosty air. Strawberries in fruit may now be pushed along, with a night temperature of 65°, and an increase of 10° by day, shutting up with a genial moist atmosphere; a slight syringing will be beneficial in the morning. Plants in bloom must have a warm dry air to set their flowers, and a temperature of 50° to 55° at night; ventilate freely on sunny days, being very careful that these or other plants in any other stage of growth do not suffer for want of water at the roots. Examine them both before and after being in bloom for aphis, and fumigate if necessary. I have found later in the season a very small white thrips, scarcely to be distinguished with the naked eye from the small white seeds of the fruit. It is very destructive, the fruit changing to a brown colour when attacked by them, the skin hardening so that it cannot swell, and the fruit becoming worthless. Fumigation is the best antidote for the pest, and it should be applied as soon as it is discovered. I may say, in passing, that I do not find the tobacco-paper so strong as it was since the alteration insisted on by the Government of the amount of water allowed to be present in the paper. Fumigation repeated four times, will scarcely kill greenfly now.

Where forcing is carried on in low and damp houses mildew is very apt to put in an appearance; this can be destroyed if on detection it be dusted over with flowers of sulphur. If mildew reach the fruit it will leave a hard white patch, completely spoiling its appearance, and preventing further development. Maintain, therefore, in such houses a drier atmosphere, with a freer circulation of air on all favourable occasions; this will be found of great assistance in keeping mildew at bay. Continue to introduce more plants as before advised, washing top-dressing, &c., and if any worms are found to have effected an entrance to the pots give a watering with lime-water before removing them to their quarters.

Manure Water.

Dung-water is such an important factor in ordinary garden work, and especially in forcing, that I will say a few words about making it for syringing, and for watering plants in pots. Procure a large stinking butt from a brewery, cut it in two; each half will hold 54 gallons. Place the tubs on some bricks raised off the ground in a position near a water-tap. Put 2 bushels of sheep's or deer's-dung in a dryish state into a bag, and a bushel of soot into another. Place these in one of the tubs, put in sufficient hot water to cover the bags, and when thoroughly soaked fill up the tub with cold water; this will make a liquid of a light brown colour, which, when mixed with clear water, may be used for syringing, damping down, and watering. Of course, no water of that kind should ever touch the fruit. It being clear it will not clog the soil, and when the tub gets nearly empty, give the bags a turn over, and fill up the tub with water. The other half-butt may be used to hold lime-water, which is made by putting a bushel of fresh lime into it, and filling it up with water, allowing the latter to settle before use. Mixed with clear water it is handy for watering occasionally, but on no account may it be used for syringing purposes. *W. Bennett, Rangemore, Burton-on-Trent.*

The Hardy Fruit Garden.

Apricots.—If pruning and nailing be finished the borders will now require attention, before the buds get too forward. Old trees should have a good top-dressing, first removing the last season's mulching and a portion of the top soil. If possible give a dressing of bone-meal, and cover up with some sweet turfy loam that has been stacked a year and some lime rubble, treading all down firmly. In warm localities, and where the soil is light, it is advisable to mulch early with rich manure, but in cold districts this is better deferred till later in the season. The footpaths may be carefully pricked over to the depth of 3 inches, to prevent cracking of the soil later, and to give a neat appearance.

Any trees intended to be grafted this season should be headed back without further delay. Select strong healthy shoots for scions, and heel them in till the proper time arrives for grafting. In heading back the branches to be worked upon do not cut them back to the main stems, but leave from 6 inches to 18 inches, according to thickness; the smaller the branch the neater and better will the union be.

Should frosty weather continue, and there is any soil required for late planting purposes and for top-dressing trees, advantage should be taken in getting it removed to spots where it is wanted, so as to have it in readiness when the weather permits the work to recommence. Pyramids and cordon Pears worked on the Quince and Apples on the Paradise stock, should be top-dressed, especially those which have cropped heavily. Trees rooting near to the surface ought to be well top-dressed annually. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

Rhubarb.—Where much Rhubarb is used in winter it is necessary to make a fresh plantation every year, planting Linnæus, Mitchell's Prince Albert, and Victoria, which are the best varieties for forcing and for general use. The Victoria makes a good succession to the first-named varieties. Like all other vegetables, Rhubarb likes a change of soil, with deep cultivation and plenty of manure. When the ground has been got ready, and the requisite number of offsets for planting secured by splitting up old stools into single crowns, these should be planted at not less than 4 feet 6 inches apart each way, and no stalks should be gathered if it may be avoided, for two years afterwards. At the end of the second year the plants will be available for forcing, although they will be much finer the third year. Old stools which have been forced should be thrown away, forcing having practically exhausted them.

Seakale.—The old system of blanching Seakale on the ground when it grows is in many gardens discarded, but still any strong crowns not required for forcing may have an inverted flower-pot or Seakale pot placed over them, a little soil being drawn close round the pot to exclude air, and a sod placed on the top to exclude light. Where forcing to any great extent is carried on it necessitates the making of a fresh plantation of Seakale every year. The best plan to secure good plants for a new plantation, is to sow seed on a well-prepared plot of ground this month, if the weather be favourable. Plants can also be secured by planting the shoots which were removed from the plants that were lifted from forcing, and this is the commoner way; but these do not make such strong shoots as one-year-old seedlings. The seedlings, after lifting them from the seed-beds, should be planted with a dibber at a distance of 2 feet between the rows and 12 inches from plant to plant in the row, keeping the crowns about 1½ inch below the surface. A slight dressing of salt or nitrate of soda given in the growing season, just before rain, will greatly benefit the plants. The flower shoots must be carefully cut away as the plants push into growth, and these stalks make an excellent vegetable unblanched.

Onions.—Take advantage of the first favourable day when the ground is in workable condition to get in this important crop. If it has been ridged, so much the better! level the ridges with forks and rake the surface smooth with wooden rakes, removing all rough matter; then tread the ground evenly all over, and again rake it, when the quarter will be ready for drilling. Drills at 12 to 14 inches apart which will be found a good workable width, should be made 1¼ inch deep. Some blood manure may be sown broadcast or in the drills at the time of sowing. This year the seed, which is of questionable germinating power, should be sown considerably thicker than is usual; cover in the drills with the feet, trampling the soil with the feet at the same time. Slightly rake the land in the direction of the drills to prevent the surface caking under the effect of sun-heat.

Transplant winter Onions on to a piece of well prepared ground, tread and level the ground in a similar way to that which is sown. In planting make the hole deep enough to allow space for the roots and make the soil firm about them, but being careful not to bury the bulb. Do not trouble about the plants falling over, for when they begin to grow the leaves will soon stand upright.

Shallots and Garlic should be planted on the same quarter as the Onions, in drills about 12 inches apart as for Onions, place the bulbs about 9 inches apart in the rows, and draw the soil up to the top of the bulb. They will have to be frequently examined, as worms, frost, and birds disturb them before roots are emitted, but afterwards no removal will take place.

Parsnips.—This crop should now be got in as soon as the ground is in a fit state. A still day is indispensable for sowing Parsnip seed and when a suitable day arrives the ground should be forked over and levelled, boards being used to tread on if the ground is not quite dry on the surface. The drills should be made 1½ inch deep, and at 18 inches apart, and a small quantity of blood manure may be sown over the land after sowing the seeds. If the ground be in good working order, the drills may be filled-in with the feet, but in case it be sticky, fill in with the dry potting-shed soil. Where exhibition specimens of Parsnips are desired, a tapered stick, 3½ inches in diameter at the top, and about 2 feet 6 inches in length, should be used for forming holes at 14 inches apart; each hole should then be filled with a rich compost passed through a ⅝-inch meshed sieve, and made quite firm in the hole; on the top of this soil, four to six seeds should be placed, to be reduced to one at thinning time. The Student, Hollow Crowned, Jersey or Guernsey, and Ellacombe's Improved are well tried varieties. *W. M. Baillie, Luton Hoo, Beds.*

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

THURSDAY, FEB. 21—Linnean Society.

SALES.

TUESDAY, FEB. 19—Barvins Park Collection of Orchids (continued), at Protheroe, & Morris' Rooms. Roses, Fruit Trees, Greenhouse Plants, Conifers, &c., at the City Auction Rooms, by Protheroe & Morris.

WEDNESDAY, FEB. 20—Established and Imported Orchids (two day), and Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms. Nursery Stock, at the Melverton Nursery, Leamington, by Protheroe & Morris' (two days).

THURSDAY, FEB. 21—Lilies, 40,000 Lilium auratum, from Japan, Roses, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.

FRIDAY, FEB. 22—Imported and Established Orchids at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—39°.7.

The Annual Meeting of the Royal Horticultural Society.

"WHENEVER the history of the Royal Horticultural Society comes to be written, the year 1888 will be recognised as one of the most critical periods in the Society's existence." And so, no doubt, it will be; but, whatever be its future, it is equally certain that the debt of gratitude to the Council and officers who took office last year at a period when, as one of the speakers at the annual meeting on Tuesday last, justly remarked, "ruin and desperation stared it in the face," and who, by their harmony and energy, have converted that dismal outlook into a condition of "soundness and prosperity," will be acknowledged as warmly then as it must be now. What are the causes that have in so short a time brought about this state of things? First of all, because most urgent and immediate, the generosity of certain donors who contributed largely to the funds necessary to clear the Society of debt, but even more, in our opinion, to the persistent zeal and energy of the Council in overhauling all the business transactions of the Society, and to the policy they have steadfastly followed of making it, as far as they could, the representative of horticulture proper and not only a flower-show society for the entertainment of the fashionables and the advantage of the commercial horticulturists. The disruption of the connection with South Kensington and all that term implies, is now seen to have been an unmixed blessing. It is of no use crying over spilt milk, of no advantage to indulge in passionate recrimination—all that is over. The Society has not only retreated with honour, it has gone far—much farther than could have been hoped in the time—to re-establish itself in the place it ought to fill as the national representative of horticulture in all its branches. The gratitude felt must be extended not only to the Council but to the exhibitors, who through all the dreary time stood by the Society, and, in spite of much discouragement, still did their best to maintain its honour and status.

It was well that Mr. HAUGHTON and others persisted in having the minutes of the previous meeting read, for in no other way could the vast difference between then and now have been brought home to the Fellows present.

The President, Sir TREVOR LAWRENCE, in commenting upon the report, adverted in becoming terms to the services of the retiring members of the Council, Mr. W. T. T. DYER, Professor M. FOSTER, Dr. HOGG, Sir EDMUND LODER, Mr. H. J. VEITCH, and Mr. G. F. WILSON. It is not necessary for us to repeat the terms of eulogium pronounced by the President on these gentlemen, for all horticulturists regret their resignation, and know and acknowledge the value of their services.

It will be no easy matter for the successors to rival their predecessors, but it may be hoped that there will no longer be the same necessity for those prolonged and sustained exertions which have rendered the labours of the Council during the past year so extremely onerous. The difficulties have been largely cleared away, the policy to be followed has been triumphantly vindicated, while enough of the old members remain to guide the new comers along the path they must follow to develope the good results already arrived at. The present financial position is, to those who have followed the affairs of the Society, little less than astonishing; the debt of £1152 has been cleared off, the expenses of the rear have been met, and a surplus remains. The installation at South Kensington, which cost some £80,000 in all, and mulcted the Society of £50,000, for which it has received not a farthing of compensation, has been followed by a new installation, the cost of which is set down at £100. When Fellows complain of admitted shortcomings they must look to these figures, and assuredly they will then find no cause to condemn. The financial forecast for the year now in progress assumes the receipt of an income of about £3000, and an expenditure of about the same amount.

The Temple Show last year was one of great excellence, though owing to the disastrous weather a loss of £100 was sustained. No doubt in the present year there will be an even better show, and should the weather be propitious, a great financial success will accrue if due advertisement be made. It will be remembered that this show was largely indebted for its success to the market growers, and thus not only a fine exhibition was secured, but the Society asserted its position as it should do as representative of one of the great industries of the country. A similar remark applies to the very practical and interesting Fruit Conference that was held at Chiswick in the autumn.

No fewer than 657 new Fellows were elected last year, or, accounting for eighty-one who resigned, and forty-six who died, a nett increase of 528. Of course it is hardly to be expected that this rate of numerical increase can be sustained and it must be remembered that the Guinea Fellowship now established will barely cover expenses unless a very large number of new Fellows be continually added. We were glad to hear of the numbers of new Fellows announced from Chiswick and its neighbourhood, as we are firmly of opinion that the development of the Chiswick Garden as an educational and experimental garden, wherein all branches of horticulture shall, so far as space and funds permit, be illustrated, will contribute not only to the financial success of the Society, but especially to the interests of horticulture generally, and so serve to forward the proper aims and purpose of the Society.

For the benefit of country Fellows who by reason of their residence at a distance cannot so fully avail themselves of their privileges as those residing within the metropolitan area, the *Journal* of the Society is to be published at more regular intervals, and here, again, we may note that residents in the country may, if they choose, avail themselves of the privileges offered them by the resources of Chiswick much more fully than they appear to do now.

The bye-laws have been revised to the advantage of the Fellows, but the Charter still remains, and is likely to do so at present. If things go on well we shall not hear much of that venerable document, but if things go very well we may hope to witness an attempt to rid the Society of an incumbrance which, however, is most felt when difficulties press.

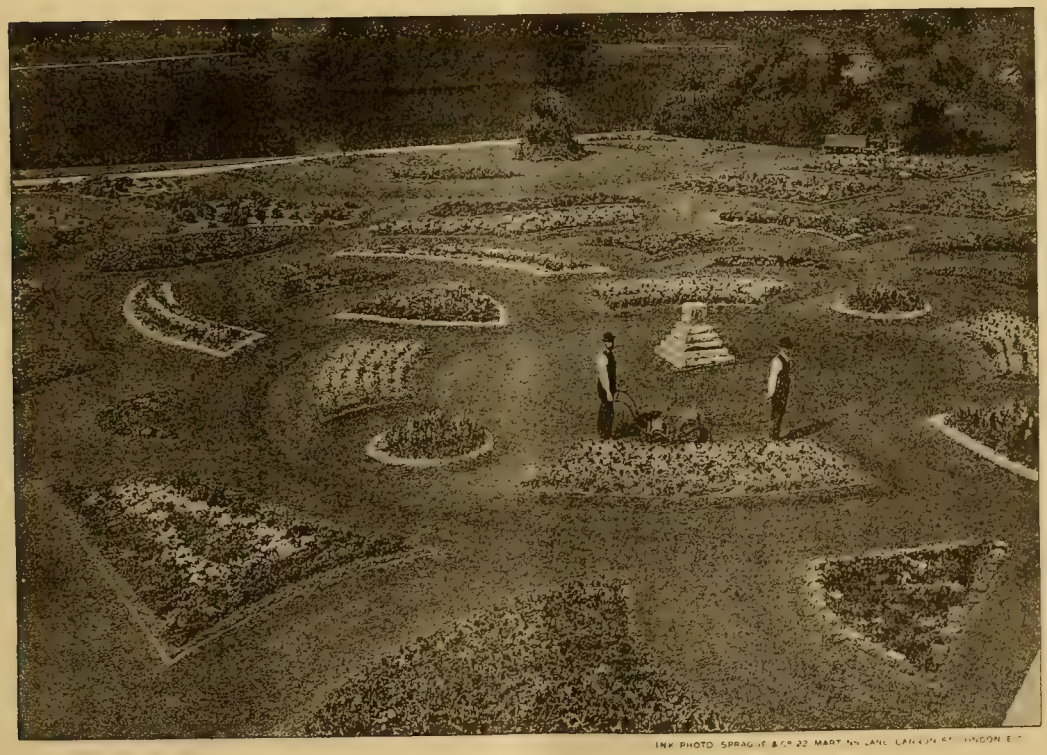
The meetings and shows of the past year have been exceedingly interesting, partly owing to the delightful contributions from Kew, although the general public, ignorant or careless of horticulture, have not shown their appreciation of them. This is perhaps partly due to the unfavourable surroundings of the Drill Hall. No better place has, however, hitherto offered itself, and this year not only will there be meetings in the Hall but also a big show at the Temple Gardens, and various shows of an interesting and instructive character will be held at Chiswick. Let the new Council see to it that these are adequately advertised beforehand.

The afternoon lectures are to be re-established, and all we have to say on this point is that, while in past years these lectures have been given, if not entirely, yet for the most part free of expense to the Society, other London societies of similar character deem it fitting to pay for them, as also for services akin to those rendered by the members of the Scientific Committee. We do not allude to this with any desire that similar payments should be made to members of that body, but merely to indicate our sense, that some of the members of that body have received but scant courtesy from the Society in the new arrangements that have been made.

The date for the Chrysanthemum meeting this autumn at Chiswick has been changed, in order not to clash with the arrangements of the National Chrysanthemum and other Societies. We hope further that some scheme may be elaborated still further to avoid any interference with the National Chrysanthemum Society. The Royal Horticultural Society's Conference should, in our opinion, be constructed, as far as possible, on different lines, and while leaving the National Chrysanthemum Society to undertake the exhibition element, should take up specially the practical, cultural, and scientific sides of the matter. Be this as it may, the Chiswick Chrysanthemum Conference is now fixed for November 5 and 6.

Of course the report on which we have been thus freely commenting was carried, as well as votes of thanks, so conspicuously well earned, to





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VIEWS IN THE GARDENS AT THORPE PERROW.

the Council, and especially to the energetic Secretary, whose business capacity and judicious zeal, are matters of common admiration.

A proposal to go back to the old style of competition with fashionable and popular places of entertainment, having no direct connection with horticulture, was received in silence and did not even find a seconder. It is evident then, that the Council has now every encouragement to pursue the course it has followed so successfully during the last year of making the Society first and foremost the representative and exponent of all departments of National Horticulture, while all its past history has shown the ultimately disastrous consequences of running away from horticulture proper, in the endeavour to find favour in the eyes of a pleasure-seeking public, who care for none of these things.

Gardeners' Royal Benevolent Institution.—In order to commemorate the Jubilee of the existence of this Institution, it was resolved at a committee meeting held on Tuesday last, the 12th inst., to place upon the pension list, in July next, without any election, the whole of the candidates (seventeen) who were unsuccessful at the last election, upon the express understanding and condition that the sum of £3000 be realised, in order to provide for the great annual expense entailed without trenching upon the reserved fund of the Institution. We understand that this will make a total of 150 pensioners.

"The Kew Bulletin."—The February number contains an alphabetical list of those herbaceous plants, seeds of which can be supplied in exchange for others from the Royal Gardens, Kew. Although the list occupies more than twenty-five 8vo pages, in double column, it is pointed out that the number of seeds available is much smaller than heretofore, owing to the prolonged rain and absence of sunlight in the autumn of the past year.

The "Botanical Magazine."—The plants illustrated in the February number are:—

Strelitzia Nicolai, t. 7081.—A plant whose exact source is not known. It has so much the appearance of S. Augusta that it was taken to be that species till it flowered in 1858 in the Imperial Botanic Garden St. Petersburg. It has an erect stem, some 25 feet high, and flowers which differ from those of S. Augusta in their larger bracts and in "the hastate combined petals which are further of pale blue colour. See further *Gardeners' Chronicle*, 1888, vol. iv., p. 695.

Styrax obassia, t. 7039.—Hardy shrub, figured in *Gardeners' Chronicle*, 1888, iv., p. 131, f. 12.

Iris Meda, t. 7040.—A new Persian species, from the collection of Professor Foster. It belongs to the bearded section, and has flowers of a greenish-golden hue streaked with purplish veins. The sepals have a golden "beard" edged with a zone of magenta-purple.

Opuntia Rafinesquii, t. 7041.—Remarkable as being one of the species which, if protected from damp, will survive our winters, and flower in the open air. It is widely distributed in the Middle and Southern States of North America.

Dendrobium gracilicaule, t. 7042.—A Queensland species, with elongated pseudobulbs, elliptic leaves, and nearly terminal, branching, many-flowered panicles. The flowers individually are relatively small greenish-yellow with red spots. It will not be sought after by those who confine their attention to showy Orchids.

The United Horticultural Benefit and Provident Society.—The annual general meeting of this useful Society took place on the 11th inst. at the Caledonian Hotel, Adelphi, W.C., Mr. R. Dean, in the chair. The minutes of the last meeting having been read, the report of the committee for the past year was read by the Secretary, Mr. W. Collins, and the financial statement by the Treasurer, Mr. James Hudson. We learn from the report that at the present time there is no sick member upon its funds, and no payment from the benevolent fund has been made during the past year. The balance in favour of the Benevolent Fund a year ago was £1183 11*s.* 3½*d.*; it is now £1299 19*s.* 1½*d.*, so that the increase during the past twelve months is £81 17*s.* 5*d.*, mainly from subscriptions, and by £34 10*s.* 5*d.* recorded as interest. The balance in favour of the Benefit Fund is now £3058 3*s.* 1¾*d.*. On the expenditure side interest has been credited to members to the amount of £69 3*s.* 3*d.* The total receipts for the year amount to £83 6*s.* 4*d.*; this sum added to the balance in hand in January, 1888, namely £19 7*s.* 9*d.*, brings the total income to £102 14*s.* 1*d.*. The payments amount to £82 11*s.* 9*5.*, leaving a balance of £20 2*s.* 4*d.* to carry forward. The Treasurer's balance-sheet showed that the year's income from all sources was £856 13*s.* 6*d*, including a balance in hand of £91 0*s.* 7*d.* The expenditure amounted to £714 19*s.* 11*d*, including the purchase of £528 10*s.* 8*d.* Government Stock. The Treasurer is able to carry forward a balance of £141 13*s.* 7*d.* During the past year the Trustees withdrew from the Funds £4000 value of Government 2¾ per cent. stock, and re-invested it in stock of the Corporation of Nottingham, bearing interest at 3 per cent., and secured on the Borough Rates; this will add an additional ¼ per cent. to the amount of interest received. Four new honorary members were added since the beginning of 1885, bringing the number up to thirty-six, and one new life-subscriber of 10 guineas (Mr. N. Sherwood) has been obtained. Messrs. T. Coates, E. G. Wheeler, R. Scott, G. W. Cummins, and W. Woods were elected on the Committee for the ensuing year, and Mr. W. Collins re-elected as Secretary. A sum of £20 was voted to the latter out of the Management Fund for his services during the year.

The Pear Trees of the Jardin des Plantes.—In view of the approaching destruction of these trees to extend the space occupied by the menagerie, a committee of the National Horticultural Society of France recently visited the collection at the invitation of Professor Cornu. In a space of about 20 ares (1 are = 119·6 square yards) 411 varieties of Pears are growing. Owing to the close quarters in which they are growing many of the trees are in indifferent condition, while others are fine trees, and almost all bore good crops last season. Many varieties are of historical significance, and are not to be met with elsewhere, while the collection furnished the material for Decaisne's splendid work, *Le Jardin Fruitier du Museum*. In 1880 M. Cornu planted a collection of Quince and free stocks on land duly trenched and manured, and on them grafted scions of all the several varieties, so that it is now estimated that there are 554 varieties of Pears under cultivation, many of them represented by two, three, or more examples. In addition there are forty-five varieties of Plums. The collections of Cherries and Apples were destroyed in 1883. The committee warmly congratulated Professor Cornu on the success of his endeavours to preserve the fruit collections under adverse conditions.

The Agricultural Progress of Canada.—Dr. Fream, of the College of Agriculture, Downton, and agricultural correspondent of the London *Morning Post*, who revisited Canada last year, has written an exhaustive report on the recent agricultural progress of the Dominion. It has been published by the Canadian Government, and we are asked to state that copies can be had gratuitously on application to the High Commissioner for Canada, 17, Victoria Street, Westminster, London, S.W., or to any agents of the Government of the Dominion in the United Kingdom. The description of British Columbia and Vancouver is particularly interesting to arboriculturists, while the account of the native herbage of the prairies will be valuable to those concerned with the management of pasture or meadow. In Manitoba, early-ripening varieties of Wheat are being selected, to avoid injury from autumn frosts.

Foes of the Phylloxera.—Dr. Riley says that a species of thrips—T. phylloxeræ—which inhabits the leaf-galls made by the Phylloxera, "plays havoc" with Vine-lice. What a consolation for the gardener with thrip-infected Vines! But the Phylloxera is practically stamped out in this country. We have not seen a specimen for more than twelve months.

"Insect Life."—In the fifth number of *Insect Life*, a most valuable periodical issued for the United States Department of Agriculture, by Professor Riley, an account is given of a scale insect, Icerya purchasi, which is excessively destructive to the Orange trees of California, and is presumed to have been introduced from Australia. In the latter country the insect is less harmful than in California, presumably because it has more enemies to keep it in check. A commissioner has been sent from California to Australia to inquire into the matter, and has succeeded in intraoducing some of the parasitic foes of the Icerya. Without some such measures "ruin stares the Californian Orange growers in the face."

The Icerya of the Orange Plantations.—In addition to the introduction of parasites to prey on the scale, Mr. Coquillet, after various experiments, finds that the vapour of hydrocyanic acid gas kills the insects without injuring the trees. The "dry gas" process consists in acting on the cyanide of potassium (5 lb.) dissolved in 1 gallon of boiling water, by sulphuric acid (one half ounce to every ounce of the cyanide solution), and passing the evolved gas through sulphuric acid. Violent action occurs as the acid is poured on the cyanide, and the gas is given off as a dense white vapour. It is obvious that such operations should not be entrusted to careless workmen.

Entomology.—Professor Riley's Annual Report to the American Department of Agriculture for 1888 adds another proof to the good work that is being accomplished by the energy and knowledge of this entomologist. A full description of the Apple Codling moth, so well known here, is given, together with illustrations. It is concluded that at least 70 per cent. of the loss commonly suffered by the fruit grower from the Codling moth may be prevented at a nominal cost by applying Paris green (a preparation of arsenic), in the form of spray, with water, in spring, as soon as the fruit is fairly set. The danger arising from the incautious use of arsenical preparations must, however, never be forgotten. One pound of the arsenic is used to 50 gallons of water.

Victoria regia.—It is stated that this plant flowered in one of the New York squares last summer, fully exposed to the air, but the water in which the plant was grown was constantly heated to a temperature of 77°.

Prof. Pfeffer.—At the last meeting of the Linnean Society Dr. Pfeffer, of Tubingen, the eminent vegetable physiologist, was elected one of the fifty Foreign Members in place of the late Prof. Planchon.

Leicester and Midland Chrysanthemum Society.—The annual meeting of this young and flourishing Society was held at the Welford Road Coffee-house, on Thursday, January 31. There was a good attendance, and a satisfactory report was read by the Hon. Sec., Mr. Read. A long list of Vice-Presidents and patrons, mostly resident in and around Leicester, was read, and it contained many names added since the last show. On Thursday last, February 7, the new committee held its first meeting at the above rooms, and it was decided to hold the next show in the Temperance Hall on Friday and Saturday, November 15 and 16. One of

the principal alterations made in the old schedule was that of an open class for forty-eight cut Chrysanthemum blooms, with a 1st prize of £10, and a class for a large group of Chrysanthemums arranged for effect.

Byblœmen Tulips.—Some inquiries having been made of us with reference to the word "byblo-men," we put ourselves in communication with Mr. Krelage, who, with his usual kindness, has furnished us with an interesting communication on the subject which we shall publish on a future occasion. In the meantime as to the meaning of the word, Mr. Krelage tells us, the prefix "by" has no relation to the number two (a flower of two colours), but, according to the context, has the same significance as the English words—around, with, near, close to, by—as in *by-weg* (English, bye-way).

Cercle Floral d'Anvers.—It is proposed during the course of the year 1890 to form at Antwerp an International Exhibition illustrative of botanical geography in its commercial and industrial aspects. A similar exhibition was held a year or two ago in Copenhagen. Our space this week only allows us to make the announcement, and to congratulate the "Cercle" and its energetic President (M. Charles de Boschere) and Secretary (M. Charles Van Geert) on the importance of the scheme. We shall shortly give fuller details of an exhibition which is peculiarly appropriate in Antwerp.

Fall of a Monarch of the Forest.—We cull from a daily paper that the gale of Sunday, February 3, levelled to the ground a notable tree on Castle Huntly estate. This was a splendid specimen of an old Scotch Fir, reported to be over 250 years of age, and in some respects as remarkable a tree of the kind as could be found in the country. Its girth at the ground was 24 feet. At 1 foot up it girthed 16 feet, and at 5 feet, 15 feet. Above this the trunk swelled out until it had a girth of about 30 feet, and, although its limbs had been sadly broken and shattered by the storms of centuries, it had at the time of its fall a fairly good head. It was broken almost clean across about 12 inches from the ground, and the trunk internally was very much decayed to within an inch or two of the bark. The tree, had it been in sound condition, would, it was estimated, have yielded 10 tons of timber.

Brighton and Hove Chrysanthemum Society.—The dates at which the next autumn show of the above Society will be held have been altered to November 5 and 6, instead of the 12th and 13th of that month. This alteration was called for owing to the shows of the "National" and Kingston Societies falling on the last-named days.

Linnean Society.—An evening meeting will be held on February 21, 1889, at 8 p.m., when the following papers will be read:—"On Euphrasia," by F. Townsend, F.L.S.; "On Sexual Apospory in Polystichum angulare," by C. T. Druery, F.L.S.; and "On the Retina of the Blowfly," by B. T. Lowne. F.L.S.

Indiarubber Trade on the Chindwin River.—The india-rubber trade on the Chindwin, in Burmah, has only existed for about a year, but it has increased to such an extent that the local government has placed a large export duty on all rubber passing Kendat, the first revenue station on the way to the seaports, besides imposing a licence costing ten rupees per annum on all brokers or buyers of the article. According to a recent report, rubber is extracted from the Ficus elastica, which is similar in appearance to the Banyan tree, except that the leaves are larger and of a darker colour. Each tree is tapped daily during the season, which extends from November to June, nothing being done during the remainder of the year. In April, 1887, a Chinese syndicate at Bhamo received a monopoly for the extraction of rubber in the Mogoung district. This expired last October, and since then the trade has been thrown open to all. On the Chindwin the trade is in the hands of an English company, which, in spite of vigorous opposition from the Chinese traders, is working satisfactorily, because the natives prefer dealing with the Europeans. All the transport is carried on by native boats down the Chindwin to Kindat, where the rubber is transshipped into steamers. The system of collecting is to send a contractor with a sum of ready money to all the villages in a particular district to make advances to the headmen, who, in their turn, send the villagers to the forests to extract the rubber, so that month by month each station has its own stock. This is bought for cash and sent down the river, the headmen keeping the advance for further operations. The profits are large, but, as will be seen, capital is required, and the chief drawbacks are the unhealthy climate and indifferent food. Chinese opposition is to be expected, but the forests are wide enough for all, the rubber produced is excellent, and the transport, though slow, is inexpensive.

Stock-taking: January.—A passing note may be made here as to the immense existing supply and consumption of Oranges and Lemons, Just now, and for the past few weeks, these fruits have been hawked about the streets of London at three a penny!—what the price and consumption may be in inland towns we do not know, but we may be allowed further to place on record that the importation of Oranges and Lemons last month amounted to 761,490 bushels, as against 603,193 for the same month in 1888. The following is a summary of the imports from foreign countries and British possessions with which our readers are principally concerned:—

	1887.	1888.	Difference.
	£.	£.	£.
Total value of imports	31,802,988	38,025,774	+3,222,786
§II.—(A.) Articles of food and drink duty free	10,322,965	11,203,681	+880,716
(B.) — do., dutiable	1,913,177	2,182,327	+269,150
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	10,497,973	11,110,512	+612,539
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	2,128,818	2,760,078	+631,260
§IX. — Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,478,884	1,771,660	+292,776

The following excerpts from the complete returns will be found interesting:—

		1888.	1889.	Difference
§ II. Fruit:—				
Apples, raw	bush.	194,256	243,265	+49,009
Unenumerated, raw	,,	11,643	11,804	+161
Onions	,,	161,220	340,762	+179,542
Potatos	cwt.	76,778	51,415	—25,363
Vegetables, raw, unenumerated	Value	£32,317	£36,831	+£4,187

We take the opportunity afforded us here of again suggesting that the vegetables might be "enumerated," if only the names be given.

Famous Horticulturists.—The following names occur in the "Biographical Index of British and Irish Botanists," now publishing in the *Journal of Botany*:—

"Gray, Christopher (fl. 1740—1763). Nurseryman, of Fulham. Introduced various American plants. 'Catalogue,' 1740. Published Catesby's *Hortus Britano-Americanus*, 1763. Pritz. 1, 103; Loudon, *Arboretum*, 76.

"Griffin, W. (fl. 1820). Of South Lambeth. Introduced (p. 47) plants from Brazil, &c. *Bot. Reg.*, 511; Griffinia, Ker.

"Hales, Rev. Stephen (1677—1761): b. Bekesbourne, Canterbury, 7th Sept., 1677; d. Teddington (p. 48) Middlesex, 4th Jan., 1761; bur. Teddington. B.A., Camb., 1699. M.A., 1703. B.D., 1711. B.D., Oxon, 1731. D.D., 1733. Rector of Teddington, 1710. Clerk of Closet to Princess of Wales. *Vegetable Statics*, 1727. Pritz. 133; Jacks. 67; Rees; *Gard. Chron.*, 1877, i., 16, with portrait; *Annual Register*, 1765, with portr. Monument in Westminster Abbey. Portr. by F. Coates, R.A., engr. by Hopwood for Dr. Thornton. Halesia, Browne= Guettarda, L. Halesia, Ellis and Linnæus."

New York Agricultural Station.—The *Bulletin* for October last, issued under the direction of Dr. Collier, is a valuable document, containing as it does analyses of the various pasture grasses, as well as of some of the cereals. Great pains have been taken to render the matter plain to farmers and others.

PLANT PORTRAITS.

Aristolochia elegans, Mast., *Revue de l'Horticulture Belge*, February.

Begonia Madame Camille Thierry, *Illustrierte Monatshefte*, January.—Flowers white.

Bouvardia President Cleveland, *Revue de l'Horticulture Belge*, January.

Cattleya Schilleriana, *Gartenflora*, January 15.

Chrysanthemums (1) Jane, (2) Admiral Symonds, (3) Lady Randolph Churchill, *Illustration Horticole*, t. 73, January 15.

Eugenia Carberi, *Garden and Forest*, Jan. 16.—A new species from Florida, described by Professor Sargent.

Miltonia spectabilis, *Revue de l'Horticulture Belge*, February.

Oncidium Jonesianum, *Revue de l'Horticulture Belge*, January.

Passiflora Watsoniana, Mast., in *Gard. Chron.*, 1886, figs. 126 and 127; *Garden*, March 3, 1888; *Illustration Horticole*, January 15, t. 74.

Pear Bella di Farnella, *Bulletino della R. Societa Toscano di Orticultura.*

Schomburgkia undulata, *Orchidophile*, January.

HOME CORRESPONDENCE.

☞ *Correspondents will greatly oblige by sending early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

Plant Names.—If the interests of botany and of horticulture in the matter of plant names were so radically different, as your correspondent, "A Gardener," asserts, there would, undoubtedly, be much force in his remarks: but, fortunately (or unfortunately for the argument), this is not the case. Botanists, no less than horticulturists, require a name for a plant to distinguish it by; but the former also require that the name should be a certain index to the position of the plant in the system of classification—a system not yet perfected because of the constant additions to our knowledge in various directions, which sometimes render change necessary. It is this second use of the name which is not much required by horticulturists, and hence often ignored by them. Spiræa japonica is a name which answers the gardener's requirements just as well as Astilbe japonica, notwithstanding the fact that the plant is not a Spiræa at all. But there is another, and totally different reason why names are frequently changed—viz., a rule adopted by botanists whereby the earliest name applied is adopted in cases where different names have been applied by different people to the same plant. The

rule was not adopted without good and sufficient reasons, or, in other words, until it was seen that no uniform system of nomenclature could be attained without it. Botanists and zoologists do not now agree as to the application of the rule, and the former, at least, are not agreed as to what (if any), exceptions should be allowed. My own feeling is that a few names which embody a positive mis-statement of fact should be allowed as exceptions: for instance, philippinense, for a plant which does not grow in the Philippines at all: and some others. But I cannot agree that "in botany, finality in names is impossible: for this we already have in thousands of instances, and the number will be constantly increased as the plant-world becomes more completely known. Some originally Latin or Greek names are now used purely in an English sense, and probably no one wishes to change them at all. Cinerarias and Gloxinias are known in much the same way as Carnations and Pansies. But not to cover too much ground, I would at once say that while admitting, as I did, the inconvenience of changing the names of the two species of Phalænopsis in question, I cannot agree that "the proposal to change their names is simply ridiculous," nor that "they belong to horticulture more than to botany." We read, "in botanical books the new names are invariably adopted; in horticultural writings they are not." Turn to the *Dictionary of Gardening* in disproof of this. Miltonia vexillaria and numbers of other cases, besides the Phalænopsids in question, stand as witnesses. Turn to the back numbers of the *Botanical Magazine*, and see how many garden plants have changed their names. As to "whether horticulture had not better have its own nomenclature for plants, and leave botanists to their own devices," a ready answer suggests itself, viz., that in a few establishments the interests of the two are inseparable, and that we have a number of prominent horticulturists who are also good botanists, and botanists who can appreciate the beauty of a plant for its own sake—facts which do not augur well for the future success of two separate systems. Much mischief is done by the use of Latin names for florists' varieties, and if florists and gardeners will adopt a different system, and use fancy names for their productions, no one will be better pleased than myself, for the nomenclature is only burdened with a host of names—apparently of species, but which on investigation prove to be nothing but polymorphisms of things already known. Much more might be said, but this note is too long already. In conclusion, let me express the hope that when botanists can agree as to the necessity of a change, that, as in the past, it will gradually percolate horticultural literature; and that the only two systems of nomenclature we shall have will be a purely horticultural or florist's one for races of florists' flowers and known garden varieties; and a uniform botanical one (subject to such emendations as may occasionally be found necessary) for the remainder. *R. A. Rolfe.*

—— At p. 148, "A Gardener," brings forward a question of great importance to all connected with horticulture, viz., shall we accept the nomenclature of modern botanists in preference to names by which plants have long been known, and which in most cases have been registered and described by some botanical authority? I quite agree with "A Gardener," that there is no necessity for changing names. Of course there are some cases where names may be corrected, and no horticulturist would object, but generally speaking, it would be a great mistake for a nurseryman to catalogue plants under revised names, unless he could give a full list of synonyms, and that would be next to impossible. For scientific purposes it may be quite necessary to revise plant names, but for horticultural purposes, the name by which a plant is first distributed should be retained, unless some evident error has occurred. I do not possess many books of reference, and therefore cannot account for many names adopted in Nicholson's *Dictionary of Gardening*. For instance, I find that for Davallia Mooreana, D. pallida is adopted. Now I have known this beautiful Fern for a good many years, and have seen it exhibited, I might say, dozens of times, but always as D. Mooreana. I believe it was introduced by Messrs. Veitch & Sons, and was exhibited by them at a meeting of the Royal Horticultural Society's Floral Committee about the year 1869, and was awarded a certificate under the name of D. Mooreana. Davallia hemiptera, another of Messrs. Veitch's introductions, is changed to D. repens. I may add that this is figured, and a similar illustration occurs in a nurseryman's Fern catalogue, the only difference being that in the latter it is named D. hemiptera. It is needless to quote a great number of similar alterations. But what would be the result if nurserymen were to adopt all these alterations? I imagine it would lead to a great deal of unpleasantness, for customers would be sending for what they would expect to find distinct, and on receiving the plants would find that they had simply been buying an old friend under a new name, or at least a name new to them. It is my opinion that names by which plants have become familiar to horticulture should be retained, and if the botanists were to avoid, as much as possible, changing names, the practical gardener would take more interest in the science, and be more ready to accept such corrections as are really necessary. *A. H.*

THE WEATHER IN WESTMORELAND.—As illustrating the extreme mildness of the season here I subjoin a list of a few flowers I have observed blooming in the open air freely during the past few days. With the exception of a severe snowstorm on February 2 we have had little or no winter as yet, and I never remember seeing vegetation in such a forward state at the time of year in all my experience. To-day the sun has shone brightly, and the temperature has been more like April than February. The following are in fine bloom amongst others:—Daphne mezereon, Scilla sibirica, Snowdrops, Geum, urbanum, (Avens), Berberis vulgaris, Gentiana, Vinca major and minor, Chrysanthemums (several), Saxifragas (several), Brompton Stocks, Laurel (common), Violets, Wallflowers, Auriculas, Polyanthus, Winter Aconite, Jasminum pubigerum, &c. In all I noticed thirty-six varieties of plants in bloom during the current week. I might also mention as rather an unusual fact, that hedgehogs, which usually hybernate during the winter months, have been lately as active as in summer. *W. N. Craig, Kendal.* [Written before the recent storms and frost.]

DESTRUCTION OF MEALY-BUG.—I am glad to see by W. H. Divers' account on p. 141 that he succeeded in eradicating these plant pests, but I have known Vines rendered useless for years with less quantities of paraffin than he has used. At the end of 1886 I took charge of these gardens, and found the Vines in a very bad state. I have succeeded in getting rid of the mealy-bug by what I think is a simpler, less expensive, and far safer means than he has employed. When the Vines were pruned all the loose bark was removed with the hand only, then the rods were scrubbed with a brush and warm water; the interior of the house was also well scrubbed, nothing being used but warm water, and all the spurs on the rods painted with gas-tar. When the bloom was set we found, on examination, several bugs left. I had the water-hose turned on the Vines once a week, care being taken not to direct the water towards the bunches, and when the Grapes showed signs of colouring the syringing was discontinued. I have not seen any mealy-bug since. *J. Noble*, 165, *Knight's Hill, West Norwood.*

CALLAS.—I have noticed Mr. Divers' remarks on growing the Calla æthiopica, and think that he and others may, perhaps, be interested by hearing what my experience this season has been with these plants. The roots, sixty in number, were planted out last summer on a border having an east aspect, and were taken up and repotted early in the month of October. These plants are flowering freely, and the spathes are of an unusually large size. I have known Callas, after being planted out refuse to blossom early, and, like Mr. Gilbert, used to prefer to keep them in pots, because it was thought to be a rule for all these plants which were planted out to behave in this way. However, the present season's experience has quite dispelled that opinion, for early in November last the plants unfolded numerous spathes, which for size are seldom excelled. This I know will be corroborated by many who saw my group of miscellaneous plants at the Monmouth Chrysanthemum Society's show. The Calla is an aquatic, and it evidently delights in a cool, wet soil, and such were the conditions to which the plants were subjected last year. *T. Coomber.*

CEPHALOTUS FOLLICULARIS.—At p. 140, your correspondent, Mr. F. Ross, gives an interesting account of this remarkable plant, and seeing that the plant is not met with every day, I should like to give my experience of it. Though the generality of your readers know that the plant is quite hardy, there may be some who do not; therefore a few facts about its cultivation may be useful to the latter. It may be well grown in a cold frame—indeed my experience was entirely of that way of growing it. My plants have been subjected to 22° of frost, which they endured with impunity. This fact brings it therefore within the reach of those not having a cold frame. The method pursued was as follows:—A frame which was devoted to these and Dionæa muscipula, had a few inches of rough ballast with coal-ashes above, so that free drainage was secured; upon this the plants were placed and plunged in some refuse sphagnum moss. The plants were potted in rough fibrous peat, fresh sphagnum moss, and brick rubbish broken finely. During the greater part of the year the plants were kept in a state of half saturation, a state which is suitable to these plants and Dionæas. For about two months in winter time no water was afforded them, the moisture surrounding them being sufficient for that time; no shading was given them in summer time, excepting what came from a small tree a short distance off. By this simple mode of cultivation I was rewarded with plenty of fair-sized and fairly-coloured pitchers, the plants being sold off too quickly whilst in perfection. To the methods of propagation given at p. 140 by Mr. Ross, I may add that, with a little assistance, it comes pretty freely from roots, these making nice plants with fair treatment the second season. Those interested in such things may, with the assistance of a cold frame, get a good assortment together, which might embrace, apart from those above-named, some of the hardy Sarracenias, as S. purpurea, S. flava, S. Drummondii, S. psittacina, and others, as also several species of Drosera (scandens), with the quaint-looking Darlingtonia californica to complete the list. A sunny spot should be chosen for the frame, but one not fully exposed, and a cold, sunless spot, must likewise be avoided. *E. Jenkins.*

PLANT COLOUR.—Mr. Burbidge is right in submitting that his ideas respecting colour in plants are unsatisfactory. Now, with reference to the colour which comes so freely and so richly into the flowers of hardy Primroses, it is stated that this colour emanates from the roots; but I have not yet found such colour in the roots in any appreciable degree. What colour there is, is not so much in the roots as in the woody stem from which the leaves spring. But here we find pure white as abundant in these cultivated Primroses as deep colours; and from whence is this pure whiteness derived? As to hardiness there is no difference between white, mauve, red, or crimson flowered plants. The suggestion that red-stalked Chinese Primrose seedlings are less subject to damp than pale green-stalked kinds will not hold water. Practically the latter are regarded as robust and hardy as the red-tinted kinds. We have no more robust double kind than is the old double white Primula with its pale green leaf-stalks. There is no proof to be adduced that practical gardeners have encouraged the introduction of red colouring into the foliage plant they cultivate, on the ground that they regard such plants as hardier. So far from that being the case I think it would be impossible to find a single instance in which such a notion was entertained. Almost invariably the introduction of red colouring into foliage—and the same may be said of all variegation—has been discouraged, because variation in colour has proved to be so detrimental. The Purple Beech or the Hazel if less robust than are the green forms are, so far as I am aware, not less hardy. Neither is the purple-hued Prunus Pissardi. On the other hand, Dell's Crimson Beet owes its moderate growth to special selection, as a particular even drooping habit of leafage has been sought for with medium-sized high-coloured roots. Taking roots and leafage of Dell's Beet, and comparing size of root with leafage of any coarse green kind, it will be found that Dell's, relative to size, is fully as robust in the production of foliage. As evidence that colour in foliage is not necessarily associated with weakness, I may point to Red Cabbages, always so stout and robust, and to those remarkable dark-purple Kales, occasionally seen amongst tall green Scotch, and yet always fully as robust as the green type. Turning to Potatos, we find variations of colouring not so much in the plants as in the tubers, but even the very deepest-coloured of tubers are seldom associated with darker foliage than are white tubered kinds; indeed, character of foliage, and not colour, offers the chief clue to the identification of varieties of Potatos when growing. White Potatos will also produce sometimes much darker flowers than with purple Potatos. As to the question of evolution or reversion, are double Primroses to be classed as of the former or of the latter. If they be seed products and are classed as

evolutionary, it would be absurd to class them as reversionary if the product is sportive. Double-flowered Thorns are hardly reversions; indeed nearly all sports seem to indicate a breaking away from the original form, hence are not reversions to it. Truly the existing knowledge of the causes of variations of colour in plants and flowers is yet vague and unsatisfactory. *A. D.*

CARNATION TRIAL AT CHISWICK. — As the Council has agreed to the trial next year of Carnations as border plants at Chiswick, and as the plants should be sent in next autumn, it would be helpful to growers who may wish to assist in the trial if some further particulars concerning it were published. Possibly the intention may yet be incompletely determined upon, and needs further consideration. Information so far is only to the effect that three plants of each variety should be sent to Chiswick; but name alone will not convey information as to class or colour, and unless all the various kinds are classified according to colour or markings, no *bonâ fide* trial will be complete. The aim of the trial should be to ascertain, first, how far certain kinds or colours prove to be decorative under ordinary border culture; and, second, as to which varieties give the best habit and excellence of bloom. It would have been satisfactory also to learn whether the plants are to be tested in the lawn beds or in beds or blocks out in the open ground. Some stipulation should be made as to the age of the plant sent, as extra strong ones may show some predominance over layers just rooted. Of course, the finest flowers would come from layers, but old plants would produce most bloom. It will not be difficult, Picotees being included, to make up some sixteen or eighteen diverse classes, as self Carnations include some nine or ten diverse colours. Very probably it will be found that the selfs give the best border effects. Still further, it is very probable that if the plants were put out in triangles or clumps, they would produce very much better effects than if planted in lines. If there be many entries, and the trial satisfactory, it will doubtless prove to be one of the most interesting yet conducted at Chiswick. *D.*



FIG. 38. SUCKER FROM THE ORIGINAL RIBSTON PIPPIN APPLE TREE.



FIG. 39.—THE ORIGINAL RIBSTON PIPPIN APPLE TREE. (SEE P. 213)

HOME-SAVED SEED.—Many cultivators save some favourite vegetable or flower seed every season, and no doubt many have remembered their hobby during the past season, and been sadly disappointed. Leek, Onion, Beet, Brussels Sprout, and other kinds have in many cases failed to ripen (in Northern gardens, at least), and it would be folly to depend entirely on any such seeds without proving them in the first place. In many of the catalogues which have come to us by post a recommendation is enclosed to sow thicker than usual, as bad harvesting and a sunless summer have been adverse to the well-being of the seed crops. To make sure of the value of seeds it is well to sow portions of each kind in small pots, or single rows in boxes or pans, and the soundness and vitality of them can be easily ascertained. There are circumstances in seed-saving over which seedsmen have no control. Our experience this year has been untoward, but not more so than we expected. July and August being damp and cold maturation was impeded, and some of our choice kinds of vegetables will likely become utter failures, as there seems to be no vitality in some of the sorts. Curled Kale taken in dry to an airy warm position, with large portions of the stem attached to the seed-stalk, have ripened fairly well, nourishment having been drawn to the seed-pods from these stems long after they were removed to their ripening quarters. It is well known that many of the seed-saving amateurs in the North depend on virtues from the stem (after the seed is removed to the ripening room) in maturing their choice selection of Leeks and Onions. In some of their kitchens the ripening seed may be seen hanging round on the walls, and fine produce is raised from them. Many of the old seeds, such as Parsley, Turnips, Radishes, all the Brassica kinds, Carrots, Celery, and others might be proved before they are discarded. It may be found that these old seeds are in many cases equal to (if not better) than new purchases. We never discard good kinds without testing the vitality of the old seeds of former years; but though ever so well saved and successfully harvested, seed saved at home cannot always be depended on. As an example, we saved a quantity of Curled Kale from a very fine stock two years ago, and the produce at the present time from them are a coarse lot indeed. *Scot.*

VIOLAS AT THE TEMPLE SHOW.—Messrs. Dobbie & Sons, of Rothesay, offer at the Temple Show of May 30 next, some very good prizes for bunches of Viola blooms, with Viola foliage. So far that is well, but naturally it would be interesting to learn what interpretation is, by the donors, put upon the term Viola. Were there a class for Pansy blooms also it might be inferred that only flowers of what are commonly known as bedding Violas would be admitted in the class specified; as there is none such however, it seems as if flowers of any member of the decorative Viola family, Pansy or otherwise, may be staged. If that be the case, blooms of the rich coloured fancy forms will dominate over the smaller flowered self-coloured bedding Violas. Unfortunately such a class affords no clue as to the fitness of the kinds shown as cut flowers for ordinary bedding purposes. Thus we have few kinds of wide straggling habit of growth than is Countess of Kintore, but the flowers are of the loveliest tints, and beautiful when gathered. If it is intended to encourage the use of Violas (Pansies), as cut flowers, then its aim is so obvious that no mistake can be made, and the richest and most beautiful tints and colours if in proper variety will win, irrespective of bedding qualities. If the class be intended to popularise Violas as bedding plants then it will fail of its object because in the cut form no true conception of the value of varieties for bedding purposes is conveyed. A class for a dozen varieties grown and shown in 12-inch pans would have been the thing, and it is a great pity, having regard to the exceeding beauty found in massing Violas or Pansies, that such a class is not introduced at the show. No doubt any such collection would be welcomed, and possibly honoured, but the absence of a class does not tend to encourage the exhibition of Pansies as plants. *A. D.*

PHLOX DECUSSATA AND HYBRIDS.—Where the expense of buying named varieties of Phlox for borders and beds is not indulged in very pretty varieties can be obtained from seeds saved from high-class flowers. The best plan, if you can wait one year for results, is to sow in boxes in cold frames in April, or in the open ground in a warm spot in May, sowing either in shallow drills or, what is better, thinly broadcast, covering the seeds by sifting a quarter of an inch of potting-bench refuse mould over the bed. When the seedlings in either case are large enough to be conveniently handled they may be pricked out 3 inches apart in beds, gently watering them afterwards, and affording them shade during bright sun for two or three days. Having acquired to strength and size the plants may be transferred to well manured ground, planting them 1 foot apart in lines, there to stand till they flower the following year, when the best formed and finest coloured flowers may be selected, and the rest thrown away or planted in the wild garden if there be one. Some persons pot off the seedlings when large enough direct from the seed-bud, and where but few are grown this method is to be recommended. When considerable quantities—say a quarter to half a pound of seed is used—and the more seed the greater is the chance of securing good flowers—the open-air method of growing them gives the smallest amount of labour. *X.*

CLETHRA ARBOREA.—I believe the reason why this shrub is not more generally grown is because it does not flower freely in a small state. I had seen large plants flowering very profusely, and thought it would make a valuable pot plant in a smaller state. With this idea I put in a batch of cuttings, and succeeded well as far as the propagating was concerned. I soon had a nice lot of plants, which grew freely enough, but for three years they showed no sign of flowering. I do not know how soon after that they did flower, as they passed out of my hands. I should be glad to hear if anyone has succeeded in growing and flowering successfully small bushy plants. *A. H.*

CELERY BOLTING TO SEED.—A true stock of the Dwarf White Incomparable is the most reliable Celery in cultivation. I have grown this kind for many years, and never, under any conditions, found a plant pushing to seed until the spring. It is a fact that, of the kind, there are not many true stocks. That was proved to be the case at Chiswick when tested there some years ago; and but the

other day, one of the largest seed firms which tests every kind of Celery it can procure, wrote, "Yours is the best stock we have seen." It is possible that Incomparable Dwarf White is identical with the Sandringham White referred to by Mr. Ensole. If so it does but show that a fine old variety has got another name. I have had my stock twenty years, and think the Sandringham synonym is not so aged as that. *A. D.*

TESTACELLA MAUGEI. — "A. D." asks if this curious cannibal slug is peculiar to certain soils, which query I am unable to answer; but it is, I think, peculiar to certain parts, as I have only seen it in two places, which are here and the Durdham Down Nurseries, near Bristol, where some thirty-five years ago it used to be quite common, and if the ground is not built on, no doubt it is so now. After heavy rains, or immediately succeeding the watering of borders here, we see one or more crawl out, and sometimes meet with several during the day, but they do not increase to any great extent. *J. Sheppard, Woolverstone, Suffolk.*

ANEMONE BLANDA.—This lovely Wind-flower is one of the first harbingers of spring, being fully a month earlier than A. apennina, which kind it closely approaches, and of which it is considered by some to be a form only; it is a native of Greece. The flowers are larger than those of A. apennina, being often 2 inches or more across, of a deep blue colour, and they are freely produced on leafy stalks 6 to 8 inches high, and the plant is furnished with elegantly divided foliage. Its cultural requirements are few, but will succeed when planted in a well-drained light and rich soil; and it is admirably adapted for a position partially shaded. It is a gem for a sheltered nook in a rockery, where it receives protection from the cutting winds so prevalent in the spring months. *J. P. T.*

THE MARGUERITE IN NEW ZEALAND.—In May 1888, Mr. J. C. Tonkin, of the Scilly Isles, sent to Mr. J. G. Mitchinson (late of Penzance), Christchurch, New Zealand, two pots of cuttings of the white and yellow Marguerite. The cuttings arrived in good condition, and Mr. Mitchinson has raised sixty excellent plants. *W. R.*

UNSUITABLE STOCKS FOR FRUIT TREES.

It is no uncommon occurrence to find in gardens fruit trees of many kinds which are grafted or budded, for it is common to either method, having unsightly bulgings just at the point of union apparently, but really immediately above it. In writing of the evils of employing stocks which grow at a comparatively slow rate for our fruit trees, Mr. Webster of Gordon Castle, N.B., remarked:—

"It is somewhat unfortunate for cultivators of of this class of fruit that more attention is not given by nurserymen at the time of budding to keep solely to the old and well known variety of Plum, Prunus domestica or Mussel Plum, as a stock which is easily propagated by suckers, instead of the system now commonly adopted—viz., of collecting Plum stones in autumn and sowing them by the bushel, without any restriction as to the sort. Many of them may be Damsons or hard-wooded kinds, which are run fast up into growth and make fine-looking and healthy stems, but are much too hard in the wood to grow Peaches upon. The latter, being soft-wooded, soon swell off to a large bulging unsightly growth. Where the union is effected in numerous instances under my own superintendence we have had them die off comparatively young trees, although every care is taken, by root-lifting, and giving fresh soil, &c., to preserve them. It is not in the nursery that the grievance is felt, as the swelling does not take place until the budded sorts attain the size of the stocks in diameter, and is therefore some time out of the possession of the nurseryman.

"To an inexperienced observer the weakened growth and early decay of the young tree might naturally be attributed to some mismanagement on the part of the gardener, while the fault rests with the nurseryman who selected an unsuitable variety of wildings as stock. To illustrate the truth of my statement, I have sketched an example of a Peach tree growing here, showing the form and size of growth in comparison to the disproportion of them when the stock is not well suited, and the circumference (see fig. 40). The tree is an old Noblesse Peach, budded on the Damson stock, or some other equally bad, and which always throws up a number of suckers close to the stem. *John Webster.*

[Mr. Webster kindly sent several sketches of trees at Castle Gordon which are furnished with these excrescences, and which all assist to show the ultimate evil which results from choosing a stock that is too slow growing for the plant which it carries. For some years, often sometimes for twenty or more, the tree lives and produces healthy shoots, and much fruit, but at last, possibly owing to the closing by woody matter of the sap channels in the stock, the demands of the branches are no longer met in full, ill health sets in, and the tree dies. Remedial measures of an ordinary sort are of no use whatever when once decline has set in; and the only one possible, but not to be generally recommended, is that of inarching healthy young trees on to the uppermost part of the stock. Ed.]



Fig. 40.—Noblesse Peach on a Damson stock.

OLD TREES AT RIBSTON HALL, WETHERBY.

The gales during the past week have had rather a disastrous effect on our trees. On Sunday the 3rd inst., about 4 o'clock in the afternoon, the wind blew in gusts varying from north-west to north-east for about half an hour, during which time a very fine specimen of Abies or Picea Pinsapo was destroyed. This tree was planted by my late father, and I cannot find any record of the date of planting, but I think the plant was probably purchased from Messrs. Veitch. At some little distance from the ground the tree had broken out into five stems, the girth of the main stem at 1 foot from the ground was 7 feet 11 inches; the girth of the principal stem of the five was 5 feet 6 inches. All the stems grew pretty equally in height, and the height of the tree was 44 feet 6 inches; the spread of the branches 28 feet. At one time the tree was a dense mass of branches and foliage from its base to its summit; but for some years the lower branches had failed, and, acting on the advice of the late Mr. Sawrez-Cookson I caused all the dead wood to be cut out, and the upper branches were acquiring a beautiful pendulous growth. We counted forty-one annular rings in a cross section of the principal stem, and we estimated forty-two annual growths of the branches. The tree was introduced into England in 1838, and we imagine that the probable age of our tree was forty-six years, which would make it an early specimen of the species. The tree was in vigorous health, and its glorious dark green foliage was never more beautiful than when it fell. On the same day about one-half of an old flowering Ash (Ornus europæa) was blown down in the park. The girth of this tree was 7 feet 4 inches at 4 feet from the ground.

Another victim of the storm was a fine Beech, standing amongst other Beeches and Oaks on a piece of ground in the park, which is called the Tilting-ground, and which is supposed to have been the exercise-ground of the Knights of the Temple, who had a Preceptory here. The measurements of this tree are 47 feet up to the first branches, then 14 feet more of the main bole, and 30 feet of branches, the total 91 feet; at 3 feet from the ground the girth is 9 feet 2 inches; at 24 feet, 7 feet 6 inches.

Both these were old trees beginning to fail, and the Ash showing signs of decay in the trunk

On the 8th we had another violent gale, and a very fine tree of the Poplar tribe was blown over into the river. I imagine, from a coloured plate in an old Dutch book on botany—Weinman's *Opus Botanicum*, Amsterdam, 1748—that this tree is there illustrated as "Populus alba incana; *Peuplier blanche large feuille.*" It was a beautiful tree in spring, covered with large purple catkins, growing on the brink of the river Nidd; the soil had been washed away from the roots, and we had been in fear of a disaster for some time.

The older trees which I have mentioned were probably planted here by Sir Henry Goodricke, who from the letter enclosed, and from the specimens which still survive here, must have been an ardent cultivator of trees of all kinds. The letter is copied from the original in the British Museum, and may be of some interest to your readers:—

"Sir,—The civilitys I have received from you do incourage me to give the trouble of a letter, and knowing you to be one who loves to incourage curiosity, makes me hope that the subject of my letter won't be so disagreeable to you as another; it is to desire of you that, if amongst your rarities you have any number of seeds, nuts, or kernells, of foreign and rare trees, especially those that are hardy, I shall verily thankfully pay for 'em; my pleasure being to raise such things in hotbeds and preserve 'em with care: and I would not rob you of any but what you have so many as you may readily spare a part to one who will as readily supply you again when any accident happens to yours, which I believe yrs are more subject to near London than we are here, where I my self take the chief care of my curious trees. I have not yet been able to procure a tree of the true Lotus nor the Larch tree, both which Mr. Evelyn says grow well in our climate, and may be raised of seed: those seeds or any other exotics I doubt not to raise, I mean trees, for smaller plants are too numerous for me to attend. If you cou'd procure me a small tree of each of those kinds, I wou'd repay you with thanks, being, S^{r}, y^{r} obliged, humble servant, *H. Goodricke, Ribstan, near Boroughbridge in Yorkshire* (month obliterated), 17$\frac{15}{16}$." *J. Dent Dent.*

[The two engravings of the Ribston Pippin Apple trees at Ribston Hall appeared in our pages in the year 1844. The old tree, represented in fig. 39, is now dead, and the other (fig. 38), a sucker from the old tree, is, as we learn from the courtesy of J. Dent-Dent, Esq., still living. This sucker tree, in its

younger days, was delicate and grew but slowly, but as it has reached to the present day, we may assume that the kindly attentions bestowed upon it have not been without good results. Nothing is known with perfect exactness about the advent of the famous Apple at Ribston Hall, but the best credited story is that the seeds came from Rouen (another Conqueror from Normandy), and were sown at Ribston in 1787. From these sprang many trees which afterwards were planted about in the park. Some—perhaps only one—was the progenitor of our present Ribston Pippin, and others were Crabs. Ed.]

SOCIETIES.

ROYAL HORTICULTURAL.

February 12.—The exhibition on this occasion was very satisfactory, especially when the recent snow and frost are considered. It was also pleasing to see a good attendance of Fellows at the Hall, which, despite the best efforts to warm it by fires, still remained uncomfortably cold.

It is worthy of note that the committee met, and did not award a single Certificate—nothing beyond the usual Medals, and the new "Award of Merit" to Mr. Owen's Primulas. The annual general meeting, referred to at p. 208 was well attended.

Floral Committee.

Present: T. B. Haywood, Esq., in the chair; and Messrs. T. Baines, C. F. Pilcher, H. Turner, H. M. Pollett, J. Dominy, W. H. Williams, J. O'Brien, Ed. Mawley, T. W. Girdlestone, J. Laing, J. Douglas, R. Dean, H. Herbst, J. Walker, B. Wynne, L. Castle, W. Holmes, F. Ross, G. Paul, J. Fraser, M. T. Masters, and E. Hill.

Cyclamens in pots were largely shown by the St. George's Nursery Co., Hanwell, and by Mr. J. May, Gordon Nursery, St. Margaret's, Twickenham; both exhibitors had plants of medium size, bearing numerous clear and bright flowers. In each case a Silver Banksian Medal was awarded.

A pretty little group of hardy herbaceous plants, which was awarded a Bronze Banksian Medal, was contributed by Messrs. Paul & Son, Old Nurseries, Cheshunt, in which Hellebores were conspicuous; these were H. fœtidus, H. hybridus, H. orientalis rosea, H. colchicus, and H. niger rubra, the last named being a very effective flower. Iris reticulata was largely shown, and the rich colouring of the flowers, together with the scent, make them very desirable plants to have, especially at this season. Saxifraga Burseriana, one of the most beautiful of the genus, was shown in flower. There were, too, Eranthis hyemalis, and Saxifraga cæsia, as well as other plants. From the same source came fine spikes of Cœlogyne cristata (Chatsworth variety).

Mr. R. Dean, Ealing, showed a hardy Primrose to which the name True Blue has been given; the hue of the flower approaches blue, but has a distinct violet tinge.

Flowering shoots of Acacia verticillata (=A. oxycedrus) and Thunbergia laurifolia were exhibited by Mr. F. Ross, Pendell Court Gardens, Bletchingley.

Messrs. J. Veitch & Son contributed a quantity of cut trusses of their hybrid greenhouse Rhododendrons in a great range of colours; the greater number of these had been seen before, but the following were perhaps the most attractive:—Taylori, delicate rosy-carmine with a white tube, the truss being full and the flowers of good size: Hermosa, deep carmine and full flowered; and Dido, rich brownish-yellow, with a pink suffusion, also a fairly large flower. There were also two hybrid Cypripediums, viz., C. T. B. Haywood (Druryi × superbiens), The dorsal sepal is shaped as as in superbiens (the seed-bearing parent), the other parts of the flower taking an intermediate form. The dorsal sepal and petals have a dark brown, median line as in Druryi; ground colour pale yellow suffused with rose, and lined with rose and green. No hairs are on the margin of the petals. The lip is of a rosy colour.

The other Cypripedium was a hybrid raised by Mr. Lathom between C. Spicerianum and C. villosum. This has the fine dorsal sepal of the first-named parent with the lip and petals inclined more to those of C. villosum; in colour they are dark reddish-brown.

A flowering-spike of Dendrobium undulatum, and cut blooms of Odontoglossum nebulosum pardinum, were sent by Mr. Swan, gr. to G. C. Raphael, Esq., Castle Hill, Englefield Green. The latter were heavily spotted with large greenish-grey marks. The Dendrobe is pale brown in colour, with the segments much twisted in a very curious fashion—more interesting than beautiful.

J. F. Jackson, Esq., Bourne Place, Bexley (gr., Mr. Dowsett), had a prettily and heavily spotted Odontoglossum Pescatorei, to which an "Award of Merit" was given.

Mr. Batchelor, Catton Park, Norwich, sent some nice flowers of Cypripedium insigne; and Cattleya Trianæ var. came from Mr. T. Rawlings, gr. to W. Yates, Esq., Birches Green, Erdington, Birmingham; it is a richly coloured flower, with a deep expanding lip, having yellow in the throat; the sepals and petals are rosy.

Mr. C. J. Rowe, gr. to H. Scott, Esq., Nunfield, Dumfries, had blooms of Lælia anceps var. Scottiana, which were very richly coloured with a uniform deep carmine rose.

A plant of Lælia elegans Blenheimensis, a bright and pretty flower, with the lip pale magenta, and the sepals and petals rosy-brown, was from Mr. Whellans, gr. to the Duke of Marlborough, Blenheim Park, Woodstock. This completed the display of Orchids.

Some plants of Yucca filamentosa with variegated foliage were sent by Messrs J. R. Pearson & Sons, Chilwell Nurseries, Notts. These were remarkably pretty.

Primula blooms were shown by Mr. H. James, Farnham Royal; and by Mr. R. Owen, Floral Nurseries, Maidenhead, both having some very pretty flowers. The strain of the latter was commended. The laced forms to be seen here were very effective.

A Silver Banksian Medal was accorded to Messrs. Barr & Son, King Street, Covent Garden, W.C., for an extensive exhibit of Narcissi in pots, in which some of the most useful varieties were included, as well as one or two of the more recent introductions. We may enumerate Henry Irving, Maximus, Emperor, Pallidus præcox, Telamonius plenus, C. J. Backhouse (yellow segments and orange cup), Leedsi, and Princess Ada, which opens pale yellow, and as it developes becomes white. This is, of course, rather early for the flowers to be seen at their best.

Narcissus p. n. Troillus, from a cold frame, was shown by the Rev. W. Wilks, Shirley, Croydon, to illustrate its earliness. It is a very good Narciss.

Fruit Committee.

Present: R. D. Blackmore, Esq., in the chair; and Messrs. H. J. Veitch, P. Barr, J. Cheal, J. R. Bates, G. Cliffe, G. W. Cummins, J. T. Saltmarsh, J. Roberts, W. Wildsmith, A. H. Pearson, C. Ross, W. Denning, J. Burnett, G. Bunyard, F. Q. Lane, G. Wythes, J. Hudson, F. Moore, P. Crowley, J. Wright, H. Weir, and A. W. Sutton.

Hardy fruit was shown in unusual abundance and goodness for the advanced period of the year. As may be supposed, the traders made by far the largest display, but the amateurs were quite equal to them in the matter of preservation, size, and colour: the collection from A. H. Smee, Esq., The Grange, Wallington (gr. Mr. Cumins), being, in these points, the best there—a proof that land which can be treated like a water meadow, as is the garden at the Grange, is favourable to the Apple. Mr. Smee's collection numbered thirty-six dishes of Apples and a few of Pears. We noted fine fruits of Blenheim Orange, Ribston, King of Pippins, Duke of Devonshire, Belle Dubois, Cox's Orange, Wellington, New Hawthornden, Dutch Mignonne, Pomona, &c. The Pears included Beurré d'Hillier, Bergamot d'Esperen, Chaumontel, Beurré Rance, and two stewing kinds. A Silver-gilt Banksian was awarded.

W. Roupell, Esq., Harvey Lodge, Streatham, had the same number of dishes as the first-named exhibitor, and comprising many of the same varieties; Bramley's Seedling, The Queen, Lane's Prince Albert, Warner's King, Sandringham, Winter Hawthornden, Reinette du Canada, were all excellent examples.

Messrs. T. F. Rivers & Son, The Nurseries, Sawbridgeworth, exhibited about sixty dishes, many well kept, others not, of well-known as well as others by no means common in gardens. Messrs. Rivers' collection of home-grown Citrons, Lemons, and Oranges was small, but it was excellent, and shows what may be obtained with the aid of glass and an intermediate temperature during the winter. The following varieties and species were noticed:—Oranges: Sustain, St. Michael's, White, Billincourt, Silver, Seville variegated, Egg, Maltese Blood and Maltese Oval, Dom Louis; the Lemon Bijou shown on a little tree, which was loaded with fruits in various stages of growth. A white Lemon and a Faringo Shaddock were shown.

Messrs. G. Bunyard & Co., Old Nurseries, Maidstone, showed 120 dishes of fruit; Messrs. Cheal & Son, Crawley, Sussex, about the same number. A Silver-gilt Banksian Medal was awarded for both of these exhibits. In both instances the fruit was in capital condition as regarded appearance, and had been well secured in well-built fruit-rooms against the damaging fluctuations of temperature.

Messrs. Cranston & Co., King's Acre, Hereford, coloured showed Bietingheimer Apple, a large red and yellow fruit, slightly five-angled, and with eye and stalk basins but slightly depressed.

Carlton Seedling Apple was shown by W. H. Divers, gr., Ketton Hall, Stamford. It is a large yellow culinary fruit, and the tree is said to be a vigorous grower and sure cropper.

The Wroxton Onion, so-called, was shown by Mr. C. W. Howard Bridge, Canterbury, by whom it is stated to be the original Canterbury Prize which was selected in 1879 from Hossack's, or Bishop's Onion, a variety raised in 1850. The bulb shown was from seed sown in the open air in March last. A small neat Cucumber, a selection from Rollisson's Telegraph, was shown by Mr. J. Clayton, gr., Grimston, Tadcaster, under the name of Yorkshire Telegraph.

LINNEAN.

February 7.—Mr. C. B. Clarke, M.A., F.R.S., Vice-President, in the chair. Messrs. J. R. Green and J. W. White were admitted Fellows of the Society, and, on a ballot taking place, the following were elected:—The Earl of Ducie, Messrs. Henry Hutton and Malcolm Lawrie.

The Rev. E. S. Marshall exhibited several interesting varieties of British plants collected by him in Scotland, and made remarks thereon.

Mr. E. M. Holmes exhibited a new British seaweed from Bognor, a variety new to science.

A paper was then read by Mr. A. D. Michael on three new species of parasitic Acari, discovered by him in Derbyshire during the autumn of 1888.

Professor Martin Duncan then gave the substance of an important paper which he had prepared, entitled "A Revision of the Families and Genera of the Echinoidea, Recent and Fossil." Reviewing the labours of his predecessors, Professor Duncan traced the growth of the literature of his subject, and showed that although many lists and papers had been published from time to time, no general review of the class Echinoidea had been attempted since 1846. Dealing with all the material at his command, he found it necessary to propose certain alterations in the classification, and to dispense with a good many genera and subgenera which he considered had been needlessly founded. Above all, he had set himself the task of revising the descriptions of the genera, giving positive instead of comparative characters—a course which he believed would prove of great utility to students.

The paper was criticised by Mr. Sladen, Professor Stewart, and Mr. Breeze, all of whom testified to the necessity which had arisen for some authoritative revision of the subject, such as had been undertaken by Professor Duncan, and which undoubtedly would lighten very considerably the labours of future enquirers.

The meeting was adjourned to February 21.

GARDENERS' SOCIETY AT WOOLTON.

The inaugural meeting was held on February 7 at the Mechanic's Institute, Woolton, of a Society of gardeners recently formed in the district for the purpose of mutual improvement by the discussion of horticultural subjects, both scientific and practical, and the providing of a library for general information and reference. The Society is the outcome of the course of lectures on botany delivered last year at Woolton by Professor Harvey Gibson, of University College, Liverpool, and is warmly supported by Mr. Holbrook Gaskell, a most enthusiastic horticulturist and botanist, who has been elected its President, and who has already given abundant proof that no effort on his part will be wanting to make it a success.

The movement has been heartily taken up by the gardeners in the Woolton district, and at the meeting there was a good attendance of members. Mr. Gaskell presided, and there were also present Pro-

fessor Harvey Gibson, Mr. G. Beaumont, Mr. R. P. Ker, Mr. R. Todd, and Mr. J. Rothwell (Secretary.)

The Chairman, in the course of his speech, said that he advised them to confine themselves strictly to the objects for which the Society was founded., and to pursue them with singleness of purpose, and with seriousness and earnestness. There were two aspects of the study of horticulture—the practical and the scientific. He imagined they were all actuated by a desire to acquire some knowledge of the sciences connected with horticulture and agriculture. A man who was simply a handicraftsman could not take the same rank as one who brought scientific knowledge to bear upon his daily work. He therefore urged all, and particularly the young men, to aspire to the possession of a knowledge of those sciences that applied to gardening—chemistry and botany. They would find that to obtain that knowledge involved very hard work; he would not be surprised if the result of their experience would teach them that work by the brain was harder than work by the hands. He hoped they would make their meetings as systematic as possible, and that at each meeting they would have a specific object in view, and would pursue it with earnestness.

Professor Harvey Gibson, in the course of his address, hoped the Society would keep definitely before their minds the application of science to practice. He believed the greatest results would be derived from an intimate union of both, and he urged them always to consider not only the practical applications, but the theoretical principles which underlie these applications. The Chairman, and also Professor H. Gibson, promised, if a sufficient number of students for the scientific were enrolled, to assist the Society with materials and with advice. *Extract from "Liverpool Daily Post," February 8.*

The Orchid Houses.

Work to be Done.—As soon as convenient the varieties of Lælia anceps and other Mexican Lælias should be repotted or basketed if requiring it. A good sample of fibry peat alone is best for these and for Lælias and Cattleyas generally. Cattleya Gaskelliana especially, and, indeed, most of the Cattleyas of the labiata section, should be repotted (the C. Trianæ being left until the flower is over, and C. gigas, C. Dowiana, and until after flowering in summer). For some time past and from now onward until active leaf-growth takes place, the Cattleyas and Lælias should be kept rather on the dry side so far as the materials in the pots go, as when so kept they root more profusely; but a sharp eye should be kept on the bulbs that no indication of shrivelling appears, and when water is given a thorough saturation should be secured—nothing helps to starve plants and make poor flowers more than dribbling a little water now and then, so that the plants are never thoroughly wetted.

After the Lælias and Cattleyas, which require repotting, are done the Aërides, Vandas, Saccolabiums, &c. (except V. tricolor, V. suavis, V. insignis, and their varieties, which are best potted in autumn), should be attended to. For these good clean crocks and living sphagnum moss are all the materials necessary. The Vandas, Aërides, and Saccolabiums are not well grown in collections generally, and I attribute their ill-health to their being kept too warm in winter, and to their being generally grownin pots. Baskets of sound Teak wood, with the plants in them, well brought up to the light (not in sunlight by any means) would give them a far better chance. Those in baskets with the roots intertwined should, if possible, have the old stuff removed, and its place supplied with new without changing the basket if sound. Clean pots, clean staging, and clean surroundings of every description should always be left when passiug the plants through the hands for any purpose. *James O'Brien.*

Law Notes.

CARTER v. BOLTON.

The report you gave of this case under the heading of "Law Notes," in your issue of February 9, is hardly clear. The question between us and Major Bolton was the recovery of a debt which was never disputed, and we were simply carrying out the power we held to recover an outstanding account which was admitted to be in order. We fear that to a careless reader it may be understood to convey the idea that the Major objected to pay because inferior goods were sent to him by us; but this was not so; and if any damage did accrue to the shipment, it would probably be caused by the stowage of the goods too near to the engines—a circumstance over which we could have no control. *James Carter & Co.*

The Weather.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree — a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature.				
		Accumulated.			
	Above or below the Mean for the week ending Feb. 11.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1889.	Below 42° difference from Mean since Jan. 1, 1889.
Principal Wheat producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. Scotland, N. ...	7 below	0	77	+ 7	+ 13
1. Scotland, E. ...	5 below	0	64	+ 8	— 13
2. England, N.E. ...	5 below	0	60	+ 6	— 8
3. England, E. ...	6 below	0	61	— 22	+ 45
4. Midland Cos. ...	6 below	0	55	— 25	+ 28
5. England, S. ...	6 below	0	46	— 27	+ 16
Principal Grazing, &c., Districts.					
6. Scotland, W. ...	5 below	0	53	+ 8	— 29
7. England, N.W....	5 below	0	44	— 11	— 33
8. England, S.W....	4 below	7	34	— 31	+ 14
9. Ireland, N. ...	4 below	0	34	0	— 30
10. Ireland, S. ...	2 below	12	27	— 5	— 16
— Channel Islands	1 below	22	9	+ 17	— 35

Districts.	Rainfall.			Bright Sunshine.	
	More or less than the Mean for the Week.	No. of Rainy Days since Jan. 1, 1889.	Total Fall since Jan. 1, 1889.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1889.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. Scotland, N. ...	4 more	32	6.4	9	10
1. Scotland, E. ...	2 less	23	2.1	40	25
2. England, N.E. ...	1 less	21	1.7	39	21
3. England, E. ...	4 more	21	1.8	18	17
4. Midland Cos. ...	3 more	20	2.3	20	16
5 England, S. ...	3 more	21	2.1	12	16
Principal Grazing, &c., Districts.					
6. Scotland, W. ...	3 less	25	3.5	39	20
7. England, N.W....	2 more	22	2.9	28	18
8. England, S.W....	1 less	21	3.6	22	21
9. Ireland, N. ...	1 more	31	1.9	26	15
10. Ireland, S. ...	2 less	27	5.3	30	21
— Channel Islands	0 (aver.)	26	3.2	20	26

The Past Week.

The following summary record of the weather for the week ending Feb. 11, is furnished from the Meteorological Office:—

"The *weather* has continued in cloudy and unsettled condition generally, although in some parts of the Kingdom a few bright intervals have been experienced. Falls of rain occurred during the earlier part of the period, but towards its close large quantities of snow were reported, especially over Wales and central and southern England.

"The *temperature* has been below the mean in all districts. In the 'Channel Islands' and over the south of Ireland the deficit has been slight, but in most other parts of the Kingdom it was as much as 5° or 6°, and in 'Scotland, N.,' 7°. The height of the maxima, which were recorded during the earlier part of the week, ranged from 46° in 'England, N.E.,' and 'Scotland,' W.,' to 54° in 'Ireland, S.' At some of our northern and north-western stations the maxima on the 10th did not exceed 29°. The lowest of the minima were registered either on the 10th or 11th, when the thermometer fell to 10° in 'Scotland, N.,' and 'Ireland, N.' (at Fort Augustus and Brookeborough), to 16° in 'England, S.W.,' and , Scotland, E.,' and to between 18° and 22° in nearly all other districts. In the 'Channel Islands' the lowest reading was 32°.

"The *rainfall* has not differed materially from the mean value, but in most parts of England it has been rather more. In some parts of the 'Midland Counties' the fall of snow on the 10th yielded about 0·75 inch of water, and at our southern stations rather more than 0·5 inch.

"*Bright sunshine* has been more prevalent than it was last week; the percentage of the possible amount of duration ranged from 9 in 'Scotland, N.,' and 12 in 'England, S.,' to 30 in 'Ireland, S.,' 39 in 'England, N.E.,' and 'Scotland, W.,' and to 40 in 'Scotland, E.'"

Useful Inventions.

PASCALL'S PROPAGATING PAN.

In small gardens, not usually too well found in appliances, any methods of propagating plants with ease and expedition are always welcomed as boons. "To put your cutting-box or pan over the hot-water pipes of a forcing-house at work" is a very common piece of advice to the inquiring amateur; but where only two rows of pipes exist, and these one above the other, it is not easy to arrange things so that the soil in which are the cuttings shall be kept at an equable warmth in all parts, and it generally is found to get too hot for the cuttings in the part just over the pipes. Pascall's pan obviates that difficulty, it being formed in shape like a metal evaporating-pan—that is, it will fit over pipes of any diameter (the one sent is intended for a 4-inch one, outside diameter).

The pan, before receiving the soil, is partly filled with water, over which a perforated bottom of pottery is fitted on a ledge at each end of the pan, the latter being fitted with an overflow hole at the side, so that when watering the soil, the water cannot rise so high as to enter the soil at the bottom. For cuttings needed to be kept close a collapsible zinc frame, made with rabbets to hold glass ends, sides, and top, is fitted on to the pan. The total length of pan is 14 inches, the material common garden pottery, and it therefore must be cheap. The maker resides at Norwood Junction, Surrey.

Markets.

COVENT GARDEN, February 14.

No alteration; market still quiet; imported goods of all kinds in heavy supply. *James Webber, Wholesale Apple Market.*

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Foliage plants, various, each ...	2 0	10 0
Arum Lilies, p. doz.	9 0	15 0	Ficus elastica, each	1 6	7 0
Azaleas, dozen	24 0	42 0	Genista, dozen	9 0	18 0
Cineraria, per dozen	8 0	12 0	Hyacinths, dozen	6 0	9 0
Cyperus, per dozen	4 0	12 0	— Rom.. doz. pots	9 0	10 0
Dracæna terminalis, per dozen ...	30 0	60 0	Lily-of-Val.,doz. pts.	18 0	30 0
— viridis, per doz.	12 0	24 0	Marguerites, doz. ...	6 0	12 0
Erica hyemalis, doz.	9 0	18 0	Palms in var., each	2 6	21 0
— caffra, dozen ...	6 0	12 0	Pelargoniums, scarlet, per dozen	6 0	9 0
Euonymus, in var., per dozen ...	6 0	18 0	Poinsettias, dozen ...	8 0	12 0
Evergreens, in var., per dozen ...	6 0	24 0	Primulas, per dozen	4 0	6 0
Epiphyllums, doz....	18 0	30 0	Solanums, dozen ...	6 0	12 0
Ferns, in var., doz.	4 0	18 0	Tulips, dozen pots ...	6 0	9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	3 0-	6 0	Mignonette, 12 bun.	2 0-	4 0
Anemone, Fr., 12 bun.	2 0-	6 0	Narcis., paper-white, (French), 12 bun.	2 0-	6 0
Arum Lilies, 12 blooms	3 0	6 0	— double, 12 bun.	1 6-	3 0
Azaleas, 12 sprays	0 9-	1 0	Pelargoniums, 12 spr.	1 0-	1 6
Bouvardias, per bun.	0 9-	1 6	— scarlet, 12 spr.	0 6-	1 0
Camellias, 12 blms.	2 0-	4 0	Poinsettias, doz.	3 0-	6 0
Carnations, 12 blms.	2 0-	3 0	Primroses, 12 bun.	1 0-	1 6
Christmas Roses, 12 blooms	0 6-	1 6	Primulas, dbl., 12 sp.	1 0-	1 6
Chrysanthemums, 12 blooms	0 6-	1 0	Roses, Tea, per doz.	2 0	6 0
— dozen bunches	2 0-	4 0	— coloured, dozen.	2 0-	4 0
Daffodils, dbl. 12 bun.	9 0-	12 0	— red, per dozen	6 0-	9 0
— single, 12 bun.	12 0-	18 0	— Safrano, dozen	2 0-	4 0
Eucharis, per dozen	3 0-	6 0	Snowdrops, 12 bun.	1 0-	3 0
Gardenias, 12 blooms	15 0-	30 0	Sofrano (Fr.), doz.	1 0-	3 0
Heliotropes, 12 spr.	0 6-	1 0	Stephanotis, 12 spr.	12 0-	15 0
Hyacinths, Roman, 12 sprays	1 0-	1 6	Tuberoses, 12 blms.	2 0	4 0
Lapageria, 12 blooms	1 6-	3 0	Tulips, 12 blooms	0 8-	1 0
Lilac, white Fr., bun.	4 0-	6 0	Violets, 12 bunches	1 0-	1 6
Lily-of-Val., 12 spr.	0 6-	1 0	— dark, Fr., bunch	1 6	2 6
Marguerites, 12 bun.	3 0-	6 0	— Parme, Fr., bun.	4 0-	5 0
			Wallflowers, 12 bun.	4 0-	6 0
			— French, 12 bun.	1 6-	2 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2 0-	4 0	Grapes, per lb.	1 0-	3 6
— Canada and Nova Scotia, per barrel	7 0-	17 0	Lemons, per case	12 0-	21 0
Cobs, 100 lb.	100 0-	110 0	Pine-apples, Eng., lb.	1 6-	2 0
			— St. Michael, each	2 0-	8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	5 0-	...	Mustard and Cress, punnet	0 4-	...
— French, bundle	8 0-	...	Onions, per bunch	0 5-	...
Beans, Jersey and French, per lb.	1 6-	...	Parsley, per bunch	0 8-	...
Beet, red, per dozen	1 0-	2 0	Peas, French, per lb.	1 0-	...
Carrots, per bunch	0 6-	...	Potatos, per cwt.	4 0-	5 0
Cauliflowers, each	0 3-	...	— kidney, per cwt.	4 0-	5 0
Celery, per bundle	1 6-	2 0	— new French, lb.	0 6-	...
Cucumbers, each	1 0-	...	Rhubarb, bundle	0 6-	...
Endive, per dozen	3 0-	...	Seakale, punnet	2 6-	...
Green Mint, bunch	1 0-	...	Shallots, per lb.	0 6-	...
Herbs, per bunch	0 6-	...	Spinach, per bushel	4 0-	...
Leeks, per bunch	0 4-	...	Tomatos, per lb.	2 0-	...
Lettuce, per dozen	1 6-	...	Turnips, per bunch, new	0 5-	...
Mushrooms, punnet	1 6-	...			

POTATOS.—Beauty of Hebron, 80s. to 100s.; Imperators, 70s. to 90s.; Dunbar Regents, 110s.; do. Magnums, 120s.; and York Magnums, 100s. per ton.

SEEDS.

LONDON: *Feb.* 13.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market thinly attended, with not much business passing. As might be expected, the severe wintry weather naturally checks for the time the demand for farm seeds; meantime stocks are in modorate compass, and values all round keep steady. Quotations for red Cloverseed come strong from America, and also from the Continent. In Trefoil there has been a further advance. Alsike and white unchanged. Rye-grass still neglected. There is an increased inquiry for Sanfoin. Both winter and spring Tares are dearer. Peas and Haricots are firm. For birdseeds the sale is slow.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending February 9: — Wheat, 29*s.* 7*d.*; Barley, 26*s.* 4*d.*; Oats, 16*s.* 7*d.* For the corresponding week in 1888: — Wheat, 30*s.* 5*d.*; Barley, 30*s.* 1*d.*; Oats, 15*s.* 10*d.*

FRUIT AND VEGETABLES.

SPITALFIELDS: *Feb.* 13.—Smaller supplies of green vegetables owing to the inclement weather; prices higher. Good supplies of Potatos. Trade fair. Quotations:—Savoys, 2*s.* to 5*s.* per tally; Greens, 6*s.* to 10*s.* do.; Cauliflowers, 1*s.* per dozen; Broccoli, 8*d.* to 1*s.* do.; Brussels Sprouts, 1*s.* to 1*s.* 6*d.* per half-sieve; Turnip-tops, 2*s.* to 2*s.* 6*d.* per sack; Spinach, 2*s.* 9*d.* to 3*s.* per bushel; Seakale, 1*s.* 3*d.* to 1*s.* 6*d.* per punnet; Parsnips, 8*d.* to 1*s.* per score; Beetroots, 8*d.* to 1*s.* per dozen; Parsley, 7*s.* to 10*s.* per dozen bunches; Turnips, 2*s.* to 2*s.* 6*d.* do.; Carrots, 1*s.* 6*d.* to 2*s* 6*d.* do.; forced Rhubarb, 1*s.* 8*d.* to 2*s.* 6*d.* do.; Horseradish, 10*d.* to 1*s.* 2*d.* per bundle; Celery, 8*s.* to 14*s.* per dozen bundles; Endive, 2*s.* per dozen; American Apples, 9*s.* 6*d.* to 15*s.* per barrel; English do., 3*s.* to 6*s.* per bushel; do., 1*s.* 6*d.* to 3*s.* per half-bushel; English Onions, 6*s.* 6*d.* to 7*s.* per cwt.; Spanish do., 8*s.* 6*d.* to 10*s.* per case; Dutch do., 4*s.* to 4*s.* 6*d.* per bag; Belgian do., 4*s.* to 4*s.* 6*d.* do.; pickling do., 5*s.* to 6*s.*; Carrots, 20*s* to 30*s.* per ton; Mangels, 16*s.* to 18*s* do.

STRATFORD: *Feb.* 12.—Both trade and supply have been good during the past week. Cabbages, 2*s.* 6*d.* to 3*s.* per tally; Savoys, 2*s.* to 3*s.* do.; Cauliflowers, 1*s.* 3*d.* to 2*s.* per dozen; Turnips, 2*s.* 6*d.* to 3*s.* per dozen bunches; do., 30*s.* to 40*s.* per ton; household Carrots, 25*s.* to 30*s.* do.; Parsnips, 9*d.* to 1*s.* per score; Mangels, 15*s.* to 18*s.* per ton; Swedes, 15*s.* to 20*s.* do.; Onions, English, 100*s.* to 120*s.* do.; Apples, English, 2*s.* 6*d.* to 5*s.* per bushel; do., American, 11*s.* to 13*s.* per barrel; Watercress, 6*d.* per dozen; Carrots, 2*s.* to 2*s.* 6*d.* per dozen bunches; Celery, 9*d.* to 1*s.* per roll; Beetroot, 9*d.* per dozen; Brussels Sprouts, 1*s.* to 1*s.* 6*d.* per half sieve; Oranges, 2*s.* 3*d.* to 2*s.* 6*d.* per 100.

POTATOS.

BOROUGH AND SPITALFIELDS: *Feb.* 12. — The weather has interrupted supplies somewhat, but there has been quite sufficient for demand, which is limited, and confined almost entirely to best qualities:—Regents, Scotch, 90*s.* to 125*s.*; English, 60*s.* to 100*s.*; Hebrons, 60*s.* to 100*s.*; Magnum Bonums, Scotch, 90*s.* to 125*s.*; English, 60*s.* to 100*s.*; other growths, 50*s.* to 90*s*, per ton.

SPITALFIELDS: *Feb.* 13.—Quotations:—Champions, 55*s.* to 60*s.*; Regents, 75*s.* to 110*s.*; Imperators, 75*s.* to 85*s.*; Hebrons, 70*s.* to 75*s.*; Magnums, 65*s.* to 80*s.* per ton.

STRATFORD: *Feb.* 12.—Quotations:—Scotch Magnums, 90*s.* to 100*s.*; do., Regents, 85*s.* to 110*s.*; English Regents, 70*s.* to 90*s.*; do. Magnums, 60*s.* to 90*s.* per ton.

Imports.—The imports into London last week consisted of 878 bags from Hamburg, and 2 packages from Flushing.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime old, 120*s.* to 144*s.*; do., good second, 60*s.* to 110*s.*; do., inferior, 36*s.* to 70*s.*; do., new, 85*s.* to 110*s.*; inferior, do., 60*s.* to 80*s.*; Hay, prime meadow, 120*s.* to 126*s.*; new, do., 80*s.* to 100*s.*; inferior, 30*s.* to 75*s.*; old, 110*s.* to 126*s.*; straw, old, 42*s.* to 48*s.*; do., new, 28*s.* to 42*s* per load.

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

HUMULUS JAPONICUS. — I should be obliged if any of your readers who have grown the Humulus japonicus would inform me whether it is really very ornamental, and superior to our Hop, which belongs to the same genus, and is a deciduous perennial which is certainly a disadvantage. The white flower appears from drawings to be rather large. It is not yet in all catalogues, but the price in one that I have is much too high—1*s.* 6*d.* and 2*s.* 6*d.* per packet—as some of the first seedsmen in England and Germany offer it for much less. *Jock of that Ilk.*

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, *do* PLEASE NOTE *that letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the* PUBLISHER, and not to the Editor, but that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

BALSAMS: *G. S.* Sow in the beginning of April, and grow the plant on quickly in mild bottom-heat, with plenty of air on every favourable occasion, and always keep the plants close to the glass.

CANARY ISLAND FRUITS: *H. H. M.* Poma rosa = Rose Apple (Eugenia Jambos); Aguacate = Avocado or Alligator Pear (Persea gratissima). Only curiosities in this country.

CELOSIAS: *G. S.* Sow in March in a hotbed, plunging the pot in leaf-mould or coal-ashes to the rim, and when furnished with two or three true leaves they should at once be pricked-off into pots or pans of leaf-mould and peat, with a fair amount of silver-sand added. Keep them close to the glass when potted off, and give air from the first freely but carefully.

CELSIAS: *G. Meikle.* If required to flower early sow on a hotbed in March, or in the open ground in June. The plants must be taken indoors for the winter in any case. *C. arcturus* is propagated by cuttings.

DRACÆNAS: *J. S.* The insect sent is one of the weevils. Trap them and destroy them at once. Do not stick a pin through them while still alive, and send them in that condition through the post. It would not be humane to treat a political prisoner in that way!

ERRATUM.—At p. 182, col. *b*, at end of article on "Pine-apples," for 60's and 82's, read 6-inch and 8-inch.

HYDRANGEAS: *A. B.* The statement in question is generally credited, but we are not aware of any definite experiments in support of it. The salts employed are often given by florists to young plants after they are struck, especially when these are flowered in the first year. A common practice with market growers.

INSECTS: *H. B.* The insects which have eaten through the underground portions of the stems of the Lily of the Valley are caterpillars of a moth (all dead, but evidently those of the small brown Swift moth). Sift the earth carefully where the drooping plants show the enemies to be at work, also water with gas-tar water mixed with soap-suds, and put soot on the surface round the plants. *W.*



FIG. 11. THE SWIFT MOTH.

KEROSENE EMULSION: *A. B.* Prof. Riley's formula is as follows:—Kerosene, 2 gallons = 67 per cent.; common soap ½ lb., water 1 gallon = 33 per cent. Boil the soap and water, and add it while boiling to the kerosene; churn the mixture by a force-pump and spray-nozzle for five or ten minutes. The 3 gallons of emulsion, so prepared, forms a thick cream, to use which one part should be mixed with nine parts of cold water, and used with a spray-pump.

LASTREA FILIS MAS: *A. E.* It is deciduous.

MADEIRA WHORTLEBERRY: *Peak.* Vaccinium padifolium, syn. V. maderense. Its fruits are pink and green coloured.

NAMES OF FRUITS: *J. H. J.* 28, Cellini; 58, Dumelow's Seedling; 78, Claygate Pearmain; 1, Bedfordshire Foundling; 27, Yorkshire Beauty.

NAMES OF PLANTS: *J. E.* 1, Picea Menziesii; 2, Thuia (Retinospora) obtusa; 3, Picea nigra; 4, Libocedrus decurrens; 5, Cupressus Lawsoniana, golden var.; 6, Juniperus virginiana, probably; 7, a variety of Thuia, or Biota, orientalis; 8, Thuia occidentalis.—*E. M. E.* Dendrobium Pierardii.—*C. B.* 1, Fittonia Verschaffelttii; 2, F. argyroneura; 3, Peperomia argyreia; 4, Monochaetium sp.; 5, Ardisia crenulata; 6, next week; 7, Iresine aureo-reticulata. Iresine with crimson leaves is I. Herbstii.

NATIONAL CHRYSANTHEMUM SOCIETY: CORRECTION.—Mr. W. Holmes desires to correct the statement in his report of the above in our last issue, that £102 9*s.* had been received from the Sheffield and Hallamshire Chrysanthemum Society; it should have been Sheffield and West Riding Chrysanthemum Society.

ODONTOGLOSSUM ROSSI MAJUS: *C. W. K.* The coloured lip is not very common, but we have seen it before. The colouring may not be constant.

ORCHID ROOTS EATEN: *T. M. S.* The creatures enclosed with your letter are cockroaches. Use a

phosphor-paste poison. Of course you must persevere regularly in your treatment. Put the paste on pieces of paper, and let them remain during the night. About every third night repeat the process.

Ornamental Gourds: *Jock of that Ilk.* Larger and smaller Turban, or Turk's-head; Hercule's Club; scarlet fruited, Melon-shaped varieties; Valparaiso Oval, or Pepo; Summer Crookneck; Winter do.; Olive Gourd, Orange, and Warted Custard. Get seeds only from the best firms, and you will then not be deceived with worthless varieties. All those Gourds which bear yellow flowers are edible; the white-flowered, on the contrary, are doubtful, and some poisonous when eaten.

Peach Shoots: *G. T. T.* The shoots show weakness in the tree, perhaps from improper soil, and consequent dying off of the fine roots. An unsuitable stock might cause the evil observed; and so would excessive flowering and cropping. Trees in bad health frequently bloom very abundantly, and are benefited by removing three-fourths of them as soon as open; and if fruits are left 1 to a square foot the trees will sometimes recover, but never if the cause is unsuitable stocks. Without being on the spot we cannot say with certainty why the shoots have died back.

Scilla italica: *C. W. S.* Ustilago Vaillantii of Tulasne: not uncommon.

Showy Annuals for a Ribbon Border: *G. S.* Virginian Stock, dwarf Tropæolums, Clintonia pulchella, Calendula officinalis Meteor, Clarkia integripetala, and C. pulchella in variety; Erysinum Peroffskianum, Nemophila in variety, Tagetes signata pumila, Ten-week stock raised in heat.

Thistles: *Jock of that Ilk.* Carduus Marianus, with handsome variegated foliage; C. acaulis, almost stemless purple flowers in large heads, leaves pinnatifid, smooth, prickly; Carlina vulgaris, the Carline Thistle; Carduus nutans, the Musk Thistle.

CATALOGUES RECEIVED.

William Watt, 15, St. John Street, Perth—Seeds.
Wm. Cutbush & Son, Highgate Nurseries, London, N.—Hybrid Gladioli.
Hogg & Wood, Coldstream, N.B.—Seeds.
William Strike, 62, High Street, Stockton-on-Tees—Seeds.
Laing & Mather, Kelso, N.B.—Seeds, &c.
John Waterer & Sons, Bagshot, Surrey—Rhododendrons, Trees and Shrubs, &c.
B. R. Davies, The Yeovil Nurseries, Yeovil, Somerset—Begonias.
Thos. Piper & Son, Maresfield, Sussex—Seeds.
C. W. Cousins, 13, High Street, Wood Green, N.—Seeds, Trees, &c.
Ant. Roozen & Son, Overveen, near Haarlem, Holland—Dutch and Cape Bulbs, &c.
William Holmes, Hackney, London—Chrysanthemums.
William Shand, New Street, Lancaster—Seeds.
James Dickson & Son, 32, Hanover Street, Edinburgh, N.B.—Seeds.
Munro & Ferguson, 33, St. Andrew Square, Edinburgh—Seeds, &c.
Richard Dean, Ealing, London, W.—Herbaceous Plants and Potatos.
Vilmorin-Andrieux & Co., 4, Quai de la Mégisserie, Paris, France—Seeds, Bulbs, &c.
James Yates, 29, Little Underbank, Stockport—Seeds.
William N. Craig, Kendal.—Seeds.
Charles B. Saunders, Cæsarean Nurseries, St. Saviour's, Jersey—Fruit Trees, &c.
W. Atlee Burpee & Co., 133, Cannon Street, London, E.C. (and Philadelphia, U.S.A.)—Seeds.
W. Hean Quick & Co., Barnstaple—Farmers' Annual and Catalogue.

Communications Received.—H. J. R., Florence (with many thanks). - H. H. D'O.—J. D.—C. W. S.—J. O. W.—M. C. C.—Lord R.—E. P.—C. B., Paris.—S. C., Melun.—H. & W.—W. S.—W. R.—W. W.—J. W.—F. J., Eastbourne.—J. H. K., Haarlem.—C. de B., Antwerp.—J. B.—H. E., Ryde.—H. C. & Sons.—Comte de K.—W. N. & Co.—F. W. B. (we will endeavour to comply with your wishes).—M. W.—E. B., Erfurt (shortly).—A. R., Paris.—F. S.—C. N.—G. N.—A. O. W.—J. Hicks.—F. W. S.—H. Sells.—F. C. E.—M. & Co.—J. Corderoy—J. Carter & Co.—E. W. G. (next week).—G. Nottage.—H. J. R.—W. G.—P. G.—J. G. B.—A. B.—R. D.—F. W. B.—J. J. W.—A. H.—The Blue Primula.—J. R. J.—P. S. N.—H. Low & Sons.—E. M.—W. W.—A. E. J. C. C.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquiries in the current week.*

ABIES DOUGLASII GLAUCA, 3 to 4 feet, 18s. per doz.; 4 to 5 feet, 24s.; 5 to 6 feet, 36s.
ABIES MENZIESII, 3 to 4 feet, 4s. per doz.; 4 to 5 feet, 9s.
ABIES PARRYANA, 1½ to 2 feet, 24s. per doz.; 2 to 3 feet, 36s.
PINUS BOLANDERI, 2 to 3 feet, 9s. per doz.; 3 to 4 feet, 12s.
PINUS CEMBRA, 3 to 4 feet, 4s. per doz.; 5 to 6 feet, 6s.
PINUS CONTORTA, 2 to 3 feet, 4s. per doz.; 3 to 4 feet, 6s.; 4 to 5 feet, 9s.
All are from well-rooted, healthy plants; one plant of each variety for 6s., or one plant of each size for 18s., securely packed in mats.
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H. AND F. SHARPE are now prepared to give SPECIAL QUOTATIONS for all the best kinds of VEGETABLE and FIELD SEEDS grown this season from carefully selected stocks. The quality is very good, and the prices will be found advantageous to purchasers.
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The best cut of ORCHID PEAT in commerce; selected turves, 1 bushel, 2s., 3 bushel sack, 5s., carriage forward.
LILIES, Enormous Importations, Silver Banksian Medal, Silver Medal, National Chrysanthemum Society, 1888.
LILIUM AURATUM, Imported Bulbs, 4d., 6d., 9d., 1s., each; 20s., 30s., 50s., 60s. per 100. Home-grown bulbs, 9d., 1s., 1s. 6d., 2s. each. Special Trade quotation for quantities.
JAPANESE MAPLES, Silver Banksian Medal.
" TREE PÆONIES, 7 First-class Certificates.
" IRIS, most gorgeous, 4 First-class Certificates.
CATALOGUE of the above on application to
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	Per 100.	Per 1000.
ASH, common, stout, 2 to 3 feet	3s. 0d.	22s. 0d.
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BLACKTHORN, 2 feet	1 6	... 12 6
Notwithstanding the strong recommendation of Prunus myrobella, Blackthorn still makes the best game covert.		
BROOM, white, 3 to 4 feet	12 0	
PINUS AUSTRIACA, fine, 1½ to 2 feet ...	12 0	
GORSE, common, 2-year	1 0	... 7 6
PRIVET, evergreen, fine, 2 to 3 feet	3 0	... 25 0
SYCAMORE, common, 2 to 3 feet	3 0	... 25 0
BOX, broad leaf, bushy, 1 to 1½ foot	17 0	
LAURELS, common, 1½ to 2 feet	10 0	

CATALOGUES, Wholesale and Retail, on application.
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NEW CHRYSANTHEMUM CUTTINGS of Delaux's, 1889; Cannell's, Laing's, and Carters' of 1888. Cheap to clear, or old stock for disposal.
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Packing free.
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Also, at their Putney Nurseries, several thousand good AUCUBAS, and a quantity of Brown Turkey FIGS, strong well-rooted Plants in pots, from layers, 9s., 12s., and 15s., per dozen. SEED POTATOS—Beauty of Hebron, Magnum Bonum, English Rose, Snowdrop, Schoolmaster, White Elephant.
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INVITES AN INSPECTION FROM INTENDING PLANTERS TO
THE FOLLOWING TREES,
Having stout straight stems, fine heads, and splendid roots. All have been transplanted within two years:—
ACACIA BESSONIANA, 12 to 14 feet; A. SEMPERFLORENS, 12 to 14 feet; ACER DASYCARPUM, 12 to 16 feet; A. DASYCARPUM WIERII LACINIATA, 10 to 14 feet; A. NEGUNDO VARIEGATA, Standards, 8 to 10 feet; A. LEOPOLDII, 12 to 14 feet; A. REITENBACHII, 12 to 14 feet; A. SCHWEDLERII, 12 to 16 feet; A. WORLEYII, Standards, 12 to 14 feet. ASH, Mountain, 10 to 14 feet. BEECH, Common, 10 to 12 feet; Purple, Pyramids and Standards, 10 to 16 feet. BIRCH, Silver, 12 to 16 feet. CHESTNUT, Horse, 14 to 16 feet. Double White, 10 to 16 feet; Scarlet, 12 to 16 feet; Spanish, 12 feet. ELMS, English, 10 to 12 feet; Guernsey, 12 feet. LIMES, 12 to 16 and 20 feet; Silver-leaved, 10 to 14 feet. LIQUIDAMBAR, 6 to 10 feet. MAPLE, Norway, 14 to 16 feet. OAK, English, 10 to 14 feet; Scarlet American, 12 to 14 feet; PLANES, 12 to 16 feet. POPLAR BOLLEANA, 10 to 16 feet; P. CANADENSIS NOVA (the true variety), 12 to 16 feet; SYCAMORE, Common, 14 to 16 feet; Purple, 14 to 16 feet. THORNS, Double Scarlet, 8 to 10 feet; White, 8 to 10 feet. WALNUTS, Common, 10 to 12 feet.
Weeping Trees.
BEECH, Weeping, Pyramids and Standards, 8 to 12 feet; Weeping, Purple, Pyramids and Standards, 7 to 12 ft. BIRCH, Young's Weeping, Pyramids and Standards, 8 to 14 ft. ELMS, Weeping, Pyramids and Standards, 7 to 14 feet. LARCH, Weeping, Pyramids, 8 to 10 feet. OAK, Weeping, English, Standards, 10 to 12 feet. POPLAR, Weeping, Pyramids, and Standards, 10 to 12 feet. SOPHORA JAPONICA PENDULA, Standards, 8 to 9 feet.
KNAP HILL NURSERY,
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PALM SEEDS.—TO THE TRADE.—Write for Special Price LIST of all the leading kinds to H. DAMMANN, Jun., Breslau, Germany.

SEEDS,

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ORNAMENTAL TREES, SHRUBS, ETC.

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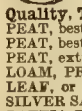
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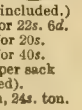
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PEAT, extra selected Orchid	8s. 6d. ,, 5 sacks for 40s.
LOAM, PREPARED COMPOST } LEAF, or PEAT MOULD ... }	1s. per bush., 3s. per sack (sacks included).
SILVER SAND, coarse, 1s. 6d. per bush., 14s. half-ton, 24s. ton.	
RAFFIA FIBRE, best only	1s. per lb.
TOBACCO CLOTH, or PAPER	1s. lb.; 28 lb., 27s.
SPHAGNUM MOSS, all selected, 3s. per bush., 8s. per sack.	

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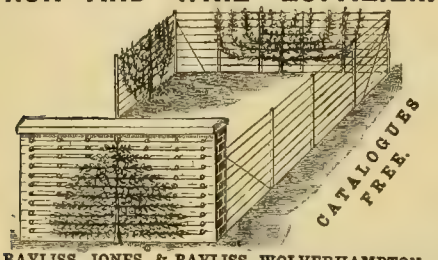
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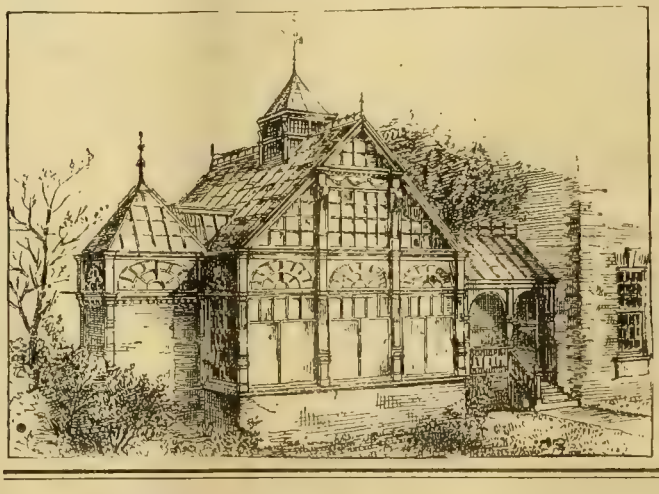
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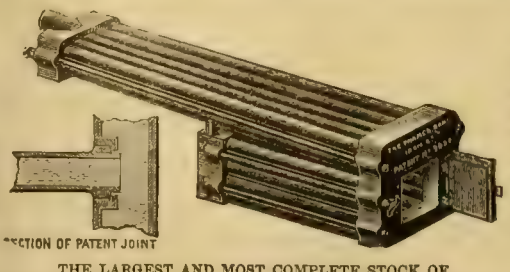
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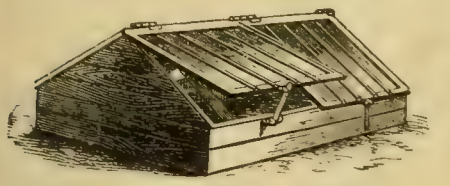
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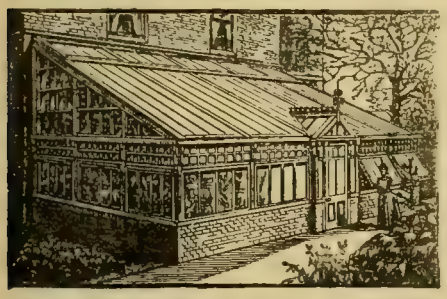
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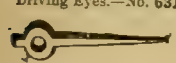


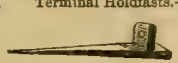
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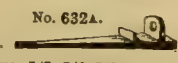




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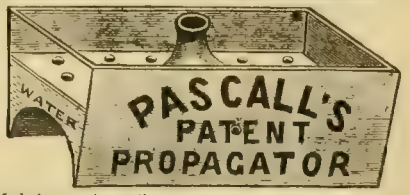


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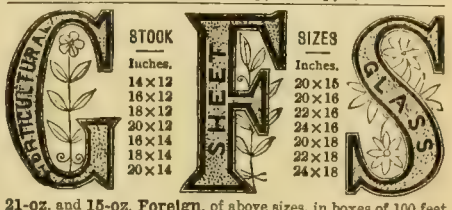


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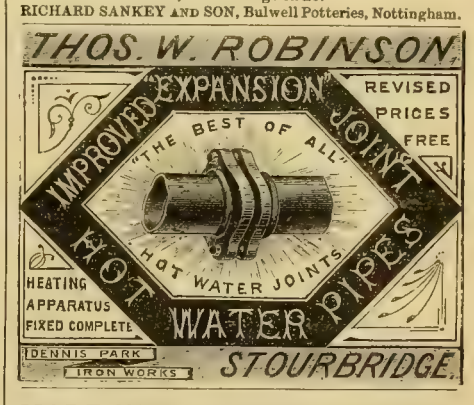
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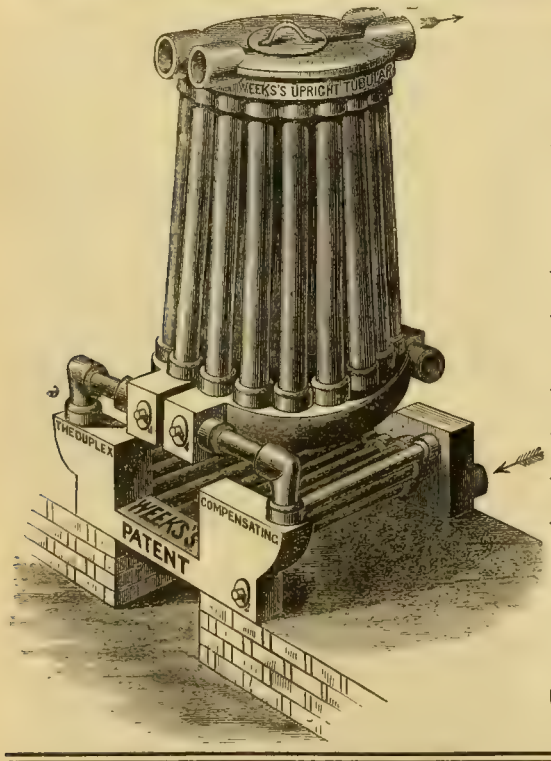
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By the late SIR JOSEPH PAXTON, M.P. Reprinted from the *Gardeners' Chronicle.*

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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

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MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, NEXT, February 27, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7879).

37,000 Fresh Seeds of COCOS WEDDELLIANA, just to hand; also 10,000 LILIUM AURATUM, and other BULBS, from Japan; Pearl TUBEROSES, from America, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, February 27.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7880.)

3000 CYPRIPEDIUM ROTHSCHILDIANUM.

Without the Least Reserve.

MR. J. C. STEVENS has received instructions from Messrs. Obree & Co., Shipping Agents, of Southampton, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 28, at half-past 12 o'Clock precisely,

3000 CYPRIPEDIUM ROTHSCHILDIANUM,

just to hand in big masses and grand condition, and to be sold absolutely without the least reserve.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7880.)

ODONTOGLOSSUM ALEXANDRÆ, spotted variety.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 28, a splendid spotted variety of ODONTOGLOSSUM ALEXANDRÆ, with deep yellow lip. The plant carries 12 flowers, and is thoroughly established. It has 6 bulbs.

On view morning of Sale, and Catalogues had.

Thursday Next—(Sale No. 7880.)

CATTLEYA TRIANÆ, six splendid varieties in flower.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 28, six superb forms of CATTLEYA TRIANÆ, in full flower.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale no 7880.)

CŒLOGYNE CRISTATA ALBA.

MR. J. C. STEVENS will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, February 28, a grand specimen of CŒLOGYNE CRISTATA ALBA, with 19 loads and 11 flower-spikes.

On view morning of Sale and Catalogues had.

Thursday Next.—(Sale No. 7880.)

DENDROBIUM NOBILE.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 28, a small consignment of DENDROBIUM NOBILE. The bulbs are most peculiar looking—very large and thick.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7880.)

A choice and extensive collection of ORCHIDS in FLOWER and BUD, including many fine specimens and rare species.

MR. C. J. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38 King Street, Covent Garden, W.C., on THURSDAY NEXT, February 28.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 13, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of entering Plants for this Sale will send list as soon as possible.

Westerham, adjoining Railway Station.

IMPORTANT UNRESERVED SALE of thriving and beautifully grown NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. T. W. Edmunds to SELL by AUCTION, on the Premises, the Westerham Nurseries, Westerham, Kent, on MONDAY, February 25, and following days, at 12 o'Clock each day (in consequence of a portion of the Land being immediately required to be cleared for Seed Growing), an extensive quantity of well-grown NURSERY STOCK, in first-class condition for removal, comprising, in all, 150,000 Ornamental, Forest and Fruit Trees, of the usual description; an abundance of very fine Apples, Pears, Plums, Cherries, and Walnuts; 5000 best named Standard and Dwarf Roses, thousands of Evergreen Coniferæ and Deciduous Shrubs, several thousands of hybrid Seedling Rhododendrons, 30,000 transplanted Quick, &c.

Purchasers can arrange with the Foremen at the Nurseries to have their lots lifted and put on Rail at Westerham Station at the mere cost of labour thereby incurred.

May be viewed three days prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Tuesday Next.—Without Reserve.

By order of Messrs. Shuttleworth, Carder & Co.

ODONTOGLOSSUM CRISPUM (ALEXANDRÆ), just imported, the best type, and in fine condition.

ODONTOGLOSSUM SPECIES, probably hystrix or radiatum.

ESTABLISHED ORCHIDS in variety, and sixty-five lots of unflowered established ODONTOGLOSSUM CRISPUM ALEXANDRÆ.

MESSRS. PROTHEROE AND MORRIS will include the above in their Sale, on TUESDAY NEXT, February 26, at half-past 12 o'Clock.

Tuesday Next.

ORCHIDS IN FLOWER. 300 Lots.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, February 26, at half-past 12 o'Clock precisely, about 300 lots of ORCHIDS in FLOWER and BUD from various collections, including several immense specimen Cypripedium insigne, with over 100 growths; Odontoglossums; Dendrobiums, including several nobile giganteum and Ainsworthii grandiflorum, Phalænopsis Schilleriana, Cœlogyne cristata, Lemoniana Dendrochilum glumaccum, Lycaste Skinneri alba and others.

On view morning of Sale and Catalogues had.

Tuesday Next.

Named CARNATIONS and PICOTEES in pots, Standard, Dwarf, and Climbing Roses, to name; FRUIT TREES, EVERGREENS, CAMELLIAS, AZALEAS, and other Plants, in pots, from an English Nursery.

MESSRS. PROTHEROE AND MORRIS will SELL the above at the City Auction Rooms, 38, and 39, Gracechurch Street, E.C., on TUESDAY NEXT, February 26, at half-past 12 o'Clock.

On view morning of Sale. Catalogues had at the Sale Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Wednesday Next.

5000 LILIUM AURATUM, magnificent Bulbs, just received from Japan; 36,000 COCOS SEEDS, a fine collection of CALACHORTI and English-grown LILIES, the latter including several rare species; Standard and Dwarf ROSES, a good lot of the beautiful Japanese IRIS, GREENHOUSE PLANTS in variety.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, February 27, at at half-past 12 o'Clock precisely.

Wednesday Next.

36,000 SEEDS—COCOS WEDDELLIANA—just received, in splendid condition.

MESSRS. PROTHEROE AND MORRIS will include the above in their Sale, on WEDNESDAY NEXT, February 27.

On view morning of Sale, and catalogues had.

Thursday Next. Sale by Sample.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Sale Rooms, on THURSDAY NEXT, February 28, at half-past 12 o'Clock, large quantities of NURSERY STOCK by sample.

On view morning of Sale, and Catalogues had.

Potter's Bar.

Important UNRESERVED SALE of LIVE and DEAD STOCK, comprising 41 Heifers, mostly in Calf, Shorthorn Cow and Bull, 100 Sheep, 18 Pigs, Poultry, 200 Loads of Prime Meadow Hay, Implements, Elevator and Gearing complete, 8 Greenhouses and Fittings, Greenhouse Plants, Orchids, and Effects.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from J. R. Wood, Esq., who is leaving the neighbourhood, to SELL the above by AUCTION, on the Premises, Barvins Park Farm, Potter's Bar, N., about 3 miles from Potter's Bar Station, on THURSDAY and FRIDAY, February 28 and March 1, at 12 o'Clock precisely each day.

On view day prior to sale. Catalogues may be had of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Cypripedium insigne Hallianum.

FOR SALE WITHOUT RESERVE.

The ENTIRE STOCK of this beautiful and new variety, fully described by Professor Reichenbach in the *Gardeners' Chronicle*, February 9 last.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, March 1, by order of Mr. W. Hall.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 1, at half-past 12 o'Clock precisely, a grand consignment of ONCIDIUM MACRANTHUM HASTIFERUM, in fine order; CYMBIDIUM EBURNEUM, in superb condition, consisting of 1000 plants; several plants of DENDROBIUM NOBILE GIGANTEUM, a very fine distinct looking Dendrobe, and comes from near the spot where we found Sanderianum; also a new EPISTEPHIUM from Para, with large bright mauve and white flowers; the lovely DENDROBIUM FREEMANII, a fine lot of ODONTOGLOSSUM POLYXANTHUM, and many other rare and fine ORCHIDS.

On view morning of Sale, and Catalogues had.

Friday Next.

Instead of February 25 as advertised last week.

A splendid Consignment of ORCHIDS, received direct from Mr. Roebelen, for Sale, without Reserve, consisting of Vanda Parishii, Marriottiana (true), Saccolabium giganteum var. album, Cypripedium callosum, including several specially marked species; Aërides odoratum Godefroyæ (?), Dendrobiums, &c.; and Three Cases of a new Phœnix, to be named Phœnix Roebelenii.

MESSRS. PROTHEROE AND MORRIS will SELL the above Valuable COLLECTION of ORCHIDS at their Rooms, on FRIDAY NEXT, March 1.

On view morning of Sale, and Catalogues had.

Friday Next.

IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will include in their SALE, on FRIDAY NEXT, a large quantity of IMPORTED ORCHIDS, from Mr. Charlesworth, Heaton, Bradford.

On view morning of Sale, and Catalogues had.

Friday Next.

LÆLIA AUTUMNALIS ALBA.

Collected and sent home by Mr. Pechacek. See dried flowers. A small consignment, consisting of 6 enormous masses, with 130, 65, 75, 70, 40, and 30 bulbs respectively, and one smaller piece.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION, on FRIDAY, March 1.

On view morning of Sale and Catalogues had.

The celebrated Sunbury House Collection of

ESTABLISHED ORCHIDS.

IMPORTANT UNRESERVED SALE.

Preliminary Notice.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, March 12 and 13, at half-past 12 o'Clock each day, the first portion of this valuable collection of ESTABLISHED ORCHIDS, by order of Major Lendy, who, in consequence of ill-health, is relinquishing their cultivation.

Full particulars will appear in future announcements.

Piccadilly, on the Sutton Estate.

Re GIBBS, deceased.

VALUABLE LEASEHOLD PROPERTY, for Occupation or Investment.

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HOLLYHOCKS, finest double, mixed, 2*s.* doz., 15*s.* per 100.

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Pot roots, 12 for 3*s.* 6*d.*; 50, 10*s.* 6*d.*; 100, 20*s.*

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H. AND F. SHARPE are now prepared to give SPECIAL QUOTATIONS for all the best kinds of VEGETABLE and FIELD SEEDS grown this season from carefully selected stocks. The quality is very good, and the prices will be found advantageous to purchasers.
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Packing free.
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CARNATION "GLOIRE DE NANCY."—For the fourth season we are sending out our true strain of this grand white Clove-scented Carnation, more robust than the old red Clove, and larger flowers. No conservatory or garden should be without it. For cut flowers it has no equal. Good rooted layers, £1 per 100, 11s. for 50, 6s. for 25. We have a fine stock of GARDENIAS, the best sorts in cultivation, well set with flower-buds, from 1s. to 20s. each, cash with order.
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INVITES AN INSPECTION FROM INTENDING PLANTERS TO
THE FOLLOWING TREES,
Having stout straight stems, fine heads, and splendid roots. All have been transplanted within two years:—
ACACIA BESSONIANA, 12 to 14 feet; A. SEMPERFLORENS, 12 to 14 feet; ACER DASYCARPUM, 12 to 16 feet; A. DASYCARPUM WIERII LACINIATA, 10 to 14 feet; A. NEGUNDO VARIEGATA, Standards, 8 to 10 feet; A. LEOPOLDII, 12 to 14 feet; A. REITENBACHII, 12 to 14 feet; A. SCHWEDLERII, 12 to 16 feet; A. WORLEYII, Standards, 12 to 14 feet. ASH, Mountain, 10 to 14 feet. BEECH, Common, 10 to 12 feet; Purple, Pyramids and Standards, 10 to 16 feet. BIRCH, Silver, 12 to 16 feet. CHESTNUT, Horse, 14 to 16 feet. Double White, 10 to 16 feet; Scarlet, 12 to 16 feet; Spanish, 12 feet. ELMS, English, 10 to 12 feet; Guernsey, 12 feet. LIMES, 12 to 16 and 20 feet; Silver-leaved, 10 to 14 feet. LIQUIDAMBAR, 6 to 10 feet. MAPLE, Norway, 14 to 16 feet. OAK, English, 10 to 14 feet; Scarlet American, 12 to 14 feet; PLANES, 12 to 16 feet. POPLAR BOLLEANA, 10 to 16 feet; P. CANADENSIS NOVA (the true variety), 12 to 16 feet; SYCAMORE, Common, 14 to 16 feet; Purple, 14 to 16 feet. THORNS, Double Scarlet, 8 to 10 feet; White, 8 to 10 feet. WALNUTS, Common, 10 to 12 feet.
Weeping Trees.
BEECH, Weeping, Pyramids and Standards, 8 to 12 feet; Weeping, Purple, Pyramids and Standards, 7 to 12 ft. BIRCH, Young's Weeping, Pyramids and Standards, 8 to 14 ft. ELMS, Weeping, Pyramids and Standards, 7 to 14 feet. LARCH, Weeping, Pyramids, 8 to 10 feet. OAK, Weeping, English, Standards, 10 to 12 feet. POPLAR, Weeping, Pyramids, and Standards, 10 to 12 feet. SOPHORA JAPONICA PENDULA, Standards, 8 to 9 feet.
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WOKING, SURREY.

THE EARL of SHREWSBURY'S Head Gardener says:—"WE GATHERED CARTER'S LIGHTNING PEA TEN DAYS BEFORE FIRST AND BEST." Price, in sealed packet, 2s. 6d. per pint; post-free, 2s. 9d., from 237, High Holborn, London.

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ASH, common, stout, 2 to 3 feet	3s. 0d.	22s. 0d.
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Notwithstanding the strong recommendation of Prunus myrobella, Blackthorn still makes the best game covert.		
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PINUS AUSTRIACA, fine, 1½ to 2 feet ...	12 0	
GORSE, common, 2-year	1 0 ...	7 6
PRIVET, evergreen, fine, 2 to 3 feet	3 0 ...	25 0
SYCAMORE, common, 2 to 3 feet	3 0 ...	25 0
BOX, broad leaf, bushy, 1 to 1½ foot	17 0	
LAURELS, common, 1½ to 2 feet	10 0	

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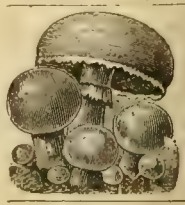
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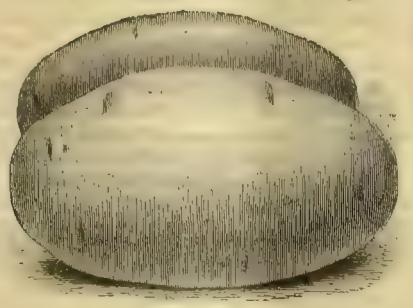
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3/6 per peck (14 lb.), 12/6 per bush. (56 lb.)

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CHOICE HARDY FLOWERING PLANTS.

Special Cheap Offer for Clearance.

All good strong stuff for blooming next summer. Packing and carriage free at prices quoted for each :—

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CARNATIONS AND PICOTEES, fine seedlings from a splendid collection, will produce some grand flowers, per 100, 15s.	2 6
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As a Supplement

TO THE

GARDENERS' CHRONICLE

FOR

Next Week, March 2,

WILL BE

Published an Ink Photograph

OF

VIEWS in the ROYAL GARDENS, KEW.



THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 23, 1889.

SEEDS AND THE SEASON.

METEOROLOGISTS record their observations in tabular statements and diagrams, physiologists note theirs in books and essays, while scientific horticulturists endeavour to collate the two classes of recorded facts and to draw appropriate inferences from them for the benefit of their practical brethren.

A certain aggregate but duly adjusted amount of heat, light, and moisture, is absolutely necessary for the complete ripening of a seed, that is to say, for the development of the embryo plant within it and the storage of the food required by it when it commences to grow. So much heat and so forth is required for one description of seed, so much more or so much less for another, as the case may be. Less than the adequate amount is either injurious or fatal; more may be beneficial until the limit of excess is reached, when "too much of a good thing," may entail as much harm as not enough. The aggregate amount of climatal needs requisitioned by particular plants for different purposes, such as the production of leaves, the formation of flowers, the maturation of seeds, &c., has often been calculated in the laboratory. It has been shown, moreover, that provided the supply be adequate, it is, comparatively speaking, immaterial whether that supply be furnished in a relatively short period or whether it be distributed over a longer interval of time. Thus crops in the far North may not only ripen as well as those in the South, but the time occupied as measured in days may even be shorter. These circumstances are accounted for by the later starting point in spring, but the smaller number of days is more than compensated for by the brighter sunlight, and more especially by its longer daily duration in high latitudes.

Work of the kind indicated is always in progress in the physiological laboratories and experimental gardens of the Continent, and many, no doubt, have been the observations made concerning the relationships between the over-abundant moisture, the deficiency of sun-

light and sun-heat during the past summer and autumn, and the corresponding deficiency in the organisation and work of plants.

A great seed warehouse at this period of the year (we may take that of Messrs. Hurst, of Houndsditch, as an illustration), however, offers to the observant visitor the results of an experiment if less elaborate, yet on a far more gigantic and varied scale than any of these. Unfortunately the experiment is, this year, in some senses, far from satisfactory, but it is none the less interesting from other points of view. The experiments were varied as to locality, soil, and crop, but the climatal conditions were pretty uniform throughout, and the results were, as we have intimated, proportionately consistent with them, thus affording a striking illustration of the influence of season.

Light, and more especially heat, are required for the due maturation of the seed. Last autumn both were deficient. The manufacturing workshops of the plant were not utilised to the full, hence nutritive matter was not formed in them in adequate quantities, and what was manufactured was defective in quality. The consequence is that much of the seed did not ripen at all, and what did mature did so in so imperfect a manner and so tardily that the percentage of seeds that germinate is much below the average. An inspection of the record kept by the firm for a long series of years would furnish most interesting and valuable results if compared with the meteorological records of the corresponding period. Samples of every lot of seed that comes into the warehouse from whatever source—British, Continental, or Colonial—are sown under uniform conditions, and notes are taken of the percentage of good seed, as indicated by the number that grow, and by the time occupied in germination. The experiments are made in duplicate, and the mean result of the two sets of experiments is taken as the average. The only objection that can be raised to this method is, that the experiments of the seedsmen, being carried out under uniform conditions of temperature and moisture, are, like the laboratory experiments of the physiologist, too perfect. Sown in the field or the garden, seeds from the same samples would be exposed to fluctuating if not to different conditions, and to the attacks of predatory enemies, from all of which they are freed alike in the laboratory of the physiologist and the test-house of the seedsman. Supplementary trials, therefore, have also to be made in the open ground.

An inspection of Messrs. Hurst's record for the last season shows very remarkably how widely diffused were the unfavourable conditions last autumn. There was no great difference between one English county and another; there might have been slight variations according to soil and aspect, but the general average over the whole country was bad, and the seeds received, say, from Lincolnshire, did not differ much from those from Kent or Bedfordshire. Seeds from Belgium, the North of France, and Germany were a little, but only a little, better than seeds of the same kind grown in England. Seeds obtained from districts south of Paris were sensibly better, while those from Southern France left little to be desired, so that speaking roughly, the seed supply, not only from our own country, but from the whole of Northern and Central Europe, was deficient alike in quantity and quality. Great seed-houses who still hold stocks of the previous year's growth can redress the balance, to some extent, by mixing the old and better with the newer and inferior seed, or by incorporating some of the more fully-ripened Continental seed with that produced at home.

A visit to the vast warehouses of Messrs. Hurst is of interest, not only as affording evidence of the disastrous climate that the British grower has so often to contend with, but of the scrupulous care taken by the great seed-houses to eliminate the worst, to select the best seeds, and as far as possible, to remedy the defects of a bad harvest. The weather may have been bad, but the reputation of the firm must not be allowed to suffer from any want of care on their part. Girls and women, with whom frontal fringes are remarkably popular, and in whose hats, as they hang on the pegs placed for their reception, ostrich feathers, real though battered, are astonishingly frequent, were busy at the time of our visit, as they will be for several months to come, picking out the discoloured, deformed, half-matured seeds from those which have succeeded better in the battle of life. The inappropriateness of the proverb "as like as Peas in a pod" was strikingly illustrated. Variation was but too apparent in the seed-mounds that sharp eyes and busy fingers were at work on, even after the seeds had passed the ordeal of sieves and riddles. The whole process of "picking" is described in an article in our columns on February 6, 1886.

The Peas, of which Messrs. Hurst grow themselves or by deputy no fewer than 2000 acres, were several weeks later than usual in ripening, and many were more or less spoiled with the continuous wet before they could be stacked; many germinated while still in the pod, and now in the month of February, some stacks remain unthrashed, not yet being in condition—a fact, as we learn, almost without precedent, as deliveries are usually completed in November. Some of the early Peas, have partially escaped, while late Peas, generally have suffered. It would be useful to know the degree to which these and other Peas suffer from mildew. Most samples contain a very large proportion of waste that adds considerably to their cost, while the growths are not so strong as desired, being 50 to 70 per cent only, instead of 95 to 100 per cent., as in 1887.

The "waste" just alluded to is removed by the sieves, in the first instance, and the removal completed by the sharp eyes and nimble fingers of the women, and is calculated to be about six times greater than after a good season. The only use made of this waste, is to dispose of it for feeding purposes.

Beans suffered in a similar manner to the Peas, making good samples scarce, although there is an abundance of discoloured ones. The weevils that attacked them in 1887 were not seen in 1888, an indication that the season was not propitious to insect-life. The kidney varieties are also a partial failure in England. Some late varieties are not even yet threshed. So far as we saw, the ripening of the Beans—especially the kidney Beans—was more perfect than in the case of the Peas. The foreign samples, however, contain an admixture of old dry seed which has to be rogued out as waste, and this waste we were told fetches a lower price than in the case of Peas, and that despite the obvious fact that it contains much more nutritive matter than the spoilt Peas do. The assigned reason for the lower price is, that the pigs are dainty and dislike the flavour; but as this is confined to the husk of the seed it would seem that by the removal of this, a large amount of good material now wasted might be saved.

Onion is a total failure in England, although the crop promised well at one time. It was not sufficiently ripened to withstand the effects of the October frost that caused so much damage. Continental seed also suffered to a large extent, and the little that was saved grew weakly. Consequently the yearling seed of this article is also much preferred, as some of the 1887 crop grew 90 per cent., while the 1888 seed rarely exceeds 50 per cent.

Beet, like Mangel Wurzel, is all severely injured in the germ by the sharp frost in October, although the seed carries a good appearance, the bad growth will be known when tested. Yearling seed will be preferable.

Carrot, Cauliflower, Celery, Endive, Leek, Lettuce, Spinach, and Parsley are all severely injured in quality and much reduced in quantity. Growths being generally weak, unusual care should be adopted in sowing, for if sown too early or regardless of weather or condition of soil, many failures and disappointments will most likely ensue.

Such are a few of the hints we gained at our visit to Messrs. Hurst. Without a personal visit no adequate idea of the magnitude of the trade or of the system, method, and care by which it is carried on can be obtained. Of course the prices are very materially affected by all these circumstances. The farmer is supplied with the seed by the firm, and grows under contract. It might seem, at first, that he was secured from the ill effects of bad weather, but it is obvious that the cost of labour, of production, and harvesting, must be greater in a bad than in a good season, and therefore, his profits are so much the less.

The wholesale seedsman's labour and expenditure are similarly increased, and if he recoup himself by enhanced prices he loses in diminished volume of trade, and not unfrequently has to bear the unmerited reproaches of dissatisfied customers. The only people who seem to benefit from a bad season are the befringed and befeathered "pickers," for the larger the proportion of "waste" they eliminate the more money they earn—at least those of them who are paid by the piece, or who are only engaged temporarily, as we believe most of them are.

New or Noteworthy Plants.

ODONTOGLOSSUM LUTEO - PURPUREUM (*Lindl.*) VAR. CRISPATUM, *n. var.*

Some degree of crispation is often seen in the typical Odontoglossum luteo-purpureum. This variety, however, has nearly the whole front half of the lip convoluted into deep folds. It is quite a novel feature, and resembles an old-fashioned ruff. It was kindly sent me by E. M. Mundy, Esq., Shipley Hall, Derby, through Mr. F. Sander's favour. *H. G. Rchb. f.* [The illustration (fig. 41) was forwarded by Mr. Weathers. Ed.]

Vanda Kimballiana, *n. sp.*

This is an extraordinary introduction of Messrs. H. Low & Co. It is a new species of the affinity of Vanda Amesiana. The plant at hand has a stiff stem with very thick, ramose roots, being itself half as thick as a goose's quill, with old deeply furrowed sheaths. The leaves are subulate, acuminate, very slightly furrowed, exceeding a span in length, not thicker than a raven's quill. The peduncle is a foot long, somewhat flexuose at the top, with blunt retuse bracts, shorter than the stalked ovaries. The flowers are totally distinct from those of Vanda Amesiana. Sepals cuneate, dilatate, oblong-acute, the lateral ones longer and curved. Petals cuneate oblong, blunt, acute, unequal. Side-laciniæ of the lip semi-ovate, triangular, running out into an acuminate nearly crescent-shaped top, whereas they are nearly square in Vanda Amesiana. The mid-lacinia is unguiculate, triangular acute (trulliform), most minutely crenulate. There are some callosities, or two keels, on the stalk, but I am not clear

about them. The curious spur is conical, acuminate, and the top is recurved, which is quite peculiar and new. The pollinarium is more slender and narrower. The spur appears to be quite devoid of internal callosities. The anther, retuse in V. Amesiana, is here apiculate. The flowers are as large as those of V. Amesiana. As to the colour, I find here and there vestiges of a very fiery brilliant purple on the dried flowers. The traveller, however, stated that they were pure white with a beautifully rosy-purple lip. He saw fifteen to twenty flowers on a spike.

This lovely plant is dedicated at the demand of my excellent eldest English correspondent, to Mr. Kimball, one of the most zealous orchidists of the United States, N. A. *H. G. Rchb. f.*

Vanda Amesiana, *Rchb. f.*

This grand Orchid is so very rich in varieties that there may lurk different species under this name. The point may be decided this or next year, as Mr. S. Low has made a grand importation. The leaves are partly very broad, deeply channelled, all quite straight, whereas they are arched in the typical plants. The plant, when observed by Messrs. H. Low's collector, was just opening a few blooms, and those were kindly sent me by Mr. S. Low. I cannot distinguish it in any way from those of the typical plant. What, however, the collector wrote to Mr. S. Low makes me guess that two or more kinds may have been growing together. He found spikes 2 feet 6 inches in length, with many branches. One plant had eight panicles, with a cargo of just 600 buds. What a grand object for an exhibition! Since the occurrence of simple and branched inflorescences in the same Orchid is really rare, I am greatly inclined to guess there may be different species growing together. *H. G. Rchb. f.*



Fig. 41.—Odontoglossum luteo-purpureum var. crispatum. (see p. 232)

Saccolabium giganteum illustre, *Rchb. f.*

M. A. Regnier, 44, Avenue de Marigny, Fontenay-sous-Bois (Seine), has lately sent me a glorious inflorescence of this, laden with more than fifty very large flowers, which after a while turned their lateral sepals downwards, as in so many Vandas. The inflorescence is 13—14 inches long. The leaf is 15 inches long by 2½ inches broad. The colours are exceedingly clear and brilliant, comprising the finest milk-white and an exceptional purple. I learn that it comes from Cambodia. If all the imported plants are alike in the length of the inflorescences, the splendour and size of the flowers, as well as in the brilliancy of colours and the narrow leaves, it may deserve a proper subvarietal name, cambodiense. *H. G. Rchb. f.*

Gladiolus Adlami, *Baker, n. sp.**

This very distinct new species of Gladiolus was discovered lately in the Transvaal by Mr. R. W. Adlam, whose interesting letters upon his excursions in Natal and the neighbouring regions have often appeared in your columns. It has no near affinity with any previously known species. Perhaps, on the whole, it is nearest G. cardinalis, but the perianth segments are much smaller, and curiously cuspidate, and only the top one is distinctly granulated with red spots. My description is made from a plant flowered in the Cambridge Botanic Garden by Mr. Lynch last September. Leaves ensiform, 1 — 1½ foot long, an inch broad at the middle, with distant, strong, unequal ribs. Flowers 5—6, aggregated in a moderately dense, equilateral, simple, erect spike. Outer spathe-valve oblong-lanceolate, brown 1½-2 inches long. Perianth greenish-yellow; tube erect, nearly straight, narrowly funnel-shaped, an inch long; upper segment slightly arcuate, oblong, as long as the tube, ½ inch broad, granulated all over with minute red spots; five other segments smaller, oblong, minutely cuspidate, plain greenish-yellow, except that the two outer are similarly granulated with red towards the tip. Stamens and style a little longer than the perianth; filaments white; anthers linear, ½ inch long, granulated with red. *J. G. Baker.*

* *Gladiolus Adlami*, Baker, n. sp.—Foliis ensiformibus firmulis laxe nervatis pedalibus, vel sesquipedalibus; floribus 5—6 in apicam subdensam equilateralem dispositis; spathæ valvis oblongo-lanceolatis brunneis; perianthio tubo infundibulari subrecto pollicari, limbo flavo-viridulo; segmentis oblongis cuspidatis, supremo vix arcuato tubo æquilongo punctis minutis rubellis ad faciem ubique decoratis, reliquis minoribus exterioribus ad apicem solum rubro decoratis; genitalibus limbo longioribus.

SMUT-FUNGI:

Recent Discoveries as to the Nature and Action of Ustilagineæ.

It is hardly too much to say that the man who clears up the life-history of smut-fungi, and gives to the world an intelligible account on which a successful treatment can be based, realises the proud achievement of making two blades of grass grow where only one grew before—a feat worthy of the most devoted consideration of citizens and statesmen, as we have been told on high authority. Perhaps the honour is already due to those botanists—Kühn, R. Wolff, De Bary, and Brefeld—who, following on the earlier and chiefly anatomical investigations of Fries, Persoon, Corda, Meyen, Léveillé, Bonorden, and especially the Tulasnes, gradually demonstrated the biological nature of the Ustilagineæ, those subtle fungi which cause the smuts of cereals and Onions, &c., the bunt of Wheat, and a large number of similar diseases on all kinds of valuable plants.

Every one knows the brown and black powdery masses which replace the grain in smutted corn, Barley, Oats, and other grasses; and it is just because these dense masses of dark spores are found at the expense of the food-stuffs of the cereals that man is justified in regarding these fungi as his deadly enemies. But it is not only his food that the Ustilagineæ destroy. Most growers of Violets will have suffered the pain of seeing plants destroyed by them, and many other flowering plants are injured by some form or another of these ubiquitous and destructive fungi. No doubt the fact that the Ustilagineæ are great enemies to weeds will be placed to their credit, but although horticulturists and farmers abhor Dandelions, Couch-grass, Sedges, Docks, Thistles, Poppies, Convolvulus, &c., whereas various species of Ustilagineæ delight in these pests, it is no less important from a biological point of view to elucidate the secrets of the life-history of these parasites than to explain to the multitude the vagaries and propensities of those which destroy our food directly.

Brefeld's Researches.

Of late years no one has distinguished himself more in thus rendering yeoman's service than Professor Brefeld, of Münster, and as there is every reason for believing that his recent investigations are very little known in this country, except in the small circle of modern botanists, I propose to give a brief account of some of the more important results. No better proof of the "practical" nature of biology could be adduced than these furnish, and consequently no apology is necessary to any reader.

For many years previous to about 1840 little was known of these fungi beyond the fact that the bunted or smutted grains of corn were transformed into a dark powdery mass of minute spores. Somewhat later (I believe first by Bonorden in 1851) it was found that although when ripe there is nothing but spores in the blackened grain of corn, &c., in a somewhat younger condition these spores can be shown to arise from delicate fungus-filaments, just as in the case of other fungi. At any rate, this was known to De Bary in 1853, from his own researches on the smuts of Maize and other plants, and is now thoroughly established. But although it is now very easy to show the fungus filaments, or mycelium, in the case of some Ustilagineæ, they are in others so delicate and so transparent that the most refined methods and practice are necessary to demonstrate their presence. Nevertheless, the dark spores in all cases arise in tufts from the ends of more or less fine filaments. In some cases these filaments have distinct walls and septa, and send suckers (haustoria) into the cells of the tissues; in others they are so minute that it is extremely difficult to say whether they consist of anything more than strands of protoplasm. In some species they are abundant, in others sparse. In many species these fungus filaments can be traced for considerable distances from the diseased spots, in others they are confined to local centres. These characters, as well as other peculiarities respecting

the branching, mode of spore formation, gelatinisation of the walls, &c., need not occupy us here, however, though they are of importance to the mycologist.

A point of more significance just now is, that while all these Ustilagineæ are parasitic in the interior of flowering plants, and have hitherto been regarded as strictly and only parasitic in their habits (endophytic, obligate parasites), they behave differently in different cases, which we may summarise as follows:—Some of them affect almost any part of the plant—root, leaf, stem, flower-stalk, &c.—producing distorted vesicular swellings, ultimately filled with the minute, spherical, dark-coloured spores; these cases may be placed at one end of a series. At the other extreme we have species of Ustilagineæ, which always produce their spores in definite organs of the host-plant which they attack; and since these fungi are not noticeable before they reach the spore-bearing stage, the impression has arisen that only these parts are attacked. Now, it is a singular fact, that the place where this spore-formation occurs is usually the ovary of the flower, the spawn or mycelium at that spot converting to its own purposes the food materials which flow to the developing seeds of fruit, and eventually filling what should have been the fruit with a fœtid or dry mass of dark spores. In some cases it is in the anthers which serve as the seat of the spore-formation.

It required many years of patient investigation, and entailed several stormy controversies, before it was discovered that in these cases the spores really do arise as bud-like processes at the ends of extremely fine branches of extremely delicate fungus-filaments, and that these slender filaments can be detected here and there in the plant, although they are only capable of producing spores in the flowers.

Meanwhile it was also being discovered, step by step, and with many slips, that when the dark spores are placed under favourable conditions they germinate, presenting some very remarkable phenomena in the process: it was also gradually proved that these dark spores—minute black, purple, or brown spherules, consisting of a firm, smooth, or punctate coat, enclosing protoplasm—can in some cases be preserved dry for years without losing their power of germination. Finally, it was proved that these spores, on germination, produce structures which give rise in some way to new fungus filaments inside new plants of Wheat, Barley, Maize, &c., according to the species, &c.; and then observers became involved in a complex coil of difficulties in the attempts to unravel details. Important as these details are, in their proper place, I shall omit them here, merely saying that they have reference chiefly to specific pecularities in the modes of germination of the spores, difficulties of infection, and the choice (so to speak) of host-plants by the parasite.

Growth of the Fungus.

The outcome of all this may be summed up as follows: When the spore is allowed to germinate in water the tough outer skin bursts, and a thin hyaline cellulose membrane enclosing the swelling protoplasmic contents, emerges as a delicate tube. In some cases this tube protrudes through a definite thin spot; in others no germination could be induced in water, even though plenty of air was present and the temperature normal. The older the spore the longer the time required before germination.

When the above germinal tube has attained a length of say five or six times the diameter of the spore, it breaks up into segments, and begins to put out numerous bud-like branches, which soon separate as single cells, looking very like cells of the Yeast plant. These yeast-like cells have usually been called sporidia. In some species the sporidia are long and thread-like, and produced in a sort of coronet. Other varieties in detail occur, but our purpose is served if the reader apprehends that the usual mode of germination in water is for the spore to put forth a short tube (the so-called pro-mycelium), from which several sporidia are then budded off. These sporidia have a great tendency to unite in pairs—a phenomenon the explanation of which has given rise to much dispute. Many have sought to explain it as a sexual act; another hypothesis is that the sporidia unite because they contain relatively large quantities of ferment-substance, and I have found that fungus-filaments generally are apt to unite when such is the case. This, however, is by the way, and explains little. Many attempts have been made from time to time to infect Wheat, Barley, Maize, and other plants with their respective smuts and bunts, by placing the above spores on the leaves, roots, flowers, and so forth, but with curiously divergent though mostly negative results. In a few cases—*e.g.*, the Entyloma on species of Ranunculus—the infection is a comparatively easy matter; but in others—*e.g.*, the Ustilago which causes smut in Wheat—the attempt failed. In the case of Maize, some of the attempts were successful, others not. Since the results most interesting to agriculturists are those concerning the bunts and smuts of our ordinary corn crops, I propose to deal with these only in what follows.

How and Where the Fungus enters the Plant.

The first steps in the elucidation of the extremely difficult problems here involved were taken by Hoffmann, Kühn, and Wolff during the period between 1866 and 1880. Kühn was the first, I believe, to actually perceive the penetration of the fungus into the plant. He showed that if the spores of the bunt fungus (Tilletia) are sown with the Wheat grains, they germinate and produce their promycelia *pari passu* with the emergence of the radicle of the young Wheat seedling: from the promycelia are developed the now well known sporidia, and these sporidia then put forth extremely fine fungus filaments which penetrate the young and delicate tissues of the embryo Wheat plant, somewhere in the part (collar) common to root and shoot. Kühn repeated his experiments successfully with the smut of corn, and with several other species; always finding the incipient mycelium of the fungus in the delicate collar. After some years of research Kühn concluded that the normal mode of infection common to the majority of these fungi is the following. The spores ripen in the smutted and bunted cereals with the grain, and are garnered with the latter, they become scattered on to the healthy grains, and may be sown in the following spring with these. As the young cereal germinates, the attached spores produce their promycelia and sporidia, and the germ-tubes from the latter penetrate the embryo corn plant. But now came the *crux*. If the fungus is such a virulent parasite as it was made out to be, how is it that we see little or no more of its effects until the late summer and autumn, when the grain begins to ripen? It is true, refined investigations proved that the mycelium could be discovered in small quantities in the corn plants as they grew larger and older, but it seemed to do no harm; but are we to believe that this mycelium can go on growing in and with the tissues of the corn plant, only to exert their destructive effect months afterwards as the grain begins to ripen?

Astonishing as this may seem it turned out to be the case. R. Wolff, in 1873, repeated Kühn's experiments with smuts, &c., and practically confirmed them in every particular: it is true he went a little too far in concluding that only a certain organ (the first leaf-sheath) is susceptible to the infection, and Kühn's results were shown to be more accurate in this respect, but the primary fact remains that the sporidia are able to effect an entry into the host-plant by means of their germinal tubes only, provided they attack the embryonic tissues, and especially the cells of these delicate young embryos: once inside, the delicate fungus filaments grow on with the tissues, gradually permeating every part of the plant, until, with the development of the young fruit, they meet with the conditions for the fulfilment of their own last purpose—the production of spores. Further investigations only succeeded in demonstrating the correctness in all essential particulars of these views.

Historical Retrospect.

So far as the history of these important discoveries is concerned I am purposely confining attention to the chief epochs, as it were; but fairness demands that a few more words should be devoted to the honour of those who served as pioneers to the brilliant prospect which soon opened out to the investigators who followed. As diseases—in the sense that they were destructive and abnormal—these smuts, &c., were certainly known to Pliny, and even to older writers, and Duhamel, Plenck, Linnæus, Unger, and many others, had views concerning their nature and origin; but we cannot regard any of these as having understood their fungoid nature. As fungi, they attracted the attention of Fries (1819), Wallroth, Meyen (1837), and their successors; and many views about them which would now be regarded as comical are discussed in the writings of De Candolle (1807), Banks (1805), Prévost (who was probably the first to observe the germination of the spores in water in 1809), Knight (1817), and several others. Those who are further interested in the earlier history of these fungi may be referred to De Bary's classical little memoir *Die Brandpilze*, &c., Berlin, 1853, in which that grand investigator published his own proofs that these fungi are parasites, with spores which germinate and infect other plants and cause disease.

Dressing.

As early as 1781, and even earlier, several observers had satisfied themselves of the infective character of these diseases, and even in 1820 it had been shown that washing the grains of corn with copper-sulphate before they were sown resulted in a diminution of the number of diseased ears; and many interesting experiments were made from time to time tending to prove that (1) if smutted grains are mingled with clean ones, the sowings give an enormously higher percentage of diseased ears; (2) the more the seed-grain is cleaned from adherent spores the less the percentage of diseased ears; (3) it is only in the early stages of the germination of the grain that the danger of the infection is great.

It was on the basis of these foundations that the now well known process of "dressing" Wheat took its origin, and to this may be added some "practical" measures introduced as the outcome of experience, and taught empirically. Let us glance at the results in the light of what is already known. One of the commonest and best known methods of "dressing" is to steep the grain for some hours in a dilute solution of copper-sulphate in water. The object is to cause so much of the poisonous salt to stick to the coats of the "seed-grain" as will kill the delicate promycelia and sporidia before the latter can penetrate the young corn plant; the chief danger is lest the young seedling should have its delicate tissues injured. Other dressings are used in addition to the above; salts of lime, soda, &c., arsenic, permanganate of potassium, carbolic acid, and many other substances have been tried and advocated, and various processes for steeping or washing the grain, or for blowing off spores with powerful draught of air, have found more or less favour. In all these cases the result aimed at is to keep the germinating Wheat, &c., from contact with the spores, and no one is likely to call in question the wisdom of the intention.

But another question obtrudes itself here, and that is—If the sporidia can really infect the young Wheat seedling, &c., only in the stage and at the place described, then should it not be possible to attack the question of protection from another standpoint? In other words, if the fungus can only enter the tender tissues at the collar of the young seedling, then a few hours more or less in the time occupied in the process of germination may make all the difference to the seedling. All those conditions or adaptations which hurry or facilitate the vigorous germination of the seed must lessen the danger of infection, and if it can be shown conclusively that this is the case, an important service to the community has once more been rendered by the

biologists. The ground is a little difficult, however, because, unless we are quite sure of our steps, it is somewhat easy to go astray from facts to hypotheses. *H. Marshall Ward.*

(To be continued.)

Roses.

NEW ROSES.

A great change has taken place in the attitude of rosarians with regard to new Roses. Formerly their eyes were eagerly directed towards the French shores. Every autumn there came a shower of catalogues, with such glowing descriptions of novelties, such wonderful things—foliage, thorns, and all—that they longed for the time when they should be seen in their beauty; but by degrees their ardour began to cool, and if "hope deferred maketh the heart sick," then truly rosarians had much heart-sickness. The growers for sale were the chief sufferers; they felt compelled to buy and propagate these novelties, only to find out, when they had done so, that half their trouble was in vain. They could not sell, for they could not conscientiously praise them. During those years a Rose or two of home origin now and then appeared, although many a so-called English Rose was simply one raised in France, which some enterprising nurseryman had purchased, renamed it, and sent it out; but now a different state of things exists. The extent to which this forcing of inferior Roses on us by the French raisers may be gathered from the facts brought forward by Mr. Girdlestone in his paper in the *Rosarian's Year-Book*, entitled "Roses of Recent Years, French and English." From this it appears that during the last four years there have been sent out from the Continent 334 new Roses, while in England there have been in the same period thirty-eight, and the result of this is, that while from the Continent there have been sent out nearly nine times as many new Roses as were distributed in England in the four years, the number of Continental seedlings now grown here is not even double that of English seedlings of the same date, while the number of English sorts exhibited, only falls short by three of the Continental, that is to say, of 334 Continental varieties sent out, only 20 per cent. are cultivated here, as against 95 per cent. of the English raisers of thirty-eight novelties; and that of 291 reputed exhibition Roses of Continental origin there are hardly to be found more than 7 per cent., while close upon 86 per cent. of the twenty-one new English Roses sent out in England have been well shown.

This is one reason why we now take so calmly the flourishing accounts of Continental growers; another, as I have said, is that we have several raisers in England who do give us veritable productions of their own raising; not French productions re-christened, and sent out under false pretences—not merely the old-established houses, but Mr. Bennett, Messrs. A. Dickson & Sons, Mack & Sons, have of late years considerably added to our lists of valuable Roses; hence, when we read in the Rose catalogues that one raiser promises us some nine Teas and Noisettes, we may, in true French fashion, shrug our shoulders, and say *Vraiment!* We have no means of ascertaining which are likely to be valuable Roses or not, except by answering this question. What have these raisers done in past years? And this is a pretty fair rule. Raisers get into a certain groove with their seedlings; and whether the varieties are good, bad, or indifferent, they are likely to continue on the same lines. There is a certain character about their flowers which is developed year after year. I see now the names of raisers in this year's lists who have been sending out Roses for twenty years or more, and yet hardly one of their specimens has obtained a prominent place in our catalogues; while, on the other hand, I see the names of those who have sent out, comparatively speaking, few Roses, but whose flowers hardly ever fail to give us pleasure.

In looking through the list one naturally seeks for the name of Guillot, to whom we owe such good Roses, especially Teas, and from whose strain of seedlings we might naturally expect further results. His Rose of last year, Madame Hoste, promises to uphold his reputation; and this year he sends out a hybrid perpetual, Marguerite Bordet, but from its description little can be gained—tender rose and lilac shaded with white; nor are one's expectations very much excited by it. Of Teas he sends us Ernest Metz, which, from its description, seems to be one of those high coloured Teas which some admire—tender carnation-rose, brighter in the centre, and deeper on reverse of petal; and another, of which we would fain hope great things, Madame Pierre Guillot. This is described as in colour of coppery-orange at the base, becoming pale towards the margins of the blooms, which are bordered with rose, the reverse yellowish-white. Pernet sends out a Dijon Tea with crimson flowers; but in looking through the list one is fain to confess that there is little to excite one's hopes. If one grower sends out nine Teas, and another seven Perpetuals, we must simply decline the task of estimating for them which may be worth keeping, especially as among Tea raisers we have one who every year is equally lavish, but who has left us hardly anything worth keeping in our list.

Turning, then, to home-raised flowers, it cannot be said that there is a very lavish supply; there is nothing as yet arrived, while three or four is the utmost announced by any one firm. In Teas we have two novelties in sports, one to which I have alluded in a previous paper—Climbing Niphetos, a remarkable sport sent out by Messrs. Keynes, Williams & Co., of Salisbury, a very vigorous sport with flowers identical with those of the type, and making shoots 18 or 20 feet long; the other a sport from Souvenir d'un Ami, sent out by Mr. George Prince, and named by him, in remembrance of his excellent and much regretted wife, Souvenir de Sarah A. Prince. It was exhibited well both early and late last season, but unfortunately the weather which we had in July, when the National was held, prevented its being seen there in its proper condition. It is a very pure white Rose, without either the greenish tint or the unevenly shaped blooms of Niphetos. Of course, the latter is very good and beautiful, but it often has a trick of quartering and throwing its petals about in an ungainly fashion. Then we have from Alex. Dickson & Co., of Newtownards, Co. Down, Ireland, Mrs. James Wilson, which is described as a very beautiful Tea, with dark lemon-coloured flowers, margined with rose; the substance very good, and the flowers neat. Messrs. W. Paul & Sons send out Sappho, which has obtained a First-class Certificate from the Royal Horticultural Society; the flowers are fine coloured and of good form.

Hybrid Perpetuals are not numerous either. Messrs. Paul & Sons send out Cheshunt Scarlet, a very high-coloured Rose, suitable only for garden decoration. They also send out John D. Pawle, named after that cheery Rose grower, ochre-lemon shaded with maroon; Margaret Haywood, a bright rosy-pink sport from Madame Clemence Joigneaux, originated in the garden of the popular treasurer of the National Rose Society; and Marchioness of Lorne, rose shaded with crimson; while the Irish firm send us James Brownlow—said to be a cross between Marquise de Castellane and Paul Neyron), flowers very large and fragrant, with very smooth petals, a lovely brilliant carmine, of vigorous habit; and Lady Arthur Hill, a seedling from Beauty of Waltham, producing flowers of a rosy-lilac colour—the plant is vigorous.

A regulation has been lately made by the National Rose Society which will tend, I hope, to a keen competition amongst home raisers of seedling Roses. Formerly the Gold Medal for a seedling Rose was awarded to a Rose not yet in commerce; thus Roses which had appeared in the autumn previous were excluded—for example, the best Roses could not be entered last season because they had been already announced; the rule has now been altered so as to embrace these, and Rose growers will have the opportunity of seeing what is their character. It would have been, for example, a very close run between Earl of Dufferin and Sir Rowland Hill at the Edinburgh show of the National Rose Society; but the former was excluded because it was already in commerce.

We may thus, I think, wait calmly for the coming season, not anticipating too much from our foreign friends; and that we may equally, with some degree of confidence, look to the productions of those who are engaged in the raising of seedling Roses in our own country, which has been proved to be as feasible as in France. *Wild Rose.*

Pot Roses.

From the time the plants have pushed into growth until their last blooms are made, tepid liquid manure should be given at the roots at short intervals, and this, with an occasional top-dressing with artificial manure or horse-droppings and loam, will assist in the production of fine blooms. A sharp outlook should be kept for the Rose maggot, and when two leaves are found stuck together or curled up, it is an indication that the depredator is there in hiding. Squeezing between the finger and thumb is the usual remedy, but some careful cultivators of pot Roses uncoil the leaf and clean out maggot and web; and this is the better way where time allows. No mercy should be shown the enemy, as his doings are dark and injurious. Should aphis appear on the Roses, lose no time in fumigating with tobacco or tobacco-paper in the evening, when plants are many; but in the case of a few plants only, the insect may be removed with an aphis brush, or by dipping in weak tobacco-water if no blooms are showing colour.

Cultural Memoranda.

EUCHARIS AMAZONICA.

The potting of Eucharis amazonica, or other species, should be undertaken at this date; but any of these plants, if in a healthy state, should rarely be disturbed, or they will fail to bloom satisfactorily, and in case of the blooms and leaves getting smaller an application of some good fertiliser is best. Some specimens of E. amazonica I am acquainted with have not been repotted for six years, are never off, and bloom well twice and thrice a-year. These plants are rested by being placed in a cooler house than that they grew in. For potting soil use fibrous loam, a small quantity of peat, and well decomposed sheep manure, and a little coarse silver-sand and charcoal; a few half-inch bones placed over the drainage are to be recommended. Another useful bulb for yielding cut flowers, Hymenocallis macrostephana, should receive the same treatment as that given to the Eucharis. When repotting them, three bulbs should be placed in rather small pots, and not grown in a mass, as is the case with Eucharis; if the bulbs are very large place one only in a pot.

Gloriosas will require repotting as early as possible, using for the purpose good peat, loam, sand, leaf-mould, and some small quantity of rotten manure. Give no water before growth begins.

Calanthes which have started into growth should be repotted in rather small pots at first, using rich compost; and any species and varieties which it is desired to increase the stock may have the little tubers removed from the parent, cutting them off with a small heel, and place them in a light compost in brisk bottom-heat.

A few Achimenes and Tydæas may be started, but the general stock should be kept until later on. Cliveas should be placed near the light, and afforded liquid-manure to assist them to throw up their flower-spikes. Pancratiums should, if requiring it, be repotted, removing offsets; the potting soil may consist mainly of loam. Crinums and other similar bulbs should be top-dressed when repotting is not necessary. *G. Wythes, Sion Gardens.*

Ardisia crenulata.

Seed sown now, in well drained pots, in light sandy soil, and placed in heat, will germinate in due time. The pot may be covered with a piece of glass, which should be removed when germination has

taken place. As soon as large enough, the plants may be potted singly in thumbs in soil consisting of three parts of fine sandy loam and one of leaf-mould. Place them again in the warm-house or pit, water very lightly to settle the soil, and shade from bright sunshine until the roots have begun to push into the soil. Shift the plants into larger pots when necessary. *H. W. Ward.*

Winter-flowering Begonias.

Cuttings of these plants may be put into any kind of light mould, surfaced with sand, watered, and placed in heat. When rooted, pot off singly into small pots, water, and return to heat. When some small amount of new growth is made, stop the shoots a few times, and shift into larger pots as needed. With ordinary stove or intermediate-house treatment these will make handsome plants by the autumn. *H. W. W.*

WINTER FLOWERS.

First of all we may mention that which bears the title *rôle*, Cheimonanthus fragrans (fig. 42)—well named indeed, for it does flower in winter, and it is fragrant, deliciously so. Its flowers are not conspicuous for beauty, but there is an "asthetic" tint of "greenery-yallery" about the outer flower-segments which contrasts well with the purplish-red blotch in the centre. It is quite hardy, and does best against a wall, and should be close pruned in after flowering, as it flowers from the wood made the preceding season. Get the variety grandiflora, and acknowledge that, in its way, there are not many, if any, to excel this old-established plant.

Of much later introduction are the two fragrant Honeysuckles, still so often miscalled in gardens, that we repeat the illustrations published many years since, and which show the Standish Honey suckle (fig. 46) to have hairy leaves, while the other has them perfectly smooth (fig. 45). Both have deliciously fragrant white flowers to tempt such few insects as may be about. Both plants were introduced by Fortune to the Horticultural Society, and were afterwards sent out by the late Mr. Standish. How much we owe to all three! It is to Fortune, also that we are indebted for the Jasminum nudicaule (fig. 43). That has not the charm of fragrance; the allurement here held out is that of brilliant colour: and how brilliant in the dull days of winter—how free flowering—how hardy! Let no one look on this splendid trailer without a feeling of gratitude to Robert Fortune. A variety exists in which the ternate leaves are blotched and streaked with yellow. In our experience this does not flower quite so freely as the type, and is, in consequence, hardly to be commended. Pruned or not pruned—preferably not pruned—this delightful shrub never fails to clothe the dull walls with a wealth of golden-yellow blossom.

Another shrub of this habit not to be omitted is Pyrus japonica—its name indicating the country whence so many good plants have come.



Fig. 42.—Cheimonanthus fragrans var. grandiflora: flowers dull yellow, and red-brown: very fragrant.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM POLITUM×.

This, as is well known, is one of a batch of hybrids raised by Mr. Robert Warner, of Bloomfield, Chelmsford, of which the records of parentage were unfortunately lost, though it is supposed to have been C. barbatum and C. venustum. A good plant of C. politum× is now flowering at Kew side by side with each of its supposed parents; and, after a careful examination of all its characters, I feel quite convinced that the parentage is correctly understood. Comparing it with C. calophyllum×, which is known to have originated from C. barbatum, crossed with C. venustum, the differences between the two are so slight as to leave little doubt that both have a similar origin. C. chloroneurum×, C. discolor×, C. meirax×, and C. melanophthalmum×, are all believed to have originated from the same cross, and on comparing the plates given in the *Orchid Album* (tabs. 36, 37, 95, and 109) a very strong family likeness is seen, though there is a certain amount of colour variation. The influence of C. venustum is strongly stamped on all of them, though some have more of the purple of C. barbatum than others. All points considered, it seems to me very probable that these plants were raised from C. venustum, crossed with C. barbatum, or the parentage of C. calophyllum reversed. Perhaps some other seedlings of known origin may yet clear up this point. *R. A. Rolfe.*

Epidendrums, Brassias, &c.

At The Hawthorns, Red Hill, Mr. E. F. Hubbock's residence, Epidendrum cochleatum was lately found in full bloom. It is an old—but not showy—plant, easily grown; sepals and petals are twisted and deflexed, colour yellowish-green; the lip has a goldery crest, and is prettily veined with purple. It is not dissimilar to E. fragrans and E. radiatum, which are however, creamy-yellow and brown.

Other Orchids carrying blooms were Dendrobium heterocarpum, D. Dearii, and many variously-coloured examples of D. fimbriatum, Brassavola acaulis, with curious rush-like leaves, and racemes of green and white flowers. *F. R.*

Comparettias.

These may be grown either in baskets or in pans suspended from the roof, where they get plenty of light, but where they may be shaded from the hottest sun. They do not require much soil about their roots, but this must be kept thoroughly sweet and fresh, as stagnation of any sort about their roots will speedily end in death; therefore, let the drainage be of the freest, and let the soil consist of good fibrous peat and living sphagnum moss. Although these plants are considered somewhat delicate, they may be grown successfully with care. They do not like to be disturbed, so that when doing well, allow them to remain, and in renewing the peat and moss about them, pick it out carefully from amongst the roots, and replace the fresh with equal care. They require a liberal supply of water during the period of growth, and although during autumn and winter the quantity should be curtailed, they must never be allowed to become dry for any length of time, but should be kept moist, which will correspond with their surroundings in a state of Nature, where, in their resting season, they enjoy the moisture from the heavy dews at night, and thus their bulbs and foliage are kept in a plump and vigorous condition; if this is not maintained under cultivation the plants will soon dwindle and die. "*Orchid Album*," *December*, 1888.

Phaius Blumei Bernaysii.

This handsome and rare terrestrial Orchid is now in bloom in Mr. W. Bull's establishment at Chelsea. It has a spike of flowers nearly equal in size to those of P. Wallichii (2 feet). The sepals and petals are pure white on the outside, whilst the inside is

chrome-yellow; the lip chrome-yellow edged with white. It is a bright and handsome flower, and the plant will do as well in the plant-stove as in the Orchid-house.

Oncidium Jonesianum flavens.

We have found the most suitable manner to grow this plant is upon a block or a raft of wood, which, indeed, is the most natural manner, and the natural plan succeeds best under cultivation. In this manner this beautiful Orchid displays its charms to the best advantage. The leaves grow in the manner depicted on our plate, and the flower-spikes proceed from the base of the newly made growth, when the plants are suspended amongst or against plants with good foliage, to form a background, a charming and pleasant effect is produced. A few Palms and Ferns arranged with the Orchids forms a charming and enchanting picture, which deserves the attention of Orchid growers to a greater extent than they have yet given the subject.

This Oncidium, we find, enjoys more heat than was at first anticipated. We have ourselves tried it in different temperatures, and have also observed the results obtained in other collections, and from these observations we are fully convinced that want of heat has been the cause of failure in the cultivation of this plant, and the conditions under which this plant has for the most part hitherto been grown is a mistake, and that it really requires strong heat and moisture. We find the temperature of the East India suits it admirably. The plants are suspended and syringed every day in summer, and the roots are kept moist throughout the growing season; during rest the supply of water must be reduced. The plant has now become very reasonable in price, and we advise our readers to grow this species in quantity, more especially as but little space is necessary for its accommodation, and as its cheerful flowers appear during the autumn months—a season when Orchid blooms may be reckoned as scarcest. "*Orchid Album*," *December*, 1888.



Fig. 43.—Jasminum nudicaule: flowers yellow. (see p. 236.)

Cypripedium Tautzianum lepidum ×.

This pretty variety, a cross between Cypripedium

niveum and C. barbatum, is in flower at Mr. W. Bull's nursery. It seems a neater plant than the type, its rosy markings and spots on a ground-colour of white being brighter, and the two purple blotches on the staminode are very striking features.

Cypripedium Lathamianum.

The stock of this is now in flower in Messrs. Jas. Veitch and Sons' nursery, Chelsea. Its flowers are just what one would expect to result from the crossing of two such good and free-growing plants as C. Spicerianum and C. villosum. When the plant gets to its full strength it will be a great favourite.

Dendrobium Schneiderianum ×.

This is a very pretty addition to the Dendrobes, obtained by crossing D. Findlayanum and D. aureum. Its flowers are equal in size to those of a good D. nobile, white, with clear rose-pink tips to the sepals, petals, and lip; the lip having a clear orange blotch at the base. It is also a very free grower. It is in flower with Messrs. Veitch.

Angræcum caudatum

is a native of the hot district about Sierra Leone, Western Tropical Africa, and, therefore, it requires the temperature of the East Indian, or hottest house in our gardens; it also requires a large amount of moisture, especially during the summer months; in autumn the supply must be reduced; but even during this season it should not be allowed to become dry at the roots, as it has no thick fleshy bulbs to support it. The best material to grow this plant is living sphagnum moss, this will keep it moist and in a healthy condition, which is a point of material importance, for if neglected it frequently leads to the loss of the lower leaves; in this respect Angræcums resemble Aërides, and loss of foliage means loss of beauty. Angræcums are nearly always growing, and care must be exercised that the flower-spikes are not allowed to injure the plant; if it appears to be impoverished, the spike or spikes should be at once cut off and placed in a glass of water, where the flowers will continue to display their beauty for a long time, especially if the water is renewed every few days. We find these plants thrive best when grown in baskets suspended from the roof, they enjoy sun and light, but must be shaded when the sun's rays are very powerful; the morning and evening sun, however, will not harm them, while during the autumn and winter months they should be exposed to all the sun and light it is possible to give them; this strengthens their foliage and ripens their growth, causing the plants to flower more freely. Drain well, and do not use much sphagnum about the roots, these being mostly made in the open if the atmosphere is kept sufficiently moist. "*Orchid Album*," *December*, 1888.

Lælia anceps Hillii.

A large specimen with twenty-four flowers of this neat white Lælia—the last of the anceps to flower—shows it at its best in the Orchid-houses at Messrs. J. Veitch & Sons' nursery. The flowers are not so large as some of the white L. anceps, but they are very enduring, and the pale pink tips to the labellums render the flowers very attractive.

Cirrhopetalum pulchrum, *N. E. Brown*.

A new species from Halmahera, with flowers in stalked umbels proceeding from the base of small globose one-leaved pseudobulbs. Each flower measures 2¼ inches by ½ inch, and is of curious construction, the uppermost sepal of a rose-colour, being roundish, and prolonged into a long thread at the tips, the two lateral sepals bent downwards and united into a hooded body like the slipper of a Cypripedium. These conjoined sepals have a yellowish ground speckled with rose-coloured spots. *Lindenia*, t. 565.

Cypripedium Harrisianum ×, var. polychromum.

The original plant is a hybrid between barbatum out of C. villosum. The present variety is remarkable for the mottled appearance of the lip. *Lindenia*, t. 566, and is extremely near to C. Dauthieri marmoratumas figured in *Gardeners' Chronicle*, April 30, 1887, fig. 109.

Cattleya chocoensis var. Miss Nilsson.

The flowers of this variety are concave, and somewhat bell-shaped, the two lateral petals pure white, broad, roundish, the lip rolled round the column, but with the edges not overlapping, the front lobe, flat, rounded, white, streaked with golden rays, and with a magenta blotch in front. *Lindenia*, t. 568.

The Apiary.

The mild weather of January appears to have left us for a season, and as we write the order of the day is cold winds, snow, and frost. This is much better now than later on. A mild February is seldom a good forerunner, but a cold February and March are much more seasonable. Take care not to give the bees more food than is sufficient to sustain life. If they have too much now they will probably breed too fast, and then, should very cold weather follow for any length of time, the bees would not be able to keep the brood warm, and disease and death would probably result. Let the bees entirely alone if they do not require food. Far better for them to rest now, and get active by degrees. Of course if fine warm days should come, covers might be lifted up and turned over to dry. This would not disturb the bees, and would do the hives a great deal of good. Carson's black varnish seems much in request for the outside of hives. For those who do not mind the black colour it is cheap and good. *Bee.*

Plants and Their Culture.

Greenhouse.—The autumn sown Cyclamen will now be ready to pot off from the seed-pans, and should be lifted carefully with a small pointed stick and placed in small pots, using a compost of loam, some good decomposed cow manure, leaf-mould, and silver-sand—a little peat if desired may be added. Place the plants in a house or pit having a temperature of 55°, on a shelf near the glass, and of which the air is maintained in a moderately moist condition. The old plants will now be at their best and these, and also the plants of double Primulas, should be frequently watered with weak liquid manure. Double flowered Primulas as they go out of bloom may be placed in a cooler house for a time so as to make room for others. Vallota purpurea should be repotted if it is requisite, using for the purpose some good loam, a small quantity relatively of decayed sheep or cow manure, and enough river sand to keep the soil open, peat also may be added if the loam is of a heavy nature. See that the drainage is good, but not excessive in amount, and bury the bulbs to half their depth. A few pots of Gladiolus brenchleyensis are very useful for conservatory decoration for the late summer months, and the first instalment of them may now be put in, placing three large bulbs in 7-inch pots, covering them with 3 inches of soil, which should be a rich sandy loam, and place them in a cold frame. Autumn-sown Mignonette should be watered at short intervals when dry with some good fertiliser, and as the plants will now be growing rapidly, every assistance should be given to them. Another sowing of Mignonette may be made for a late supply to succeed the autumn-sown plants—the pots may be 48's or 32's. A few seeds of Nicotiana affinis may be sown for the embellishment of the conservatory, these plants being much admired. Seeds may be sown at intervals if successions of flowering plants of this sweet-scented Tobacco are required. Mimulus are very effective for greenhouse decoration, and when grown in small pots they are useful for furnishing the edges of stages.

Cool Frames.—The stock of plants in these structures should have all dead leaves cleared off them, and the soil stirred slightly. East Lothian Stocks, if not growing strongly, may have liquid manure applied occasionally, all possible light and air being afforded them. Succession plants of Stocks should be potted on, also those of Primula obconica and other species. Auriculas should be now re-potted or top-dressed with a rich sandy good compost, and be plunged afterwards in a bed of coal-ashes, water sparingly, and give abundance of air in mild dry weather. Campanula pyramidalis may be repotted if large plants are required, and in doing so, plenty of loam and a little manure or leaf-mould should be employed; and as Campanulas are moisture-loving plants, an excessive amount of drainage materials should not be put into the pots. *G. Wythes, Syon House Gardens, Brentford.*

The Orchid Houses.

Potting Cypripediums.—This is a very large class of Orchids, flowering at all seasons of the year. The various species resent shifting less than any other section; they may, therefore, if carefully tended afterwards be repotted at any convenient time—soon after the flowers are over is the best. However, for a general overhaul of the stock, with a view to repotting such as require it, the early spring is the most convenient. For potting material, good lumpy stuff in, proportion to the size of the pots, should be used, the stronger-growing doing best in fibry peat, sphagnum moss, and good loam fibre in about equal proportions, with a sprinkling of silver-sand and charcoal or fine crocks added. The green-leaved or Selenipedium section, especially, like loam-fibre, and the vigour of all Cypripediums may be increased by placing a layer of crushed bones, such as is used for Vine borders, on top of the crocks to form part of the drainage. The same mixture with crushed bones used in the same way as recommended for Cypripediums, grows Lycastes, Zygopetalums, Maxillarias, Phaius, evergreen Calanthes, and other terrestrial Orchids to perfection. With the smaller growing Cypripediums less sphagnum moss and less loam fibre should be given.

With regard to temperature the varieties of C. insigne, C. Fairrieanum, and its hybrids; and the plain green-leaved species and hybrids of the Selenipedium section now familiar to us in C. Sedeni, are cool-house plants; the marbled-leaved species, such as C. barbatum, C. callosum, and their hybrids belong to the intermediate-house, and the Bornean and other green-leaved Cypripediums—C. Lowii, C. Stonei, C. Sanderiana, &c., and the marbled-leaved ones coming from the same countries — C. Lawrenceana, C. Hookeriana, C. niveum, C. concolor, C. bellatulum, &c., warm-house plants which are soon irrecoverably injured if subjected to the low temperature in which C. insigne would thrive. Direct sunlight is injurious to all Cypripedium and they should therefore be carefully shaded from it when necessary and grown on the shady side of the house wherever possible. Yellow thrips attack them, especially the warm-house kinds, and these should be carefully kept down by sponging with weak tobacco-water.

The temperatures for the month of March are:—Warm-house, 65° to 70°, Fahr., by day, and 60° at night; intermediate-house, 60° to 65° by day, and 55° at night; cool-house, 55° to 60° by day; and 50° at night. The houses may be allowed to range somewhat higher by sunheat. *James O'Brien.*

The Flower Garden.

Seedling Pansies and Violas.—In the summer of 1887 I was privileged to inspect several gardens in the North of England, and the one flower garden plant that seemed to do the best in all the gardens I visited was the fancy Pansy. Never did I see such large nor so showy—and yet handsome—flowers, and I ought to add, grander plants; no wonder, therefore, that I resolved to try them here. This was done last year, and with such a fair amount of success, as to encourage further trials. The cooler and moister atmosphere of the North has no doubt much to do with the success attending the cultivation of Pansies, and if in our drier climate we are to succeed in growing the plants successfully, the first point to attend to is the securing of a good depth of rich soil and the next—copiously watering the plants whenever the weather continues dry. Strong plants put out during this month would stand a better chance of resisting drought than seedlings raised now, as is the Northern custom, and which we copied last year by sowing in heat early in February, growing the plants on in frames and planting out in May. They began to flower immediately, the cool summer being all in their favour. The old plants have lately been split up and replanted, and I feel sure that for the southern part of the kingdom this will prove to be the best

plan. I would strongly advise the raising of seedlings this year, and the plants to be grown on a partially shaded border during the summer, and this spring twelve months to be planted out for the following summer's display [too long—sow in September in cold frames]. Of all the many varieties of Viola that I have tried from time to time few are better in all seasons than Blue Bell, Mrs. Grey, Countess of Hopetoun, white; Hardwick yellow, Archie Grant, purple, and Lilacina lavender.

Fibrous-rooted Begonias.—There are several varieties of this section of Begonias that in warm seasons do extremely well bedded out, but only two of all that I have made trial of which can be depended on to do satisfactorily should the summer be as the last was, that is, cold and sunless. The two varieties in question are weltoniensis and Princess Beatrice; both of them are closely allied to each other in habit of growth, foliage, and flower; the former by its neutral tints is of value as a face to brighter flowers. Princess Beatrice is a dwarfer plant, with almost pure white flowers, and it is hardier. It never seeds, consequently there is no picking over required, other than an occasional pinching out of the points of shoots to keep the plants within the allotted space. It is the perfection of a plant for forming the marginal lines to flower-beds of any kind, and for planting in conjunction with such dwarf bedding plants as Alternantheras and variegated Mesembryanthemum. The old plants should be lifted after frost has cut them down in the autumn, and wintered in shallow boxes in light soil. Such plants may now be split up into as many parts as are needed for the coming summer display, and planted out in a frame placed on a mild hotbed of leaves, and from this bed they may be transplanted to the flower beds about the middle of May. The varieties castanæfolia, knowsleyiana Ingramii, and fuchsioides do fairly well out-of-doors in a hot summer. Cuttings put in now, or division of roots, will make good plants for putting out at the end of May.

Vases.—In most gardens vases for flowering plants are important features, and in gardens laid out geometrically they are almost indispensable. The planting of open-air vases of every description cannot possibly be done in a too gracefully-careless fashion; but where the conditions are favourable the plants should be selected from this point of view. A mass of scarlet Pelargoniums may please some persons, but the flower-gardener with feelings of Art views things from a different standpoint, and he would rightly decide to employ the free use of trailers and mixtures of plants—for the centres of vases, planting Pelargoniums, Fuchsias, Heliotropes, Marguerites, Grevilleas, Cannas, and Yuccas (which are all excellent for the purpose), and for the outer row, or rows, Petunias, Cobœa scandens, Canary Creeper, Convolvulus major, Nasturtiums, and Ivy-leaved Pelargoniums. If in addition to the small vases that are planted after this fashion there are sometimes raised beds in prominent positions, which are planted in somewhat the same style, the amount of formality in geometrically laid out parterres will not only be much lessened, but the beauty of the arrangement heightened. *W. Wildsmith, Heckfield.*

Fruits Under Glass.

Pine-apples.—Fruiting plants may now be gently pushed on in a genial temperature of 70° by night, with a rise of 10° to 15° by day when the sun shines. The house should be closed early in the afternoon, from 1 to 2 o'clock, damping down the paths and walls with clear water, and occasionally with manure-water. The bottom-heat may stand at 95°. Let the fruits be securely supported in an upright position or the crowns will grow aslant. Pay the utmost attention to the watering of the plants, using for the purpose tepid manure-water after each second watering.

Successions will now be pushing up their flower-spikes, therefore encourage the plants to grow vigorously, and be sure that they do not want for water, but examine each individually, and if not throwing up a bloom-spike withhold water altogether, or they may start to grow instead of blooming. Let the temperature be 65°—70° at night, 80°—85° by day with sun-heat, the bottom-heat as before, and air being afforded them in mild weather. Proper attention to ventilating the structure has much influence in preventing the crowns growing too large when considerable amounts of water are slopped about. Younger plants for starting later on should be kept at a temperature of 60° at night, and avoid all sudden changes in watering, airing, or extremes of temperature by day or night, or the plants may all start to flower before they are wanted. Maintain a genial buoyant air, not one stagnant with damp or dry and exhausting with excessive heat from the hot pipes. The plants will require more constant attention as regards watering as the days increase in length, and the sun in power.

Suckers.—If the soil and other material are in readiness, advantage may be taken of mild weather for potting up all those which may require it, into their fruiting pots, which may be of 10 inches in diameter if they are any variety of the Queen Pine-apple. The strongest and finest looking plants, and those that have filled their pots with roots should be chosen for potting, and before putting them into the pots gently separate all matted roots with a blunt-ended piece of wood. The soil used should contain to every barrow-load of fibry loam an 8-inch potful of Thomson's Vine manure, a 6-inch potful of dry soot, and if the soil is of a heavy or close nature a small quantity of silver-sand may be added to the other ingredients. When the loam is light and porous it is well to add pounded charcoal. Let the soil be warmed before using it, and it should be dry rather than moist, so that when it is rammed firmly into the pots it will yet be porous and elastic. After potting give no water for a time, but maintain a moist growing atmosphere in the pit, giving air to the plants during the day. The temperature at night may range from 60°—65°, and the bottom-heat from 85°—90°. Give a gentle dewing over with the syringe at shutting up time. I may say, in passing, that Pine-growing is a far different thing in the North to what it is in the South of England. I have seen the late Mr. Barnes, of Bicton, use the garden-engine in summer every day over his Pines, one man keeping the engine filled with manure-water, while the foreman pumped till the axils of the leaves were full and running over—and Mr. Barnes was celebrated as the finest Pine-grower of his day; but this kind of treatment could be scarcely carried out with advantage in the Midlands or in the North. Any suckers which were left on old fruiters may now be potted, and the stock of scarce varieties should have their leaves trimmed and be laid in a strong bottom-heat to break once more.

The Late Houses.—All Grapes should be cut and put away in the Grape-room, but if this cannot be done, keep the house at 45°, and exclude damp. All the late Vines should be pruned as early as possible, the borders top-dressed and watered, and the houses well cleansed. Apply some styptic as soon as the Vines are pruned, if found necessary, and rub off the bark and apply a wash of half a pint of lemon oil to the gallon of soft water. This is a very safe and effective insecticide. Where well-drained borders are found to be dry, water them thoroughly and immediately.

Vine Eyes.—Now is the time to put in these, selecting well-ripened shoots, not too strong, with plump full buds. Cut pieces of 1½ inches, the bud being midway from each end; slice the bark and a little of the wood away, on what will be the underside when placed in the soil. These eyes may be struck singly in 60's, or in pans of twelve or more together, burying them in sandy loam up to the bud. They may be struck in bottom-heat of 80°, in a frame on a dung-bed, or under a hand-glass plunged in a Melon-house or Pine-pit. *W. Bennett, Rangemore, Burton-on-Trent.*

The Hardy Fruit Garden.

The Frost and Fruit Trees.—Since writing my last notice we have experienced some very sharp frosts and a fall of snow of some depth. The frost registered here on the morning of February 13 was 21°, which is the lowest recorded on any single occasion in this part of the country for some years. The check to the rapid swelling of fruit buds of all kinds is a severe one, and the forwardest of Apricots, Pears, and especially Brockworth Park, which were on the point of opening its flowers, may have suffered damage. We shall, now that mild weather has set in, push along as fast as possible with pruning and nailing Peach and Nectarine trees, to avoid the loss of buds which would take place if the work be not finished off before these commence to swell visibly.

Nuts.—Where these are grown, pruning the bushes may now be taken in hand. In Kent, where many acres of Filberts are grown for market, the pruning generally begins with the beginning of the year, and extends over a period of three months; but this practice of beginning at so early a date is not to be recommended where only a few bushes are grown, and which can be finished off quickly. The best time to prune the Filbert Nut is when the tiny, pink-coloured female blossoms are showing, which generally taken place in the present month, earlier or later, according to the weather. Beginning with the youngest trees cut out all growths in the centre, which must always be kept well open, then select from three to seven of the strongest and best placed shoots to form the main branches of the future bush (vase shape), and which should start from a clean stem 15 inches in height. These shoots are cut back annually to an outside bud longer or shorter according to their strength, and by that means induce numerous fruiting lateral shoots and spurs. If at the first pruning only three shoots were selected there should be two others selected from each, which should be encouraged to grow, so as to form the head, and as the bushes increase in height and circumference others must be left at each annual pruning until the proper dimensions are reached, which should not exceed 6 feet, as regards the height of the bushes. Afterwards the pruning will consist of merely shortening back lateral shoots which have borne fruit, removing entirely gross growing shoots, shortening back unfruitful shoots to a few buds, and endeavouring, so far as possible to keep the principal branches well clothed with the small twiggy fruitful growths. All suckers growing up round the stem should be removed with a suckering iron, and sufficient male flowers or catkins left to secure fertilisation of the blooms. Should there be a scarcity of catkins some branches of the common Hazel furnished with catkins in a properly forward state may be placed in the bushes. Old bushes may require assistance at the roots, and for this purpose manure or fresh soil should be employed for the purpose, but anything likely to lead to rank growth should be avoided, such, for instance, as too much rich farm-yard manure, night soil, &c. Fresh waste or old woollen rags, especially the first-named, is the best manure for nuts I am acquainted with. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

Miscellaneous Items.—A few Vegetable Marrows may be sown to place in an early Potato frame when empty; also a few seeds of Gherkins, some seeds of Capsicums, and Egg-fruit, the fruits of which are cooked in a young state. Pot on Tomatos, Capsicums, &c., as they require it, and grow them in a temperature of 60°. Sow more Tomato seed, Early Milan Turnip, Horn Carrot, and Chervil. A successional sowing of Peas may now be made, and it will be found good practice to sow Peas at the middle and end of each month up to June 30; and the same holds good of Broad Beans. A sowing of Parsley may be got in when the soil is in a workable state. For this crop let the ground be well manured and trenched deeply, if that be necessary, and where wireworm abounds a dressing of soot will be found very beneficial. In some gardens which have light soil Parsley is not reared without difficulty, for when it gets about the transplanting size it is attacked by a worm which destroys the outer coating of the root, and the plant perishes or lives miserably. I have, however, overcome this difficulty by transplanting, and have seldom seen a transplanted bed interfered with. *W. M. Baillie.*

Trade Journalism.—The annual special issue of the *Timber Trades Journal*, published on the 9th inst., contains reports on the timber trade of the past year from seventy ports in the United Kingdom, arranged in geographical sections, accompanied by portraits of the leading importing merchants. The Mahogany and hardwood trades are dealt with in reviews from the principal importing centres in this country and the Continent, and the home-grown timber trade is represented by reports from the fifteen principal timber-growing districts. A large section of the paper is devoted to reports from the exporting countries of the North of Europe, Germany, Austria, British North America, and the United States; and to the importing countries of the Continent and other parts of the world.

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APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY,	FEB. 25.	Nursery Stock, at Westerham Nursery, Kent (three days), by Protheroe & Morris.
TUESDAY,	FEB. 26	Orchids in Flower, at Protheroe & Morris' Rooms. Roses, Carnations, Picotees, &c., at the City Auction Rooms, by Protheroe & Morris.
WEDNESDAY,	FEB. 27	Roses, Fruit Trees, Shrubs, Border Plants, 10,000 Liliums, &c., at Stevens' Rooms. Lilies, &c., at Protheroe & Morris' Rooms.
THURSDAY,	FEB. 28	Imported Orchids and others, in Flower and Bud, at Stevens' Rooms. Nursery Stock, from sample, at Protheroe & Morris' Rooms. Live and Dead Stock, at Barvins Park, Potter's Bar, by Protheroe & Morris (two days).
FRIDAY,	MAR. 1	Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—40°.4.

Botany in its Geographical, Commercial, and Industrial Aspects.

THE *Cercle Floral* of Antwerp proposes to establish in that city, in the year 1890, an exhibition illustrative of the subjects mentioned in the heading. The project springs from the recognition of the fact, that flower shows, as such, are far too numerous and, except in some cases, monotonous. The generality, while of value to those immediately participating in them, do not contribute much to the advance of horticulture generally nor to the elevation of the pursuit in the eyes of the public—at least they do not do so in a degree at all in proportion to the exertions made and the money spent in getting them up. In this country flower-show managers have, consciously or unconsciously, begun to recognise these truths, and have made some attempts to get out of the old routine, and extend their operations. We may instance the several Conferences on Orchids, Narcissus, Primroses, Potatos, Chrysanthemums, and Hardy Fruit Culture. By their means the public is made to appreciate the fact that, not only is horticulture a harmless and refining amusement for the rich, and an agreeable pastime for the leisure hour of the worker, but that it is of great importance to natural science, while as an element of national industry it is entitled to much higher rank than is generally accorded to it.

Our Antwerp friends, following up what has been done at Nancy and at Copenhagen, now propose to form an exhibition illustrative not only of the floras of particular countries, but also of the economic products derived from them. The same idea was partially carried out, as many of our readers will remember, at the Indo-Colonial Exhibition a year or two ago. The conservatories attached to several of the Colonial courts gave a general idea of the predominant vegetation of the Colonies, while close by were the products derived from the plants in question. At Kew, the Museums of Economic Botany, and the several plant houses, furnish ample material to the same end. But unfortunately so vast are the stores at Kew, that three separate museums are required, and all of necessity separated from the living plants, and from the laboratory, herbarium, and library.

At Antwerp, for a temporary purpose, it may be possible to get together in close proximity, or at any rate in a relatively small area, an exhibition of plants and their products from all countries. Take, for instance, rubber or caoutchouc. More than a hundred different species belonging to different natural orders and to various countries are now recognised as sources of rubber. It is proposed to obtain representatives of as many of these as possible, together with drawings and other illustrations where the living plant cannot be obtained, and to place them side by side with other illustrations representative of the mode of production and manufacture of caoutchouc. And so on with the other very numerous vegetable products.

Another proposal is to show what has been done by the skill of the gardener in cross-breeding and hybridisation. Anthurium Andreanum, to cite one instance, will be shown with as many of the hybrids and developments from it as circumstances will allow. In this manner the work of the horticulturist and the progress of horticulture will be made known to the botanist and to to the general public in a very atractive and striking fashion.

The debt of gratitude that is due to the DOUGLASES, the FORTUNES, the ROEZLS, the LINDENS, and so many more botanical collectors of various nationalities, will receive some acknowledgment by the grouping together of as many as possible of the plants originally introduced by each collector. Perhaps it will be found well in carrying out this part of the programme to limit the exhibition to the plants introduced by those collectors whose labours have terminated with their death, and not to include the introductions of still living collectors.

The artistic and æsthetic faculties are not overlooked in the programme, but plants as furnishing models for designers and art workmen find a place in it. It is proposed that explanatory lectures, with appropriate illustrations, shall be given.

A Congress, of course, is contemplated, whereat may be discussed some of the many subjects which so wide a programme of necessity comprises. Nothing is hinted in the programme before us of any other gathering, but our Belgian friends are too much like ourselves to allow such an opportunity for a cosmopolitan banquet to pass without availing themselves of it. The banquet might appropriately be of a strictly vegetarian character! Seriously, we hope that the largest possible measure of success may await an enterprise so well calculated to advance knowledge, and convey to the general public just ideas of the value and importance of horticulture and botany.

HORTICULTURAL CLUB.—The annual dinner took place on Tuesday, 12th inst., at the Hotel Windsor, Victoria Street, Westminster, and notwithstanding the inclemency of the weather there was a good attendance of members. The chair was taken by Dr. Hogg, and there were present the Rev. W. Wilks, Messrs. Henry J. Veitch, D. Morris, Bunyard, H. J. Pearson, Pollett, A. H. Pearson, H. Turner, Girdlestone, J. H. Veitch, Walker, Girdlestone, Crawley, Sturge, Deal, &c. The Chairman spoke in feeling terms of the absence of their revered Chairman, Mr. John Lee, but said there was every hope that he would, when the weather became milder, be with them again; and during the evening a telegram was read from him, expressing his best wishes for the prosperity of the Club; and the toast of his health was received with great enthusiasm.

ROSA FŒTIDA.—There is a capital "take-off" on the black Dahlia, blue Rose, and similar horticultural vagaries in *Album Bracke* (*Les Caricatures Parisiennes*), for 1889, p. 67. The humour of it is a good deal accentuated by the serious manner in which the florist is represented (in the cartoon) of making the discovery known. The legend of the picture runs thus:—"Enfin, mon cher monsieur, après cinq ans des labeurs obstinés, déboires déceptions de toutes sortes, je suis parvenu à obtenir la Rose fétide, Rosa fœtida, et à combler ainsi une des lacunes les plus importantes dans le regne végétal!" ("At last, my dear Sir, after five years of obstinate labour of disappointments and deceptions of all sorts, I have succeeded in obtaining the stinking Rose, Rosa fœtida, and in filling one of the most important gaps in the vegetable kingdom.") Perhaps our own florists will take a hint from the sarcasm, and give up trying to obtain the impossible!

"CHAMBRE SYNDICALE" OF BELGIUM."—At a meeting held on the 11th inst. the following awards were made:—

First-class Certificates.—To Clivia miniata (seedling) from M. G. De Cock; to C. miniata (seedling), from M. Louis van Houtte; to Lycaste Skinneri atro-rubens, from M. Jules Hey-Leysen; to Odontoglossum excellens, from M. G. Vincke-Dujardin; to Cypripedium Godseffianum (unanimously), and Cypripedium tonkinense, from M. Ed. Pynaert-Van Geert; to Cypripedium Spicerianum Leodiense, from Messrs. Jacob Makoy & Co.

UNIVERSITY OF ST. ANDREW'S.—Among the lectures proposed to be given in connection with the University Lecture Extension Association are the following:—1, "The Outlines of Modern Botany;" 2, "The Evolution of Plants;" 3, "The Common Sense of Gardens and Gardening;" by PATRICK GEDDES, F.R.S.E., Professor of Botany in University College, Dundee. Also, 1, "Botany;" 2, "Horticulture and Arboriculture;" by JOHN WILSON, B.Sc., Lecturer on Botany in the University of St. Andrews, and on Horticulture in the Heriot-Watt College, Edinburgh; formerly Demonstrator on Zoology in the University of St. Andrews.

FRUITERERS' COMPANY.—It is stated that this Company will hold an Exhibition of Soft Fruits at the Mansion House (by permission of the Lord MAYOR) some time in July. This is the outcome of a suggestion recently made by his Lordship.

HARDY PRIMROSES.—Mr. A. DEAN will read a paper on Hardy Primroses before the members of the Chiswick Gardeners' Mutual Improvement Association on Friday evening next, March 1.

TULIP DISEASE.—In the January number of *Agricultural Science*, published by the Professor of Agriculture in the University of Tennesee, a translation from the Italian is given of a memoir by Dr. F. CAVARA, of Pavia, relating to a disease of Tulips

affecting the leaves, stems, and flowers, and caused by a parasitic fungus like that to whose ravages the Lily-disease is due.

The "Entomologist" is now in its twenty-sixth year. By the use of smaller type it has been enlarged so as to give more than six pages of additional matter, the price remaining as low as sixpence. In the current number the leading features are—descriptions of new species of insects, illustrated by an excellent coloured plate; a note on the recurrence of a noctuoid moth in these islands after an absence of seventy years; important papers upon the variations of insects, the usual popular notes, and facilities for exchange among entomologists. Material in the hands of the Editor promises well for the coming year, especially with regard to plates, woodcuts, and descriptions of new species and local forms. The magazine is edited by Mr. Carington, with the assistance of several well-known entomologists; and is published by Messrs. West, Newman, & Co.

Seed Lists.—We have received the following exchange lists:—From Palermo and Montpellier, a list of seeds which the authorities of the Botanic Gardens of those cities offer for exchange. A catalogue of seeds and living plants from the Jardin des Plantes of Paris, sent by M. Maxime Cornu, 27, Rue Cuvier; and from the same address a similar catalogue of seeds.

Commission Agents.—The annual report of the Fruit Growers' Association of Ontario for 1887 contains, among other information, a report of the annual meeting in Barrie. One of the subjects discussed was the marketing (packing, transportation, &c.) of small fruits. In answer to a question as to whether growers would meet with success were they personally to superintend the selling and transport of fruit, Mr. A. M. Smith said:—"I think I can tell you just about how that would work. In all these large cities there are commission men who, when they see a stranger come in with a lot of fruit, stand back and say, 'He has to sell it at some price; we will just wait.' There is a ring among the commission men in these large cities, who act together in that way. The fruit growers of the Niagara district, having a great deal of trouble in disposing of their fruit satisfactorily through these men, got together and formed a joint stock company, and we have since employed an agent of our own and put

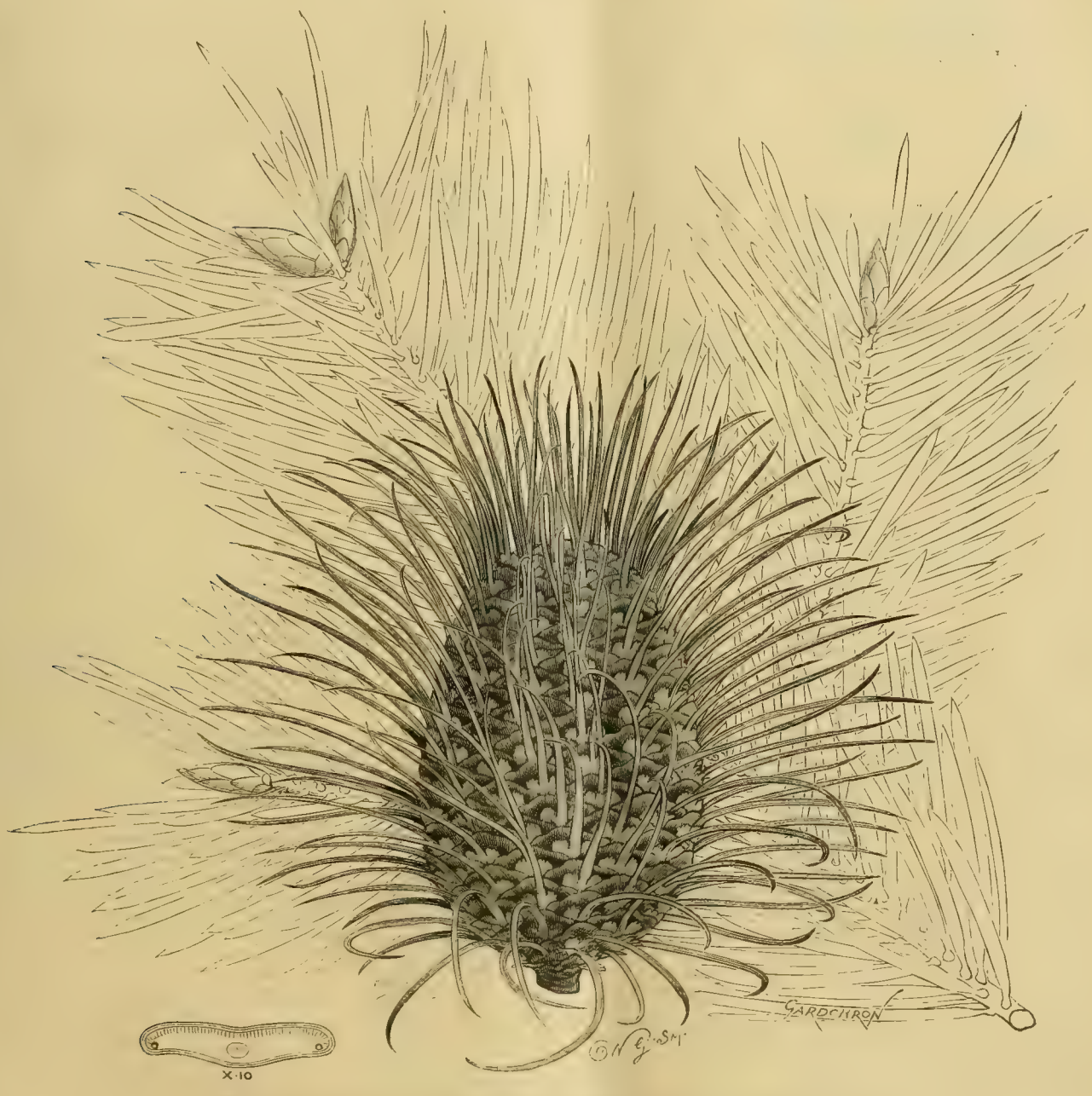


Fig. 44.—Abies bracteata, from Eastnor Castle Gardens: cone purplish-brown. (see p. 242.)

him in Toronto, and another one we put in London. We consign our fruit to them, and they sell it and deposit the money in a bank to our credit. That we think the safest way of disposing of our surplus fruit. We require our own agent to give security." The President: "Do you get as good a price in that way as under the old system?" Mr. A. M. SMITH: "At first we had some trouble in getting a good agent. These commission men tried at first to crowd our man out of the market; but we persevered, and people got to understand who he was, and that in getting fruit from him they were getting it directly from the growers, and they commenced to patronise him. The consequence has been that this year our business has increased very much, and our man has had all he could do. We pay our agent a salary. We also sell on commission for other parties through our agent, charging the same commission as anyone else, and dividing the proceeds."

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The Jubilee Festival of this Institution will take place on Thursday, June 13 next, when LEOPOLD DE ROTHSCHILD, Esq., has kindly promised to preside.

A FINE POTFUL OF EUCHARIS AMAZONICA—At Brookman's Park, Hatfield, a 12-inch pot of the above plant is carrying nine spikes and fifty flowers. Mr. TULEY, the gardener, states that he has others with twenty-eight blooms.

THE FLOWER SHOPS.—The principal items seen in the retail shops are Acacia dealbata, from the Riviera; Eucharis amazonica, Anemones, white Arums, Azaleas indica and mollis, Camellias, Cyclamens, Cattleyas, Dendrobium nobile, Daffodils, white Lilac, Lily of the Valley, white Narcissus, white and yellow Marguerite, Roses, Pelargoniums, Snowdrops, Tulips, Violets, single and double; white Hyacinths. Pot plants include Tulips, Hyacinths, Astilbe (Spiræa) japonica, Genista, &c.

JARRAH TIMBER FENCING.—Messrs. HOLLIDAY & GREENWOOD, a well known firm of builders at Loughborough Park, have, says the *Timber Trades Journal*, just erected a very fine mansion for Baron KNOPP, at Forest Hill, S.E. The fence surrounding the grounds runs along the corners of the Mayow and Dacres Roads at a height of about 5 feet, and is constructed entirely of Jarrah timber, the varied and delicate shades of the wood greatly enhancing the appearance of the grounds. The fence attracts considerable attention from passers-by.

READING GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—The fortnightly meeting of this Association was held on Monday, the 18th inst., and was, as usual, largely attended. Mr. R. D. CATCHPOOL presided, and Mr. E. MOLYNEUX, Swanmore Gardens, Bishops Waltham, read a paper on the leading points in Chrysanthemum growing for cut blooms.

CULTURE OF THE MOREL.—M. Baron D'YVOIRE, as cited in the *Illustration Horticole*, succeeds in cultivating this toothsome fungus by sowing the spores of the Morel, fresh by preference, but those from dried specimens will grow, on a piece of ground planted with Globe Artichokes. In autumn, some few days before the mulching spread over the Artichoke roots is put on, a very thin layer of the refuse Apples from the cider press is spread regularly over the ground; after a week or two this layer must be covered over with withered leaves; this covering of leaves is, for the most part, carefully removed about the first week in April, leaving, however, sufficient to ensure a moist surface. About April 15 the young Morels may be expected to make their appearance, and continue to do so for about a month. If the soil is naturally dry, occasional waterings with a little saltpetre dissolved in a can of water may be used.

ABIES BRACTEATA.*

THIS is one of the most strikingly beautiful of all the Silver Firs. It is one of those few plants which is happy in an historical sense. It is easily recognised even without the cones, its source of origin is known, and there is little or none of the ambiguity and imperfect knowledge concerning it, such as are so fruitful of differences of opinion, and so productive of vexatious synonyms in other cases. It was first discovered by Coulter in the Santa Lucia mountains of California, in lat. 36° N., at an elevation of about 6000 feet. Douglas and Hartweg also found it in the same district, but it was reserved to William Lobb to introduce it to this country. In the *Gardeners' Chronicle* for 1853, July 9, p. 435, is published a letter from Lobb to Messrs. Veitch, which is so interesting that we may extract a portion of it as follows:—

"This beautiful and singular tree forms here the most conspicuous ornament of the arborescent vegetation. On the western slopes, towards the sea, it occupies the deepest ravines, and attains the height of 120 to 150 feet, and from 1 to 2 feet in diameter: the trunk is as straight as an arrow, the lower branches decumbent; the branches of the upper part are numerous, short, and thickly set, forming a long tapered pyramid or spire, which gives to the tree that peculiar appearance which is not seen in any other kinds of the Pinus tribe. When standing far apart, and clear from the surrounding trees, the lower branches frequently reach the ground, and not a portion of the trunk is seen from the base to the top.

"Along the summit of the central ridges, and about the highest peaks, in the most exposed and coldest places imaginable, where no other Pine makes its appearance, it stands the severity of the climate without the slightest perceptible injury, growing in slaty rubbish, which to all appearance is incapable of supporting vegetation. In such situations it becomes stunted and bushy, but even then the foliage maintains the same beautiful dark green colour, and when seen at a distance it appears more like a handsomely grown Cedar than a Pine. No doubt it is one of the hardiest trees of the Californian vegetation, and is equally well adapted for clothing the mountain tops as the sheltered valley.

"The cones, too, are quite as singular as the growth is beautiful; when fully developed the scales, as well as the long leaf-like bracts, are covered with globules of thin transparent resin, presenting to the eye a curious and striking object.

"Douglas was mistaken in saying that this Fir does not occur below 6000 feet of elevation. On the contrary, it is found as low as 3000 feet, where it meets Taxodium sempervirens."

Later on the tree was met with by Beardsley, who, in the *Pinetum Britannicum*, gives the following particulars concerning it:—

"I have never seen any description that does justice to this most beautiful of all the Firs. It rises to the height of 130 feet, straight as a line, the trunk tapering regularly from the ground to the top; clothed with branches which are slim and graceful down to the ground; the outlines of the branches taper almost as regularly as the trunk, giving the appearance of an 'elongated pyramid,' as Hartweg describes it; but I would rather call it a tall spire, with a pyramidal base of two-thirds of the lower part of the tree. The pencil of the artist could not give it a more regular shape than it appears in Nature. I saw no tree deprived of its lower branches, except in thickets where it was impossible for them to grow; there was none, with the above exceptions, that I could not step from the ground on to its branches. Not the least remarkable thing is, that these branches bear fine foliage down to the ground, and the branchlets often touch the ground. I have found it occupying exclusively the calcareous districts abounding with ledges of white, veined, and grey marble."

Some writers say the plant grows on calcareous soil, while Vasey met it on moist cold soil. In this country it forms a handsome tree, with its pyramidal habit, sweeping pendulous branches, and long narrow leaves, dark green on one surface, radiant like silver on the other. A section across the leaf shows abundance of pallisade cells and two small resin canals, one on each side, close above the epiderm on the lower surface. The buds, too, are remarkable for their great size and their light brown parchment-like, sharply-pointed, ultimately recurved scales. In some cases we have observed two fibrous cords traversing the scales, which is unusual. The side buds of the leader shoot, as in so many instances among the Coniferæ, expand before the central or terminal one, and the young shoots, as they are developed in early spring, are first of all bent downwards.

Owing to this habit of growing early in spring, the young growths occasionally get cut with frost, but, as a rule, the tree outgrows its tenderness as it increases in height, and due attention to aspect and soil will prevent any serious injury. Mr. Fowler also pointed out that in raising seedlings of these plants some came into growth much later than others sown at the same time; and if these be selected the risk of spring frost can be greatly reduced, and would be still further reduced in course of time if when the late plants themselves produce seeds the later growing seedlings should in their turn be selected. Mr. Fowler also mentions his success in grafting this species on the common Silver Fir. The male flowers are spreading, cylindrical, about 1½ inch long, and with pointed apiculate yellow anthers.

A tree at Tortworth is mentioned as having attained a height of 29 feet; while in the *Garden* of January 5, 1889, Mr. Coleman mentions that the tree at Eastnor is now 40 feet high. There is a fine specimen, but of smaller size, in Mr. Thomson's collection at Petham near Canterbury. From the tree at Eastnor Mr. Coleman was good enough to send us the cone figured at p. 241. Remembering how it is stated in books that the scales are very readily separable, we had some fears that the cone we begged from Mr. Coleman might arrive in a state of disintegration. It was not so, however; our artist was able to make his drawing, and the cone still adorns our study-table, without sign of separation. This is, perhaps, due to the abundant exudation of resin which binds the scales together, and what scales, or rather what bracts they are! Our illustration shows their size and form. The remarkable length of the bracts sets one wondering what their purpose can be. Can it be that the scales remain attached to the scales as they fall, and that these insert their long points into the *débris* of leaves on the surface of the soil, and so serve to "dibble the seed in?" We do not know. We only say, Can it be? Douglas compared the cones to the inflorescence of a Banksia. We submitted the cones to the inspection of non-botanical friends, who pronounced it to be a Teasel or a Thistle—comparisons which aptly denote the appearance of the cones.

* *Abies bracteata*, Nuttall, *Sylva*, ed. ii., vol. 2, t. 118; Engelmann, *Botany of California*, ii., 118 (1880); Veitch, *Manual* (1881), p. 89; variously referred to Pinus, or to Picea, by other writers, but always under the same specific name, Douglas' MSS. name of *venusta* not having been adopted.

TRADE NOTICES.

CAMBRIDGESHIRE.

A MEMBER of a "long firm" is favouring the trade in the neighbourhood of Wisbech and elsewhere by obtaining goods from them, and then selling them by auction at various markets in the neighbourhood.

CAUTION TO ADVERTISERS.

Many complaints have reached us that a grossly improper use has been made of our advertising columns by an advertiser professing to require the services of a gardener for a public institution. A demand for a fee of 2*s.* 6*d.* has been made from those who answered the advertisement, and this is the only reply they are likely to get. The so-called agent writes under many names, and is at the present time an object of solicitude on the part of the police.

Florists' Flowers.

THE TULIP.

The Tulips have now generally appeared above-ground, and in view of the wintry aspect of the weather a surface dressing of partly decayed manure should be strewn on the beds and colonies of bulbs as a protection to the protruding leaves. My Tulip-beds are raised slightly above the general level, and being well drained there is no danger of the roots being injured, and the part above-ground suffers only when the leaves spread out. It is a good plan to bend a few hoops of stout wire or rods over the beds, and to throw mats over them in the event of frost. This kind of covering is unsightly; in well-kept gardens it is not allowed on that account. The black Tulip has again come to the front, and has brought an interesting letter from Mr. Horner to a contemporary. There cannot be a pure black Tulip anywhere, for the base of the cup must be white, even in the breeder form; but it is rather singular that the darkest colours are found in the flamed and feathered state of the flower; the dark colour becomes intensified as the process goes on. I have noticed this peculiarity in the variety David Jackson, of which I have had at least a dozen breeders break into the flamed state, but none of them have feathered. Talisman is the finest black or dark byblœmen, and is best when flamed. The rich dark feather of Mrs. Jackson is much admired, but I think it lacks the points that would make it a flower fit for exhibition. Talisman was raised by Dr. Hardy, and the other two by David Jackson. William Lea (Storrer) is black on a rich yellow ground, but the yellow does not bring out the black so well as a white ground would do. Masterpiece (Slater) is the most lovely of the black feathered bizarres.

We hope to see some of the finest Tulips from the North this year in competition for the prize offered by the Turner Memorial, trustees at the Royal Horticultural Society in the Temple Gardens. The value of the prizes is not great, but yet I hope growers will exhibit, in order to show what features constitute a show Tulip. The exhibition will be held on May 30 and 31, and schedules can be obtained from the Secretary of the Royal Horticultural Society by intending exhibitors. Those who intend to exhibit Tulips would do well to protect the blooms when they are expanded, as bright sunshine and heavy rain rapidly spoil their beauty, and these facts hold good for Tulips in beds generally. *J. Douglas.*

The Auricula.

I amuse myself sometimes by looking up the directions for culture in some of the oldest periodicals, when the Auricula was even more valued than it is now; but it was not until the *Florist* was brought out forty years ago, that anything like a feasible system of culture was recommended. Gradually, and with evident reluctance, the use of rich composts was discontinued, until we now find that, with more simple composts, success has been great in developing vigorous plants, well formed pips, and perfect trusses.

The most interesting part of these old cultural details is contained in the remarks on the weather. For instance, Mr. J. T. Neville, writing in the second volume of the *Florist* remarks, under the head of Auriculas for January:—"The extreme mildness of recent months has caused many of these plants to push up their bloom-stems." This is rather remarkable, for he must have alluded to the month of December and the previous month. Florists at that time sowed Auricula in January and February; and I have found that good seeds will vegetate freely in those months, and when the seeds are sown at the time at which they ripen—in July—the greater number of young plants become visible in January and February, the seeds having laid dormant in the moist soil, the young plants appearing above ground within the course of a week or two. The seeds should always be sown on a light sandy soil, and at no time must it be allowed to become as dry as dust. The Mr. J. T. Neville alluded to wrote the Auricula calendar for the earlier volumes of the *Florist*, and he gave very careful instructions about sowing the seeds. Briefly summarised they are as follows:—"The compost three parts leaf-mould to one part silver-sand. Pass it through a fine sieve and sow in pans, filled to one-third of their depth with drainage. Sow the seeds on a level surface, and cover with the fine leaf-mould and sand not deeper than the thickness of three sheets of writing paper. The seed-pans or pots were to be placed in a western or north-western corner of the garden in a hand-light or frame, but to be exposed to light, misty showers, or a fall of snow now and then would be still more beneficial." I have not surface-dressed any of my plants this year. Early in February I took off any offsets that were ready, and potted all of those that could be removed with a small root or roots attached. Offsets may be planted separately in small thumb-pots, or two, three, or half-a-dozen placed round the edge of larger pots. They do not need any water for a week after potting, and should be placed under a handlight and kept close until new roots are formed. *J. Douglas.*

The new Chrysanthemum Mrs. Alpheus Hardy.

Amongst the coming novelties of white Japanese varieties, this is unquestionably destined to take the first position, for I think it will be able to hold its own against all comers. The flower is beautifully incurved, in form resembling very much the variety called Mrs. Cannell; but without disparaging in any way the merits of the latter, I may safely say that the new variety is much superior. The colour is as pure as driven snow; the petals are broad and stout and of the finest form. The most remarkable feature by which this variety is at once readily recognised is the numerous conspicuous long silky hairs at the back of the incurved petals. Last autumn the variety caused quite a sensation in the United States of America, and some of the most expert Chrysanthemum growers in this country who have seen it consider Mrs. Alpheus Hardy to be the most beautiful and distinct of all the varieties in cultivation. *C. S.*

BYBLŒMEN TULIPS.

The word byblœmen is not used by all the old writers on Tulips; some of these speak of late Tulips in cases where others would use the term byblœmen. The same signification is not attached to the word by the different authors; thus, Van Kampen, in 1760, makes five classes of late particoloured, or broken Tulips, viz.:—

1. Baquette primo (fond blanc panaché de brun).
2. Baquette Riquert (fond blanc panaché de brun).
3. Byblœmen (fond blanc panaché de violet et brun noirâtre).
4. [Our roses, but for this class no special name is used] (fond blanc panaché de couleur de rose de vers-meil et de rubis).
5. Bizarres (à fond jaune panaché de différenté couleurs).

On the other hand, Neuenhahn *Blumenzwiebelngärtner*, 1804, brings violets and roses together under one class, to which the name of byblœmen is given. Of these he says their stem is not so tall as that of Baguette Rignaux. Their flowers, however, have the same fine form, and the ground colour is always white. As for variegation they are divided into two classes—1st, those with blue, violet, or black-brown; 2nd, with rose, reddish, or red illuminations (feather); the last class is specially valuable. The petals of these byblœmen are not so blunt or rounded, but more pointed than those of the Baquettes, nevertheless, they are valued.

As to the meaning of the word, "blœmen" naturally means flowers. The prefix "by" has nothing to do with *bis*—two, twice—but comes from *bi* (be), which is very frequently found in combination with different words, and originally means "around;" it is translated after the different ways it is used in English, according to the context, by —near, close to, with, by. There are a few words in Dutch in which the word is used in a similar way, as in the word byblœmen: thus, for example, *by-weg* (English, by-way); *by-pad* (English, by-path); *by-kans* (English, literally *by-chance*, meaning almost); *by-looper* (English, *by-runner*, meaning assistant), &c. From analogy, therefore, we may guess what was the original meaning of the word byblœmen applied to Tulips; but I must repeat, we can only guess, as, up to the present time, I have not found in old books any sufficient explanation. If it is to be found anywhere I hope to come across it, as I have the intention to look over, at a moment of leisure, the whole old literature on Hyacinths, Tulips, &c. It may mean Tulips belonging to a class of secondary value. The Baquettes are always mentioned first in old lists, because with their tall stems and perfectly formed large flowers, they may have been considered as the principal late Tulips for cultivation. The byblœmen are always mentioned after them, and as they were not so tall-growing, and their flowers were more pointed in shape, although valued, they may have been considered inferior to the Baquettes.

The word "byblœmen" seems to have been first used in the eighteenth century, a considerable time (perhaps a hundred years) later than the famous first Tulipomania took place (1634). At the time it was used first the byblœmen probably were not so perfect or noted as was the case in later years, especially in the end of the eighteenth, and the first part of the present century. It is not probable, if my supposition is true, that at a late period there would have been a reason to consider the byblœmen inferior to the Baquette, but at the time the epithet was first given this might have been the case *J. H. Krelage.*

Book Notice.

The Folk-Lore of Plants. By T. F. Thiselton Dyer. (Chatto & Windus.)

Of this book the compiler says in his preface that "it is hoped" that this little work will serve as a useful handbook for those desirous of gaining some information in a brief, concise form of the folk-lore, which in one form or another has clustered round the vegetable kingdom. From this point of view the book may certainly be commended, as the writer has been careful to cite the sources whence he has taken his information, and, moreover, has produced a book which will be interesting to many, and entertaining to more. Many of the traditions and adages relating to plants have a basis in fact, but this part of his subject Mr. Dyer has scarcely touched on. He quotes, for instance, only to mention that they have been severely ridiculed, these directions from Tusser:—

"Sow Peas and Beans in the wane of the moon—
Who soweth them sooner, he soweth too soon,
That they with the planet may rest and rise,
And flourish with bearing most plentiful-wise."

Considering the increased radiation and consequent cooling of the surface temperature on bright moonlight nights it is evident that injury might be done to the tender seedlings peeping above ground at such a time and that their growth would almost certainly be checked, particularly as the night hours are under favourable conditions the most propitious to plant growth. "Plenty of lady-birds, plenty of Hops," finds its justification in the circumstance that lady-birds or their larvæ prey on flies which infest the Hop. Of course, some of the proverbs are mere topsy-turvy statements and invert the truth; thus the conditions—thus referred to—

"Onion skin very thin
Mild winter's coming in;
Onion's skin thick and tough,
Coming winter's cold and rough"—

are, of course, the result of climatic and cultural conditions during the season of growth, and can by

no possibility be taken as absolute indications as to what is to come, though as a matter of pure conjecture it is allowable to suppose that the same conditions, modified in degree according to the progress of the season, which induced the formation of a thin skin, will persist in the coming season. As a matter of fact we know that this modified persistence of climatal conditions does sometimes happen, but with much too great uncertainty to be depended upon. Be this as it may, it is interesting to see Orchid growers drawing their inferences from the thickness or thinness of the sheaths which cover the pseudo-bulbs, say of Cattleya citrina or Calanthes; but as a mark of progress it is noticeable that Orchid growers look at matters in their natural and not in inverted sequence!

The proof sheets of the volume under notice have not been adequately revised, so that the names of plants and of botanists are sometimes misprinted, while the botanical details are not infrequently inacccurate; but in spite of these defects the book will form a useful addition to the library shelves, and serve to indicate to the reader and student where fuller and more complete information may be found.

Home Correspondence.

THE RIBSTON PIPPIN APPLE.—In the last issue of the *Gardeners' Chronicle* you make some mention of the original Ribston Pippin, and state that it was grown from seed sown in 1787. There are two old letters in my possession written by members of the Goodriche family, which are to this effect:—"The Ribston Pippin came from Normandy about the beginning of the last century. My great-grandfather, Sir Henry Goodriche, had a friend who sent him over three Pippins in a letter, which, being sown, two came to nothing; the present old tree at Ribston is the produce of the third of these Pippins, and has been transplanted to all parts." The other letter says:—"Sir Henry, father of the last Sir John, being at Rouen, in Normandy, he procured the Pippins of some fine-flavoured Apples, and sent them to Ribston. They were sown, and the produce in due time placed in the park. Out of the trees which were planted five proved . . . [illegible]; the other two proved good Apples; they are there yet—they were never grafted." The tradition is that the tree was raised about 1709, probably by Sir H. Goodriche, whose letter to Sir Hans Sloane you inserted last week. *John Dent-Dent.*

—— I see in your remarks in last week's *Gardeners' Chronicle* that nothing is known with perfect exactness about the advent of the famous Apple at Ribston Hall, but the best credited story is that the seeds came from Rouen and were sown at Ribston in 1787. This date, I think, must be wrong, as my grandfather, John Roger, in p. 90 of the *Fruit Cultivator*, published by him in 1834, alludes to the Apple and says:—"Much has been written relative to the early history of this famous Apple, the substance of which is as follows:—'Hargrave, in his *History of Knaresborough*, speaks of the place as remarkable for the production of a delicious Apple called the Ribston Park Pippin, the original tree of which was raised in the year 1688 from the seed of a Pippin brought from France. The author saw the original tree in August, 1789; it was then bearing a fair crop of fruit, but the tree was evidently declining. About twenty years afterwards it was partly blown down, which hastened its final decay; and, probably, ere now it has entirely disappeared, but not without leaving a numerous progeny behind.' 'A son of the gardener at Ribston Hall of the name of Lowe, who raised the Apple, reported that his father sowed seeds of the Spice Apple, which produced three plants. These were planted in the park, and one of them proved to be the Apple in question. Lowe, the son, was afterwards foreman under the famous Launcelot Brown, at Hampton Court, and subsequently a nurseryman at Hampton Wick.' 'From the circumstances alluded to by Hargrave, and reported by Lowe, jun., the author thinks it probable that the Spice Apple might have been carried from England to France, and from thence the fruit or seeds were received at Ribston Hall, and there sown. This supposition reconciles the different reports of Hargrave and Lowe, and also accounts for the apparent affinity of the two Apples." *W. H. Rogers, Red Lodge Nursery, Southampton.*

—— The reproduction of the illustration of the original tree of this very famous Apple, even though the old tree was in a very dilapidated condition, is full of interest because of late there has been a renewed effort made to popularise Apples, and this grand old variety, now past its one hundredth year of existence, still stands in the very first rank of dessert Apples. As the seeds of the old tree were sown in 1787, we certainly were remiss in not remembering that the Ribston Pippin had attained to its centenary two years since. There is an impression abroad that the Ribston Apple owes some of its lack of robustness to old age, but this lack is only found in congenial soils, whilst in warm positions and in sweet deep soils the growth is robust enough. In that respect perhaps it is superior to its chief competitor for dessert honours—Cox's Orange Pippin, which is, as a rule, rather a moderate grower, presenting very divergent characteristics from that yet other rival for dessert fame—Blenheim Pippin. But although the Ribston Pippin does not lack robustness it is still yet a good cropper, and in that respect has to give place to the other two kinds named, and as the beautiful Orange Pippin, the well flavoured Margil, the late but delicious Cockle Pippin, and others of our best dessert Apples are all moderate growers. It does seem as if high-class quality in fruit and robust growth were not found in combination. Blenheim Pippin is the chief exception, but the fruits owe as much of the favour with which they are regarded to form, beauty, and softness of flesh as to flavour. There is no fear whatever that the Ribston Pippin will die out from exhaustion. It may do so a century or two hence, when we have better dessert varieties than the Ribston is, but till then it is bound to fill an important place in our gardens and fruit lists. *A. D.*

RED-STEMMED AND WHITE-STEMMED CHINESE PRIMULAS.—In your issue of the 16th inst., in an article on plant colour, signed "A. D.," when writing on the subject of the Hardiness of the Red-stemmed *versus* White-stemmed Chinese Primula, occurs the following:—"As to hardiness, there is no difference between white, mauve or red, or crimson-flowered plants, the suggestion that red-stalked Chinese Primulas are less subject to damp than green-stalked kinds will not hold water." Now, in our experience, we find the contrary to be the case, and it has been our object for several years to get the hardiness, free-seeding, and free-growing properties of the red-stemmed varieties, as represented by Waltham White and Webb's Purity, with the quality of Lady Churchhill, Princess Louise, &c., and we have in a measure succeeded—we have found the red-stemmed varieties come up in our ash-walks under the stage by the thousand, and we have frequently transplanted thousands at a time, the seed having fallen from plants kept for seed. We grow at least twenty times the quantity of the finer kinds, such as The Queen, &c. and we have never found any come up in the walks. We find the red-skinned sorts produce twenty times more seed than any other sort we grow, and will stand a lower temperature, and succeed with much rougher treatment than any other kinds. The constitution so impressed us, that we have devoted a great amount of time and space with the object above stated. *Pope & Son, King's Norton Nurseries.*

PLANT COLOURS.—My friend, "A. D.," is not so exact as usual in his remarks on this subject at p. 211, where he infers that I stated that the red colour of Primula acaulis "emanates from the roots." I never said nor wrote anything about the "roots," but what I did say at p. 182 was, that "the red element is confined to the rootstock, and the bases of the petioles or flower-stems." I still adhere to my statement that red-stalked Chinese Primroses and red-stalked Celery are hardier than the pale green-stalked kinds. Every one knows that one of the most delicate of all Chinese Primroses is the old double white, easy to grow in nurseries where a specialty is made of it as a market plant, but soon dying out in most private gardens. Mr. R. Gilbert, of Burghley, introduced some far more robust and coloured double-flowered forms a few years ago, as "A. D." must well know. The Red Cabbage is stout and robust, no doubt; but the largest variety known, viz., the Red Dutch is never so large or so heavy as is the green Drumhead or Cow Cabbage, from which it originated. That it is quite as hardy—possibly more so than the green-leaved type—I do not dispute. "A. D." gets on to his own ground when he tells us that white-skinned Potatos sometimes produce darker flowers than purple-skinned ones, and also that "the very deepest-coloured tubers are seldom associated with darker foliage than are white-tubered kinds." This is exactly what one would naturally expect, for if all the red or purple colour is confined to the tubers, of course they will be darker than the stems and blossoms. I wish your correspondent would give a little practical help to us all in this matter of colour distribution in the Potato, and this might be effected by preparing a list of fifty kinds, and showing in parallel columns the colours of their tubers, stems, and flowers. Double flowers of all kinds are not only reversions, but very often abortions to boot. It is so with Primroses and Thorns in which the stamens wholly or in part lose their special sexual function, and revert to the state of barren-coloured leaves—a condition rare in Nature but easily brought about in the garden by extreme cultural conditions, starvation on one hand or overfeeding on the other. What I am particularly anxious to see is a list of vegetative or bud "sports" that are not wholly or in part reversions, and I hope "A. D." will give us such a list at an early date. If he will believe me, there is no question in the botany of to-day more difficult to decide definitely than what really was the "original form" of any plant or animal now known to us. The original "Thorn tree," for example, was a very different plant from the highly-developed Cratægus oxycantha of to-day. The point I tried to enforce in my paper on p. 182 was this: Given any species of plant having in its tissues the three elementary colours—yellow, blue, and red—and of most, if not all, plants, this is true, then the local or general distribution of these colours is altered, or may be altered by cultivation and seminal selection. No plant shows this better than the Potato, and if "A. D." will compile a list showing the colours of tubers, stems, and flowers, he will perceive how natural it is that some forms should have white flowers, the red colour being all localised or restricted in the tuber, and other purple flowers when the red colour is not so localised, but distributed through the stems, leaf-stalks, and flowers. As bearing on this point, take Narcissus papyraceus, the pure "paper white" variety, the bulb-coats of which are by far the darkest in colour of any other Narcissus known to me. Plants in a wild state change but slowly, since their environment remains constant also, hence we but rarely meet with red varieties in the woods and hedges where our common yellow Primrose grows wild. Even the cultivated plants of Egypt are said to be practically the same to-day as they were two or three thousand years ago, simply because the climatal conditions have remained constant. But in our gardens conditions are always changing; we are always desiring something else—something different. When we bring the Primrose into the garden we destroy its fixity of character by rich soil, by selection, by cross-fertilisation, and by removing it from competition with other vegetation, the struggle for existence. In a word, the plant becomes something like a kaleidoscope which we turn at will, and every turn, or generation from seed, gives us the primary elements or colours, but mixed in different proportions. I hope, in conclusion, my good friend will tabulate for us a view of the colour as localised in Potatos, and also, if possible, give us a list of bud or branch sports that are not reversions. *F. W. Burbidge.*

RAISING ALPINES, WHITE CROCUS IMPERATI, &C.—I have read with interest Mr. Jenkins' letter on raising alpines from seed. About this matter I have had instruction from M. Correvon, of Geneva. There is just one point in which his practice differs from that of your present correspondent. He told me—and he laid a good deal of emphasis upon it—that he found it best to sow the seed of alpine plants in the autumn, say in November, the seed remaining dormant till the return of spring. I have since followed this piece of advice with very good results, and think there is a point of difference here between the two methods which is worth noticing. There can be no doubt that alpine plants do better when raised as Mr. Jenkins proposes, than when they are torn from the mountain side. I meant to reply to one of your correspondents of last week to the effect that I possess the white form of Crocus Imperati, and its behaviour does not differ at all from that of the type. We have now spring fairly begun in this part of the world; or, at any rate, spring flowers are opening. Iris reticulata cœrulea has been very pretty for some days. Galanthus lutescens is in blossom, with several other species of Snowdrop. It is very distinct. If only some kind friend would tell me where I can get get Galanthus octobrensis I should be greatly in-

debted to him. I think I have most, if not all, of the other sorts. *W. Ewbank, St. John's, Ryde.*

TENACITY OF LIFE IN PLANTS.—In connection with the subject of life in plants, referred to at p 117 *Gardeners' Chronicle* for February 9 last, I may perhaps be allowed to mention the fact of a large plant of Cereus senilis that was removed from the Succulent-house at Kew to the Temperate-house soon after its completion. If I remember rightly, in the course of its removal the plant got partially broken across about half-way up. After being planted out for some time it began to die from its base upwards, and was removed to Museum No. 3, then in course of formation; it was placed against the back wall, to which it was secured by wire bands. It gradually died upwards to the fracture, when the process of decay ceased, and the upper portion, which remained green, began to show signs of growth. Upon removing the top, which had by this time become quite detached, it was found to have formed roots which were growing into the decayed part below. The top was then removed from the Museum, potted, and again placed in the Succulent-house. *John R. Jackson, Museum, Kew.*

EUPHORBIA SPECIES.—This is a very distinct seedling of the melo-formis style, differing very markedly from that variety. It is of the same green colour, with the small flowers and eight angles, but it is very flat growing compared with melo-formis. A plant 3 inches high is 4½ inches diameter, and much resembles in appearance of habit an Astrophytum, except that instead of five angles, as that has, it has eight, and the colour is green instead of white. The angles are sharper on the edges than melo-formis, and resemble the teeth of a saw; in some instances the flower-stems remain on the plant, which give it the appearance as if covered with long blunt spines; and another has not this appendage—only one or two occasionally remaining on the plant, but as they very much differ when raised from seed, it is easily accounted for. The habit is the same in all of them—very dwarf, but with age the lower part gets very hard and brown in one of the plants, as the Echinocactus does. They were raised many years ago from the original plant, which I sent to the Royal Gardens, Kew, and which may still be there; and if so, I should think it is of very large size now. *J. S. C.*

VIOLAS AT THE TEMPLE SHOW.—We observed "A. D.'s" note in last week's *Gardeners' Chronicle*, in reference to Violas at the Temple Show, and have pleasure in complying with his request that the donors of the prizes would state what interpretation they put on the term "Violas." When we offered the prizes to the Hon. Secretary we did not know whether there were to be classes for Pansies and Violas or not. We had in view the popularising of Violas as distinct from either show or fancy Pansies, and that more especially for cut flowers for table and other decorations. In Scotland, the home of good Pansy culture, the distinctions are well understood, the only difficulty being sometimes to distinguish between dark Violas and dark self Pansies when staged as cut flowers. We would advise any one who has any difficulty with regard to the different classes to send for the catalogue of some of our principal Scotch florists who make specialties of Pansies and Violas, and they will there find the different classes, as a rule, correctly catalogued. We no more expect to see show or fancy Pansies staged for our prizes in London than we do in the Viola classes at the Scottish Pansy Society, where prizes for bunches of Violas have been offered for over a quarter of a century. We understand the botanical phase of the matter thoroughly, but that has at present nothing to do with the subject. *Dobbie & Co., Rothesay, February* 19.

FILBERTS AND HARDY FRUIT PROSPECTS.—It may be somewhat early to form an opinion as to the hardy fruit prospects of the coming season, but judging from present appearances a fairly good guess may be ventured on. In this neighbourhood no such a dearth of blossoms has been observed as at this time for very many years past on Filberts. And unless very good weather and timely favouring winds prevail at the right time to distribute the small moiety of pollen existing, so that it reach the female blossoms, there is no hope (here at least) of even a fairly good crop of Filberts. More than this, the display of female blossoms is the poorest I have seen



Fig. 45.—Lonicera fragrantissima: flowers white. (see p. 236.)



Fig. 46.—Lonicera standishii: flowers white. (see p. 236.)

for some time. As regards Apples and Pears there appears to be a promise of bloom certainly, though it is not abundant, and so slowly do the bloom-buds develope that it is possible that many which I take to be bloom-buds may be wood-buds only. Cherries, as usual, promise well, and if the flowers are fewer in numbers than usual it may prove to be an advantage. Apricots, Peaches, and Nectarines promise none too well, the wood upon the latter being greener than is its wont—a sign that it was not too well ripened. *William Earley.*

POTATO DISEASE.—Attention was called by some German experimentalists during the seasons of 1887 and 1888 to what was described as a new form of Potato disease. This consisted of innumerable small thread-like worms of a whitish colour, and ranging from an eighth to a quarter of an inch in length, which infested the inside of the tubers. The season of 1888 being particularly favourable to the development of Potato disease in all its forms, I certainly found large quantities of minute creatures of a similar character to what was described by the Germans in a great number of tubers which were more or less diseased. These small worms were generally to be found in the white portion of the diseased tuber. But I think it may be doubted whether such injury from these creatures should be reckoned as the cause, or merely the concomitant, and an aggravation of the failing condition of the tubers. An important fact has, however, been brought under my notice during the month of February, 1889, by two independent persons who, in digging their garden land, turned some Potatos that had remained in the ground all the winter, and these were thickly infested by the worms above mentioned. And one of the men further remarked that in a small heap of Potatos that he had accidentally left on the surface of the ground all winter he could have collected as many of these worms as would have half filled an egg-cup. These facts decidedly show that the insects are very tenacious of life [and are fond of rotten Potatos], and that Potatos left by accident in the ground during the winter should be removed and immediately destroyed, or injury to the succeeding crop may ensue. *J. J. Willis.*

UNFORCED YAXLEY RHUBARB BROUGHT TO TABLE.—I had word brought in to-day that some of my own Rhubarb might be gathered, enough for a tart or two. St. Valentine's Day is generally about the time when I expect the first taste of this early spring delicacy. Accordingly I went out and superintended the gathering of what made a good-sized basketful. A few particulars may interest your readers. When the stems were laid on the dresser they were found to measure from 2½—5½ inches long to the bottom of the leaf. The circumference was found to be from 2—3 inches round the thickest part of the stems. After the little quantity had been prepared for the oven by removal of the leaves, &c., I saw that in the scales it weighed 1 lb. 4 oz. I should be glad to know if any unforced Rhubarb, grown this year in England, has anywhere been offered for sale. Interested persons may, by appointment, see it growing in my garden any day but Sunday. If evidence corroborative of any of the above facts be desired, application (enclosing an addressed stamped envelope for a reply) should be made by post to Mr. Josiah Cobb, sen., or to Miss S. A. Collins, both living at Yaxley. *W. H. Sewell, Yaxley Vicarage, Suffolk, February* 15.

PHALÆNOPSIS GROWING (p. 204).—There may be some reason in the remarks of F. Ashton on this subject, but at the same time he gives out a riddle and does not give the answer. He says it entirely depends upon the position (not aspect) in which the plants are placed, but he does not say what is the position requisite to secure success, neither does he say in what position the plants were which were so fine as to call forth his remarks; but in support of his views that position is everything. He states that an attempt was formerly made to grow the plants under notice in another house but without success, and hence they were removed to the house they now occupy. If position is everything, would not a change to the proper position in the house they formerly occupied have brought about the desired change?—if not, the change to a more suitable house brought about the improvement. *James O'Brien.*

MANURE FOR ASPARAGUS.—To those who wish to renovate their Asparagus-beds, and get an early supply of this favourite vegetable, I would recommend the following application of manure to be applied at once. The beds having been previously made up with stable-dung and a moderate layer of good mould, sow broadcast a manurial mixture composed of the following ingredients, which are the quantities necessary for one square yard:—3 oz. nitrate of soda, 3 oz. muriate of potash, 5 oz. superphosphate or basic slag (ground fine), and 1½ lb. of common salt. Mix well together previous to sowing by putting through a quarter-inch mesh sieve, breaking any lumps; and after sowing lightly rake the surface. *J. J. Willis.*

APPLES NOT WELL KNOWN.—In turning over the pages of a list of fruits grown by Mr. C. B. Saunders, of St. Saviour's, Jersey, the names of many varieties of Apples occur with which I am not familiar, and are, I suspect, but little grown in this country. They are Api Panachè, a small dessert fruit, good from October to April; Belle du Bois, very large and excellent; Belle du Havre, fine culinary variety: both these in season from November to March; Calville St. Sauveur is also a large culinary Apple; Dr. White, a handsome fruit, but the use is not stated; Elletson's Prize, very handsome and large—November to January; Fairy, said to be good for preserving (jelly), season, December—a small fruit, oblate in form; Grosse Caisse, a large yellow culinary fruit, in season October to December; Jacques Lebel, for table or kitchen, large and handsome—a late autumn variety; Pippin Hammond's Jersey would seem to be a valuable table fruit, keeping from November to May; it is small, and the tree a weakly grower; Pippin Saunder's Jersey is of medium size, a dessert fruit, keeping good from November to April; Pippin Mollett's Betsy is a small fruit, said to resemble the Golden Pippin in shape: it keeps from December to February; Reinette Franche d'Espagne, a large oblong fruit, said to be one of the largest of Apples, fit for dessert or cooking, and in season November to March; Vermilion d'Espagne is a pretty table fruit, in use in August, and therefore valuable, more especially as the quality is given as good. Some of these Apples may be localised in the Channel Islands, and perhaps grow and fruit well there, but many of them being very late keepers, and therefore of much value, it would be well if some of the readers of the *Gardeners' Chronicle* who may happen to be acquainted with them would furnish some essential data with regard to the size of the fruits, habit of growth, cropping capabilities, time of flowering, and adaptability for cultivation in England and Ireland. *X. Y. Z.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

February 12.—Present: Dr. M. T. Masters in the Chair; Messrs. McLachlan, O'Brien, Michael, Dr. Muller, Professor Church, and Rev. G. Henslow, Hon. Sec.

Skimmia Species.—Dr. Masters exhibited varieties of the well-known forms of Skimmia japonica, and observed that they were always diclinous, such as fragrans and oblata. But another specimen which he showed was invariably hermaphrodite, apparently self-fertile, and bore plenty of berries. The seed differed from the preceding in certain particulars, the foliage is darker in hue, the blade being narrower and more pointed. It has been supposed to be the original form introduced from Japan, but it does not agree with the typical S. japonica. It did not appear to be known as a distinct species, but Dr. Masters proposed making a further investigation into the matter. It was incidentally remarked that in the portrait of Dr. Lindley in the library he is represented as holding a branch bearing berries, which has always been presumed to be Skimmia. A closer inspection, however, proved it to be a Rose with heps.

Galanthus Elwesi, Diseased Bulbs of.—Mr. Barr forwarded some bulbs which he had received from Devonshire, apparently in a decaying and dying condition. They were forwarded to Dr. Marshall Ward for examination and report.

Artificial Manure.—A specimen was sent by Mr. G. Revens, Euston, Thetford. It was forwarded to the Trials Committee at Chiswick.

Hoar Frost Damaging Trees.—An interesting communication was received from Mr. Plowright, as well as photographs and broken boughs, showing the damage caused about King's Lynn. Questions were raised as to the ice on the boughs having been wholly rime, and further details were requested on the subject.

Hour of Meeting.—As the Council now meet at 1 o'clock, it was proposed by Dr. Masters that the hour for the Scientific Committee should be 4 o'clock. As all the members present acquiesced, should the majority agree, that hour in future will be adopted.

NATIONAL CHRYSANTHEMUM.

A meeting of the committee took place at Anderton's Hotel, Fleet Street, on the 18th inst.—the chairman, Mr. R. Ballantine, presiding. A letter was read from Mr. E. Sanderson, late President, thanking the committee for their letter of thanks for his past services, and expressing the opinion that the new order of things would materially promote the usefulness of the Society. On the recommendation of a sub-committee the regulations of the exhibitions were revised and brought into harmony with the changed condition of things. It was resolved that the September show of early Chrysanthemums and Dahlias should take place on the 11th and 12th, and the mid-winter show on January 8 and 9, 1890. The following five members, forming the number who retire by rotation, were elected on the Floral Committee:—Messrs. E. Sanderson, L. Castle, J. Wright (Temple), J. P. Kendall, and Swift. The meetings of the Floral Committee to take place on September 11, October 9 and 23, November 12 and 26, December 11 and January 8, 1890. It was announced that Lord Brooke, M.P. had telegraphed to say that if elected President of the Society he should be very glad to accept that position. The names of several gentlemen were mentioned as being nominated for Vice-Presidents at the adjourned annual general meeting to take place on the 28th inst. The newly-formed Tottenham and Edmonton Chrysanthemum Society was admitted to affiliation, and three new members were elected. The schedule of Dahlia prizes offered at the September show, as revised by the committee of the National Dahlia Society was accepted, as also their nomination of judges.

The revision of the schedule of prizes for the three shows was referred to a sub-committee, and it was suggested that at the November Exhibition Medals and Certificates of Merit should be awarded to horticultural sundries. Several other recommendations were also made, and the sub-committee was appointed, consisting of eight members and five officers. A very interesting communication was read from the Secretary of the Victorian Horticultural Improvement Society (Australia) bearing testimony to the interest taken in the work of the National Chrysanthemum Society. The Chairman reported that the National Trophy offered for competition at the last November Show, and won by the Weald of Kent Society, had been handed over to the President of the latter on the occasion of the annual dinner, and the members had expressed themselves as much pleased with it. An application had been made by the Secretary to the Royal Mint for permission to have their medals struck by the authorities, as is the case with those of the Royal Horticultural Society, but the request had been refused. The Secretary was instructed to communicate with the Secretaries of the National Rose Society with a view to being placed upon the same footing as the Royal Horticultural Society. It was resolved that the Catalogue of Chrysanthemums issued by the Society should be supplied to affiliated Societies at the rate of 10s. per dozen copies. The Secretary reported that the Chrysanthemum Conference, to be held at Chiswick by the Royal Horticultural Society in November, would now take place on the 5th of that month. A letter was read from the Rev. W. Wilks, asking for the co-operation of the National Chrysanthemum Society in carrying out the Conference; but it was resolved that, as the Society have arranged two Conferences—one in connection with their September, and one with their January show—such co-operation should be declined. A vote of thanks to the Chairman brought the proceedings to a close.

EDINBURGH BOTANICAL.

The Society met on the 14th inst. at 5, St. Andrew Square, Dr. Craig, President, in the chair.

Dr. David Christison communicated an elaborate paper on the "Monthly Increase in Girth of Trees at the Royal Botanic Garden, and at Craigie Hall, near Edinburgh." In the course of the essay various

cognate subjects were touched on, and amongst them was the fact that the rings shown in the stems of two trees recently cut down in the Royal Botanic Garden closely agreed with their age, accredited by written documents.

Mr. Johnstone, of Moffat, exhibited a specimen of Ajuga pyramidalis, obtained in Dumfriesshire. This find is interesting, as the habitat of this plant was hitherto assigned to Sutherland and Ross shires. The usual weather and temperature reports in connection with plant growth were given in.

Report for January, 1889, on Temperature and Vegetation at the Royal Botanic Garden. By R. Lindsay, Curator.—The weather of January has again been unusually mild for the season. Rain fell more or less on nine days only, no snow fell, and outdoor work suffered no interruption during the month. The thermometer was at or below the freezing point on fourteen occasions, the aggregate amount of frost registered being 57° as against 67° for the corresponding month last year. The lowest readings occurred on the 1st, 28°; 2nd, 21°; 7th, 24°; 22nd, 25°; 27th, 21°. The lowest day temperature was 36° on the 2nd, and the highest 56° on the 18th. On the rock garden twenty species and varieties came into flower, amongst which were Andromeda floribunda, Crocus Imperati, C. byzantinus, Hepatica angulosa. H. triloba, Helleborus angustifolius, H. purpurascens, Polygala Chamæbuxus, and its variety purpurea, &c. Considering the mild weather which has prevailed, not so many plants are in flower as might have been expected. Those which have flowered are below the average in quality. This is particularly noticeable on various species of Helleborus. The coldness of the past summer seems to have had an injurious effect on herbaceous plants. Of the forty plants whose dates of flowering are annually recorded to the Society, the following came into flower during the month, viz.:—Dondia Epipactis on January 3; Tussilago fragrans, 11th; Rhododendron atrovirens, 17th; Daphne Mezereum, 26th: Galanthus plicatus, 26th; Leucoium vernum, 30th; Galanthus nivalis, 31st.

Law Notes.

SOUTHWARK POLICE COURT.

LOCKE *v.* MATTHEWS.

A case of considerable interest to the agricultural and horticultural world, and to seed merchants generally, came before Mr. Shiel, the magistrate sitting at the Southwark Police Court, on Feb. 21. The defendant was Mr. John Matthews, of 53 and 54, New Church Street, Bermondsey, who was summoned "for that he did on or about January 29 or 30, with intent to defraud, and to enable other persons to defraud, dye or cause to be dyed certain Clover seeds, contrary to the Seeds Adulteration Act, 32 and 33 Vic., cap. 112," which sets forth that a defendant, upon conviction, may be fined a sum not exceeding £5 for the first offence, and a sum not exceeding £50 for any subsequent offence. According to the section, the term "to dye seeds" means to give seeds by any process of colouring, dyeing, sulphur smoking, or other artificial means, an appearance which they would not have under natural circumstances, and in this instance the particular process alleged was sulphur smoking.

Mr. J. P. Grain, instructed by Mr. C. Butcher, solicitor to the Nursery and Seed Trade Association, prosecuted, and Mr. C. J. Slater, solicitor, defended.

Mr. Grain, in opening the case, said the prosecution had been taken up at the instance of some of the largest seed merchants in Mark Lane and elsewhere, because for years past very grave frauds had been going on in the seed trade, particularly in regard to clover seed. By a system of dyeing, old seeds were sold in the garb of new, a fraud which not only affected *bonâ fide* merchants, who were undersold, but also farmers and others who bought the seeds. For the purpose of putting a stop to the practice, they secured the services of a man named Titchmarsh, to whom three sacks of seeds were forwarded by Messrs. Hurst and Son, 152, Houndsditch. They were first sent to Plymouth to Titchmarsh, and then to the corn granary of the Great Western Railway, Paddington, where samples were taken. The sacks of seed were then sent on to the defendant, who subsequently returned them to Paddington "dyed." Samples were then again taken and analysed, and the present proceedings were taken

Frederick William Locke, warehouseman in the employ of Hurst & Son, said that in the beginning of January he supplied Mr. J. E. Titchmarsh, of Twyfield House, New North Road, Plymouth, with three sacks of old clover seed. He took a sample of each sack at Paddington Station later on in presence of Titchmarsh and Robert Pratt, the corn granary superintendent. The samples were sealed.

On February 2nd he went to Paddington again with Professor Dyer, and took samples from the same three sacks, the seed by this time having been dyed. The samples were kept by Professor Dyer.

John L. Titchmarsh said he had been a corn merchant, and had known the defendant for about four years, and had several times employed him to doctor seeds. The seeds were laid on a sort of kiln, through which the fumes of sulphur were allowed to pass. He wrote to Foster, the defendant's foreman, on January 7, asking him if he could dye three sacks of clover seed, and he replied that the firm would be glad to execute any orders. Witness on the 28th of January went to the defendant's and said he had three sacks of seeds at Paddington which he wanted coloured. The sacks had originally been consigned to witness at Plymouth. On January 29th he went to Paddington, took samples from the three sacks in company with Locke, and gave instructions for the seeds to be sent to Matthews' warehouse. Next morning he went to Matthews' warehouse himself, and Foster showed him how the seeds were being done. He paid 4*s.* per cwt. for the work, this being 1*s.* extra per cwt., because the colour was not at first bright enough, and the process had to be repeated. Witness paid for the seeds, had a receipt, and the seeds were returned to the Great Western Station at Paddington. Witness also had some samples of the dyed seed forwarded to him in care of Mr. W. Wakefield, at the Fore Street Warehouse Company's, at Finsbury, which samples were handed to Mr. Butcher.

Robert Pratt corroborated the evidence as to what transpired at Paddington Station.

Professor Bernard Dyer, of Great Tower Street, analytical chemist, stated that he had analysed three samples of Clover seeds taken from sacks at Paddington in the presence of Locke, and found the seeds had been subjected to fumes of sulphur.

Mr. Slater said Titchmarsh had laid a trap for Mr. Matthews, and knew nothing about the matter until the account had been paid.

Mr. Shiel: The Act would be a dead letter if that were taken into consideration. It is a most useful Act, because it protects agriculturalists, but if you let people injure them upon that excuse, the Act would be absolutely useless. My opinion is, that the highest penalty of £5 is too small. I fine the defendant £5, and ten guineas costs.

HIBBERT *v.* ACTON LOCAL BOARD.

We learn from the *Gardeners' Magazine* that the appeal on this case has been heard. It is the action reported in our issue for October 15, 1887. It appears that the plaintiff erected against the side of his house, and inside his boundary wall, a conservatory, without the consent of the local authorities. The building was 15 feet long by 9 feet wide, and was constructed of wood and glass, and not heated. Defendants pulled the house down, as being contrary to their 36th bye-law, which provides that "Every person who shall erect a new building shall cause such building to be enclosed with walls constructed of good bricks, stone, or other hard and incombustible materials, properly bonded and solidly put together; (*a*) with good mortar, compounded of good lime and clean, sharp sand, or other suitable material; or (*b*) with good cement; or (*c*) with good cement mixed with clean sharp sand." The plaintiff thereupon brought this action, and Mr. Justice Field, who tried the case without a jury, held that this conservatory was not within the bye-law, and gave judgment for the plaintiff for £7 damages. The defendants appealed. For the defendants it was contended that the bye-law was authorised by section 157 of the Public Health Act, 1875, and that this was a "building" within the meaning of the bye-law. The object of the bye-law was to prevent danger of fire. The Court dismissed the appeal, and the Master of the Rolls said that the question was whether this conservatory, which was really only a large glass frame, was a "building" within the meaning of the bye-law. In his opinion it was not. They were not going to say that no conservatory could come within the bye-law; but this conservatory had not a single element of a building within the meaning of the bye-law. Lord Justice Bowen agreed. This seemed nothing but a magnified glass frame, and the wording of the bye-law was not applicable to it. Lord Justice Fry concurred. The bye-law dealt with buildings capable of being enclosed with walls. Conservatories were not capable of being so enclosed, as they required light. The very language of the bye-law was not applicable to such structures. He was far from saying that a bye-law might not be framed applicable to conservatories.

Obituary.

We regret to announce the death of Mr. J. T. Peacock, Sudbury House, Hammersmith, on the 15th inst. J. T. Peacock, Esq., was much interested in gardening pursuits, and especially in succulent plants. The collection and cultivation of which he commenced, aided by Mr. Croucher, his gardener, towards the end of the 60's. The collection was remarkable for its extent, and the many rare species which it contained. Latterly the pleasure of collecting these plants paled before that of gathering together Orchids, of which he had a fine collection, including many rare hybrids and species.

Edward Tidswell.—We also regret to announce the death of Edward Tidswell, Esq., of Gresham Street, E.C., on February 14. He was a very warm and liberal supporter of the Gardeners' Royal Benevolent Institution. He was elected Treasurer in February, 1883, upon the decease of Rob. Wrench, Esq. He presided at the annual festival in 1885, and resigned the office of Treasurer in November, 1886, in consequence of ill-health.

The Weather.

[Accumulated temperature indicates the combined amount and duration of the excess or defect of temperature above or below 32° F. for the period named, and is expressed in Day-degree — a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above or below the Mean for the week ending Feb. 18.	Accumulated. Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1889.	Below 42° difference from Mean since Jan. 1, 1889.
Principal Wheat producing Districts.		Day-deg.	Day-deg.	Day-deg.	Day-deg.
0. Scotland, N. ...	1 below	2	38	+ 3	+ 20
1. Scotland, E. ...	1 above	11	37	+ 11	— 7
2. England, N.E. ...	0 (aver.)	10	33	— 8	+ 2
3. England, E. ...	3 below	10	46	— 29	+ 70
4. Midland Cos. ...	1 below	15	42	— 28	+ 51
5. England, S. ...	3 below	15	44	— 33	+ 48
Principal Grazing, &c., Districts.					
6. Scotland, W. ...	2 above	13	27	+ 7	— 23
7. England, N.W....	0 (aver.)	11	27	— 14	— 22
8. England, S.W....	1 below	26	17	— 31	+ 26
9. Ireland, N. ...	2 above	27	15	+ 12	— 35
10. Ireland, S. ...	2 above	35	10	+ 7	— 16
— Channel Islands	0 (aver.)	27	6	+ 13	— 29

DISTRICTS.	RAINFALL. More or less than the Mean for the Week.	RAINFALL. No. of Rainy Days since Jan. 1, 1889.	RAINFALL. Total Fall since Jan. 1, 1889.	BRIGHT SUNSHINE. Percentage of possible Duration for the Week.	BRIGHT SUNSHINE. Percentage of possible Duration since Jan. 1, 1889.
Principal Wheat-producing Districts.	Tenths of Inch.		Ins.		
0. SCOTLAND, N. ...	9 more	39	9.0	8	10
1. SCOTLAND, E. ...	1 less	29	2.8	28	25
2. ENGLAND, N.E. ...	4 less	24	1.8	29	21
3. ENGLAND, E. ...	2 less	24	2.1	33	20
4. MIDLAND COS. ...	3 less	24	2.6	25	18
5 ENGLAND, S. ...	1 more	25	2.8	25	17
Principal Grazing, &c., Districts.					
6. SCOTLAND, W. ...	1 more	32	7.6	20	20
7. ENGLAND, N.W....	3 more	28	3 9	26	20
8. ENGLAND, S.W....	6 more	27	5.2	25	22
9. IRELAND, N. ...	2 more	37	5.8	30	18
10. IRELAND, S. ...	2 more	33	6.4	30	22
— CHANNEL ISLANDS	2 more	33	4.2	24	26

THE PAST WEEK.

The following summary record of the weather for the week ending Feb. 18, is furnished from the Meteorological Office :—

"The *weather* has varied considerably in different parts of the kingdom and on different days. At the commencement of the period it was cold, and showers of snow were very general, but as the week progressed it became mild, with occasional rain in the east and south-east, and frequent falls in Ireland, Scotland, and the northern parts of England. Over south-eastern and central England the weather towards the end of the period became very mild and s pringlike.

"The *temperature* has fallen to a lower point than during any previous week of the present winter. Thus, the minimum on the 12th was as low as 6° at Hillington, while in several other places readings between 16° and 20° were registered; on the 13th the thermometer fell to 9° at Rothamsted, and to between 13° and 20° at most of our other south-eastern stations. From this time, however, temperature rose quickly, and towards the end of the week maxima as high as 51° to 57° were recorded in Scotland, 54° to 57° in Ireland, and 54° to 58° in England. The average for the week has not differed materially from the mean for the time of year; in Ireland and the greater part of Scotland it has been slightly above, but in most of the English districts it has been below—in 'Englond, E.,' and 'England, S.,' a deficit of 3° is shwn.

"The *rainfall* has been less than the mean in the north-eastern and eastern parts of Great Britain, but more elsewhere.

"*Bright sunshine* has been rather more prevalent as a whole than it was last week, the percentage of the possible amount of duration having ranged from 8 in 'Scotland, N.,' to 20 in 'Scotland, W., and to 33 in 'England, E.'"

MARKETS.

COVENT GARDEN, February 21.

BUSINESS somewhat better, and prices all round improving. A few Strawberries to hand, but meeting a bad market. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2 0-	4 0	Lemons, per case	12 0-	21 0
— Canada and Nova Scotia, per barrel	7 0-	17 0	Pine-apples, Eng., lb.	1 6-	2 0
Cobs, 100 lb.	100 0-	110 0	— St. Michael, each	2 0-	8 0
Grapes, per lb.	1 6-	4 0	Strawberries, per oz.	1 0-	...

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	12 0-	...	Mustard and Cress, punnet	0 4-	...
— French, bundle	18 0-	...	Onions, per bunch	0 5-	...
Beans, Jersey and French, per lb.	1 6-	...	Parsley, per bunch	0 9-	...
Beet, red, per dozen	1 0-	2 0	Peas, French, per lb.	1 0-	...
Carrots, per bunch	0 6-	...	Potatos, per cwt.	4 0-	5 0
Cauliflowers, each	0 3-	...	— kidney, per cwt.	4 0-	5 0
Celery, per bundle	1 6-	2 0	— new French, lb.	0 6-	...
Cucumbers, each	1 0-	...	Rhubarb, bundle	0 6-	...
Endive, per dozen	3 0-	...	Seakale, punnet	2 6-	...
Green Mint, bunch	1 0-	...	Shallots, per lb.	0 6-	...
Herbs, per bunch	0 6-	...	Spinach, per bushel	4 0-	...
Leeks, per bunch	0 4-	...	Tomatos, per lb.	2 0-	...
Lettuce, per dozen	1 6-	...	Turnips, per bunch, new	0 5-	...
Mushrooms, punnet	1 6-	...			

POTATOS.—Beauty of Hebron, 80*s.*; Imperators, 70*s.*; Magnum Bonums, 80*s.*; and Dunbar Regents, 110*s.* per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0-	18 0	Foliage plants, various, each	2 0-	10 0
Arum Lilies, p. doz.	9 0-	15 0	Ficus elastica, each	1 6-	7 0
Azaleas, dozen	24 0-	42 0	Genista, dozen	9 0-	18 0
Cineraria, per dozen	8 0-	12 0	Hyacinths, dozen	6 0-	9 0
Cyperus, per dozen	4 0-	12 0	— Rom., doz. pots	9 0-	10 0
Dracæna terminalis, per dozen	30 0-	60 0	Lily-of-Val., doz. pts.	18 0-	30 0
— viridis, per doz.	12 0-	24 0	Marguerites, doz.	6 0-	12 0
Erica hyemalis, doz.	9 0-	18 0	Palms in var., each	2 6-	21 0
— caffra, dozen	6 0-	12 0	Pelargoniums, scarlet, per dozen	6 0-	9 0
Euonymus, in var., per dozen	6 0-	18 0	Poinsettias, dozen	8 0-	12 0
Evergreens, in var., per dozen	6 0-	24 0	Primulas, per dozen	4 0-	6 0
Epiphyllums, doz.	18 0-	30 0	Solanums, dozen	6 0-	12 0
Ferns, in var., doz.	4 0-	18 0	Tulips, dozen pots	6 0-	9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutillons, 12 bun.	3 0-	6 0	Mignonette, 12 bun.	2 0-	4 0
Anemone, Fr., 12 bun.	2 0-	6 0	Narcis., paper-white, (French), 12 bun.	2 0-	6 0
Arum Lilies, 12 blooms	3 0-	6 0	— double, 12 bun.	1 6-	3 0
Azaleas, 12 sprays	0 9-	1 0	Pelargoniums, 12 spr.	1 0-	1 6
Bouvardias, per bun.	0 9-	1 6	— scarlet, 12 spr.	0 6-	1 0
Camellias, 12 blms.	2 0-	4 0	Poinsettias, doz.	3 0-	6 0
Carnations, 12 blms.	2 0-	3 0	Primroses, 12 bun.	1 0-	1 6
Christmas Roses, 12 blooms	0 6-	1 6	Primulas, dbl., 12 sp.	1 0-	1 6
Chrysanthemums, 12 blooms	0 6-	1 0	Roses, Tea, per doz.	2 0-	6 0
— dozen bunches	2 0-	4 0	— coloured, dozen.	2 0-	4 0
Daffodils, dbl. 12 bun.	9 0-	12 0	— red, per dozen	6 0-	9 0
— single, 12 bun.	12 0-	18 0	— Safrano, dozen	2 0-	4 0
Eucharis, per dozen	3 0-	6 0	Safrano (Fr.), doz.	1 0-	3 0
Gardenias, 12 blooms	15 0-	30 0	Snowdrops, 12 bun.	1 0-	3 0
Heliotropes, 12 spr.	0 6-	1 0	Stephanotis, 12 spr.	12 0-	15 0
Hyacinths, Roman, 12 sprays	1 0-	1 6	Tuberoses, 12 blms.	2 0-	4 0
Lapageria, 12 blooms	1 6-	3 0	Tulips, 12 blooms	0 8-	1 0
Lilac, white Fr., bun.	4 0-	6 0	Violets, 12 bunches	1 0-	1 6
Lily-of-Val., 12 spr.	0 6-	1 0	— dark, Fr., bunch	1 6	2 6
Marguerites, 12 bun.	3 0-	6 0	— Parme, Fr., bun.	4 0-	5 0
			Wallflowers, 12 bun.	4 0-	6 0
			— French, 12 bun.	1 6-	2 0

SEEDS.

LONDON: *Feb.* 20.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market devoid of any special feature either of interest or novelty. There is, however, a somewhat better inquiry from the country. Red Clover seed is dearer in France, and German quotations for Alsike also come higher. In Trefoils the tendency is still upwards. White Clover seed unchanged. In Rye-grasses values are weak. Winter Tares meet with increasing favour. Konigsberg Vetches are prohibitive this season alike in price and quality. A big and sudden jump has occurred in Scarlet Runner Beans. Bird Millet is now unprecedentedly cheap. Peas and Haricots move off slowly on former terms. Not much doing in feeding Linseed.

FRUIT AND VEGETABLES.

SPITALFIELDS: *Feb.* 20.—Supplies still plentiful, and trade dull, the following being the quotations: —Savoys, 2*s.* to 4*s.* 6*d.* per tally; Greens, 6*s.* to 9*s.* do.; Cauliflowers, 10*d.* to 1*s.* per dozen; Broccoli, 8*d.* to 1*s.* do.; Spinach, 1*s.* 6*d.* to 5*s.* per bushel; Brussels Sprouts, 1*s.* to 1*s.* 6*d.* per half-sieve; Turnip-tops, 1*s.* 6*d.* to 2*s.* 3*d.* per sack; Seakale, 1*s.* 3*d.* per punnet; Parsnips, 8*d.* to 1*s.* per score of 22; Beetroots, 8*d.* to 1*s.* per dozen; Parsley, 7*s.* to 9*s.* per dozen bunches; Turnips, 2*s.* to 2*s.* 6*d.* do.; Carrots, 1*s.* 6*d.* to 2*s* 6*d.* do.; Guernsey Radishes, 5*d.* to 8*d.* do.; forced Rhubarb, 1*s.* 9*d.* to 2*s.* 6*d.* do.; Celery, 8*s.* to 14*s.* per dozen bundles; Horse-radish, 1*s.* to 1*s.* 1*d.* per bundle; English Onions, 6*s.* to 6*s.* 6*d.* per cwt.; Spanish do., 8*s.* 6*d.* to 10*s.* per case; Bordeaux do., 5*s.* to 5*s.* 6*d.* do.; Belgian do., 4*s.* to 4*s.* 3*d.* per bag; Dutch do., 3*s.* 6*d.* to 4*s.* do.; pickling do., 5*s.* to 6*s.* do.; Carrots, 20*s* to 26*s.* per ton; Mangels, 16*s.* to 18*s* do.; English Apples, 3*s.* to 6*s.* per bushel; do. 1*s.* 6*d.* to 3*s.* 3*d.* per half-bushel; American do., 9*s.* 6*d.* to 15*s.* per barrel.

POTATOS.

BOROUGH AND SPITALFIELDS: *Feb.* 19.—Moderate supply upon offer, and a quiet demand. Regents, Scotch, 90*s.* to 120*s.*; English, 65*s.* to 100*s.*; Hebrons, 90*s.* to 100*s.*; Magnum Bonums, 60*s.* to 100*s.*; Scotch, do., 90*s.* to 120*s.*; other varieties, 60*s.* to 90*s.* per ton.

SPITALFIELDS: *Feb.* 20.—Quotations: —Magnums, 65*s.* to 75*s.*; Imperators, 75*s.* to 85*s.*; Hebrons, 70*s.* to 75*s.*; Regents, 75*s.* to 105*s.*; Champions, 55*s.* to 60*s.* per ton.

STRATFORD: *Feb.* 19.—Quotations:—Scotch Magnums, 90*s.* to 110*s.*; do., Regents, 85*s.* to 105*s.*; English Regents, 70*s.* to 90*s.*; do. Magnums, 60*s.* to 90*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime old, 126*s.* to 144*s.*; do., best second, 85*s.* to 120*s.*; do., inferior, 36*s.* to 70*s.*; prime old Hay, 108*s.* to 126*s.*; best new, do., 90*s.* to 106*s.*; inferior, 50*s.* to 70*s.*; old, straw, 42*s.* to 48*s.*; new, 28*s.* to 42*s* per load.

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

SHELL GRAVEL.—Can any one tell me where to procure a little of the "white shell gravel," as it used to be called?—though of course it is not gravel, but consists of crushed shell only. It is almost as white as snow, and used to be brought up the Thames in barges, and sold for walks, arbours, &c. The brown stuff, made of small cockles, &c., is useless for my purpose. *R. D. B.*

STREPTOSOLEN JAMESONI.—Will some one amongst your readers, who has practical knowledge of the plant and grown it successfully, kindly give information as to the management of Streptosolen Jamesoni? I have had a plant nearly two years in a 6-inch pot, in a sunny greenhouse, temperature in winter 40° to 45° Fahr. It has made good growth, but no flower. Should it be placed out-of-doors in full sun for a month or two in summer? The branches have withered to the main stem, from which fresh shoots are now appearing. It looks perfectly healthy. I have occasionally given it a little weak guano-water. It gets plenty of air. *Amateur.* [As Mr. Cannell showed this plant in fine condition at South Kensington in 1884, perhaps he will oblige. ED.]

NOTICES TO CORRESPONDENTS.

CYPRIPEDIUM BELLATULUM: *H. J. B.* The accent on the pen-ultimate syllable.

FOWLS' MANURE: *D. M. H.* It is of some value in plant growing, but before using it it should be dried in an open shed in a heap frequently turned over with a shovel, and before mixing it with the mould should be passed through a ¼-inch sieve. It may likewise be put into a sack and allowed to soak in water, and used for watering plants. To mix with soil, it may be used at the rate of 1 to 20.

HELLEBORES, SOIL FOR: *H. H.* Sandy loam, well enriched with manure, and a shady but open site.

HYACINTH BULB: *J. H.* The bulb was a weakly one, and the root-development poor. The flower-spike was uninjured, and would have appeared shortly, but would not have been a strong one. There was no disease, but want of due development might be traced to the use of sea-sand, or some other deleterious ingredient, in the soil.

KALANCHOE CARNEA: *D. M. H.* Of easy culture, and, being South African, it will grow in the greenhouse for nine months of the year, and stand out-of-doors in a sunny spot in July, and August.

LANDSCAPE GARDENING, AND BRITISH PLANTS: *J. S. U.* For the first, get E. Kemp's *How to Lay Out a Garden* (Bradbury, Agnew, & Co., Bouverie Street, Fleet Street, London, E.C.); for the second, Bentham and Hooker's *British Flora* (Reeve & Co., London).

LEAVES OF ORCHIDS DISFIGURED: *W. G., Huddersfield.* The plant sent seems to indicate that it has been grown in an unsuitable atmosphere. The spots on the leaves may be from aphis puncture in the young state, or they may be caused by con-

densed moisture on the leaves owing to sudden fall of the temperature at night. If not provided already, small ventilators should be fitted to the house just above the ground-line, and beneath or on a level with the pipes, and freely used day and night. Very hard water might cause the stunted growth and bad and crippled root-growth. Had we such plants, we should turn them all out of their pots, wash the roots, pull off the loose decayed sheathing, wash in weak tobacco-water, and repot into well-drained pots with good fibry peat and living Sphagnum-moss, and afterwards water liberally with rain-water, but not syringe or water overhead. Give plenty of water, free ventilation, and, when the sun gets strong, careful shade, and the plants will come round, for they are sound enough.

Manetti Rose Stocks: *H. H.* Like cuttings of most deciduous plants of a hardy nature, these are better when made and put into the cutting-beds in October and November.

Masdevallias Eaten by Insects: *P. W.* Weevils—catch them at night with bait of slices of carrot. Use a bull's-eye lantern; go quietly into the house; turn on the light with suddenness, and look out for the marauders sharply, or they will drop on to the ground and secrete themselves.

Musk Rose: *G. J.* This is Rosa moschata, introduced into this country in 1596. Habitat, Persia, North Africa, and Madiera. The semi-double musk-scented flowers are borne in clusters, and appear in July and August. It is well adapted for a wall. There are eight varieties in cultivation.

Nine Small Beds to Plant with Summer-blooming Plants: *New Subscriber.* If you do not obtain other bedding plants, or sow annuals, your Pelargoniums and Calceolarias will make but a very moderate display alone, and it would be more varied and interesting if you were to get in due season Haage's Dwarf Zinnia, Ten-week and East Lothian Stocks, Gaillardia Lorenzii, G. pictum, dwarf German Asters, also Truffaut's Pæony-flowered and Hedgehog Asters; hardy annuals, such as Nemophila insignis, the dwarfest of Nasturtiums, Godetia Duchess of Albany (pure white), and G. Lady Albemarle (white and rose), Calliopsis tinctoria, and others. Violas in variety should be got at once for edging some beds and mixing with the Pelargoniums, and tall annuals in others. We cannot give you designs by which to plant the beds, but would recommend that in a few cases some intermingling of the plants be done, putting the tallest plants in the middle, dwarf plants between tall ones, and the very dwarf annuals and Violas at the outside of the beds—chiefly. Harmonies are more pleasing than contrasts in colour, and such discords as putting, for instance, purple Stocks amongst white flowers, &c., should be avoided. Do not crowd things together, but allow space between each for proper development. If you have a hotbed and a frame or two, the tender annuals may readily be raised from seeds sown in April, and hardy things in the open air in the same month and in May. Sow Asters and Stocks twice, a month apart, so as to have something wherewith to fill up blank spaces in late summer. Annuals may also be sown in June in pots for transplanting when wanted.

Names of Plants: *H. J. R., Florence.* Narcissus etruscus of Parlatore.—*E. W. G.* 1, Quercus glabra; 2, Cratægus crenulata (the Himalayan Pyracantha); 3, Ilex Perado; 4, I. dipyrena; 5, Euonymus pendulus, Wall. (E. fimbriatus, Hort. non Wall.)—*G. C.* 1, Picea pungens, green form; 2, P. pungens glauca, the Parryana glauca of nurseries; 3, Abies cephalonica, or one of its varieties; 4, appears to be a form of A. grandis; 5, A. Juniperus.—*B. S. O.* 1, abnormal flower of Oncidium excavatum; 2, Odontoglossum pulchellum majus; 3, Iris fimbriata; 4, Davallia bullata; 5, Polypodium sporodocarpum; 6, specimen insufficient.—*C. B.* 6, Davallia (Microlepia) hirta cristata.—*J. W. F.* 1, Eucalyptus globulus; 2, Aloe variegata; 3, Asplenium viviparum; 4, Sisymbrium Sophia; 5, Festuca ovina glauca; 6, Aneimia (Anemidictyon) Phyllitidis.—*J. S. S.* 1, Dieffenbachia nobilis; 3, Acalypha Macafeeana; the Egyptian seedlings, &c., must be sent when in flower.—*E. B. R.* Adiantum cuneatum grandiceps; it is not new.—*Cape Town.* Nephrodium calcaratum of Hooker. *J. G. B.*—*F. S. M.* Specimen too much decayed.

Putty and Glazing: *Omega.* Putty for garden use is better when not made so hard that it cannot be removed without breaking the glass. Take 10 lb. of powdered whiteningl lb. of white-lead; mix with the necessary quantity of boiled linseed-oil and one wineglassful of sweet-oil. The glazing of greenhouse roofs and pit-lights is more effectually done by bedding in soft putty made as above described, and fixing the glass by means of brads, or small triangles of tin driven into the sash-bars. Thick red-lead paint, laid on with a brush, may take the place of the usual outer fillet of putty.

Rules for Judging Plants, Fruits, &c.: *Exhibitor.* The book you mention has not as yet been published, at least so far as we are aware.

Sea Sand. *D. M. H.* This is good enough for most pot plants if it be well washed in fresh water. Sand varies much in its constituents; in some places it is composed mainly of shell fragments, and is of the nature of lime; in others it is the detritus of sandstone rock, in others of limestone, basalt, &c. Used alone, as for propagating purposes, it is best when of sandstone rock, but it is rarely to be found sufficiently fine in its particles, and is therefore not so good as silver sand for propagating uses.

Tree Pæony: *Pæonian.* There is no manual on Tree Pæony grafting, but a little work was published on them in 1886 by M. C. Mouligny, Orleans. In grafting Tree Pæonies, P. edulis should be chosen as the species to graft on; P. officinalis will not do. Good sized pieces of the roots should be taken, and allowed to lay uncovered for a short time, so as to wither a little. The best time is August, and slit or cleft grafting the method employed, the first preferably. When grafted keep the roots close under a bell-glass or hand-light. In the case of many being done a frame within another frame is best. Whatever means is chosen it should stand behind a north wall, or under some kind of shading of a close nature, and in the open. When the grafts have taken they should be planted close together in a bed, and just up to the bud of the graft, and left till November. This bed must be moist enough to keep the plants fresh until that time without having to water it. In the month mentioned the grafted plants may be placed in pots of a suitable size, and kept under glass in a cool-house until the spring. Planting in the open is best performed in September. To secure the grafts to the roots indiarubber twine, or some similar elastic material, secures the best results.

Vegetative Sports not always Reversions: *F. W. B.* Of course this is a matter of surmise rather than established fact; but we take it that the sudden appearance of laciniation and cresting in leaves, as in cut-leaved Beech or Alder, the sudden development of "moss" on Roses, the extreme laciniation of some Kales or Ferns, the formation of pitchers, and other similar cases, are not generally reversions to a simpler or earlier stage of the plant's existence, but are due to other causes.

CATALOGUES RECEIVED.

J. Carter & Co., 237, 238, High Holborn, London, W.C.—Grass and Farm Seeds.

Edward Gillett, Southwick, Mass., U.S.A.—North American Wild Flowers, Orchids, &c.

Charles Frazer, Palace Plain Works, Norwich—Conservatories, &c.

J. R. Beckwith, 34, Guildford Street, Leeds—Seeds.

John Gardiner & Co., 21, North 13th Street, Philadelphia, Pa., U.S.A.—Seed Annual.

John Watkins, Pomona Farm, Withingdon — Seed Potatos.

Webb & Sons, Wordsley, Stourbridge—Farm Seeds.

R. W. Proctor, Chesterfield—Seeds.

Samuel Shepperson, Prospect House, Belper—Florists' Flowers, Bedding and Rock Plants, &c.

Max. Deegen, Köstritz, Germany—Dahlias, Roses, Gladioli, &c.

John A. Bruce & Co., Hamilton, Ontario, U.S.A.—Seeds.

Communications Received.—J. G. B.—U. G.—S. D. & Co.—P. Geddes.—G. R. (next week).—A. R., Paris.—J. H. K., Haarlem.—L. & J. P.—W. S.—Cape Town.—R. H. S.—J. A.—W. M. M.—A. S. E.—Antwerp.—G. C.—J. C. Modena.—G. D. (many thanks).—C. P., Sandringham.—J. W. A.—J. G. Baker.—F. R.—A. S.—T. W. H.—E. J.—B. A.—J. Maconochie.—A. E.—M.—R. G.—P. G.—H. Storey.—P. E. N.—W. G.—H. Risborough Sharman.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquaries in the current week.*

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Mr. R. H. THOMSON, Thorney Close, Sunderland.
" December 27, 1888.

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Mr. G. LAWRENCE, Stifford, Romford.
" February 14, 1889.

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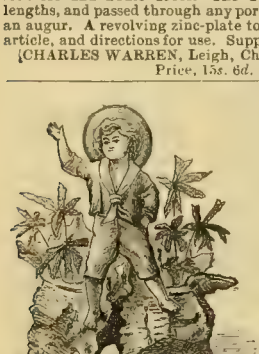
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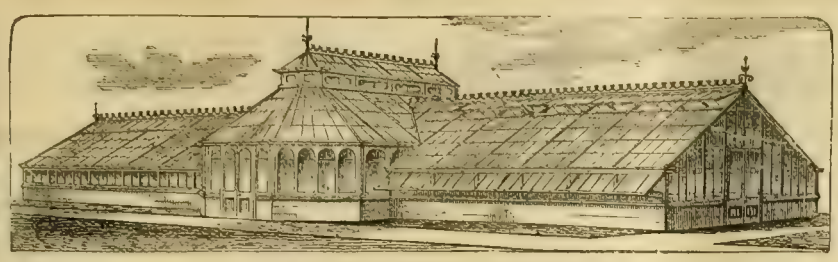
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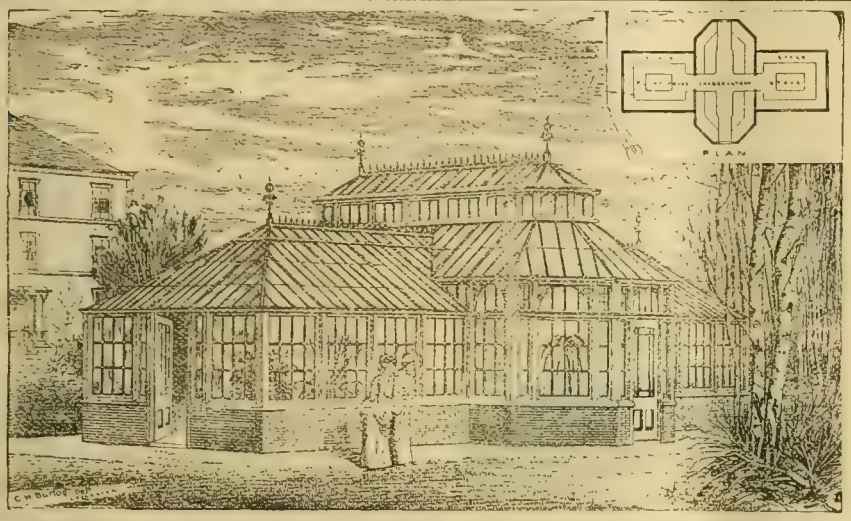
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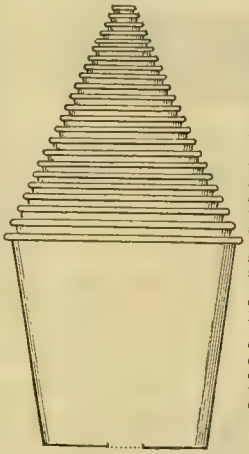
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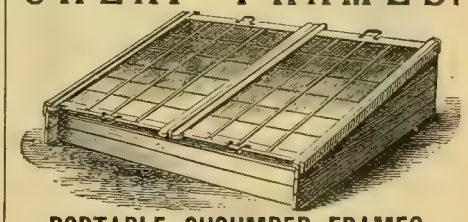
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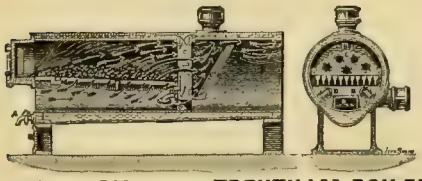
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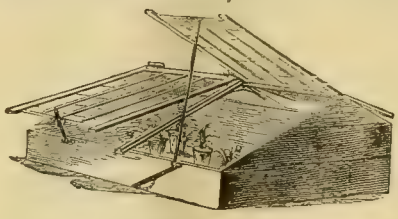
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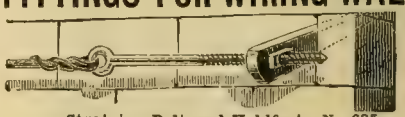
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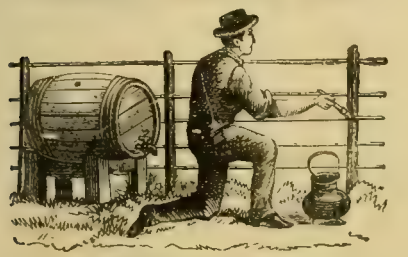
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MANAGER, or PARTNERSHIP.—A Seedsman's Manager, of exceptional experience, is desirous of entering into Partnership with another similarly qualified; or would take a situation as Manager next autumn with a view to Partnership.—S., *Gardeners' Chronicle*, 41, Wellington Street, Strand, W.C.

WANTED, a HEAD WORKING GARDENER, a thoroughly steady and experienced man, one who understands the Cultivation of Vines, Peaches, Cucumbers, Tomatos, also Kitchen and Flower Gardening. Must be able to take Charge of Men. One with a knowledge of Growing Cucumbers and Tomatos for Market preferred. Good cottage found.—Apply, stating age, references, and wages required, to BENJ. G. STONE, Estate Agent, Elkington Hall, Louth, Lincolnshire.

Head Gardener.
WANTED, Practical MAN, to Grow Cucumbers, Tomatos, Mushrooms, Grapes, Peaches, Ferns, &c., for Market.—State wages required to R. T. HOUSE, Bury Farm, Gosport.

WANTED, a good WORKING GARDENER, for Bangor, North Wales. Thoroughly experienced in Vineries, Kitchen Garden, &c. Assistance given. Wife good Laundress. Lodge, coals and vegetables. Excellent character indispensable. State wages, Mr. YOUNG, 83, Marina St. Leonards-on-Sea (temporary address).

WANTED, a SINGLE-HANDED GARDENER. Peach House, Vinery, Small Conservatory, Small Kitchen Garden, and Lawn. Must be kept neat and tidy. Single man preferred.—State particulars, and wages expected, to ROBERT GRAHAM, The Newmarket Nursery, Newmarket.

WANTED, a young Journeyman GARDENER. Well up in the Growth of Soft-wooded Plants.—State particulars to R. GILBERT, Burghley Gardens, Stamford.

WANTED, a strong young Man, as JOBBING GARDENER, to live indoors. One from the country preferred.—Apply by letter, stating age, references, and wages expected, T. E. NEWMAN, 5, Theobalds Road, West Croydon, S.E.

WANTED, UNDER GARDENER.—Experienced with Orchids. Age 20—25. Wages, 18*s.* Bothy.—F. D. G., South Lodge, Horsham.

WANTED, WORKING FRUIT FOREMAN.—Must understand Management of Fruits in general. References required.—Apply, stating experience, age, and wages expected, to GEO. JACKMAN AND SON, Woking Nursery, Woking.

WANTED, a thoroughly competent Man, as ROSE GROWER, where Cut Blooms are required in quantity all the year round. None but really experienced men of good character need apply.—ROBERTS BROS., East Grinstead.

WANTED, a young Man, single, not under 24, as PROPAGATOR and GROWER of Plants, Cut Flowers, Cucumbers, and Tomatos, for Market.—Apply by letter, with full particulars, to L. RATTRAY, Ash Vale Nursery, near Aldershot.

WANTED, GENERAL PROPAGATOR for small Nursery.—State wages, by letter only, to J. W. 25, London Road, Forest Hill, S.E.

WANTED, for Market Garden (Inside), a JOURNEYMAN (good), that can take charge.—Must be well up in Strawberry and Tomato Growing, especially the former; quick at his work, and first-class reference from present employer.—MANWARING, Fruit and Tomato Grower, Cowden, Brenchley, Kent.

WANTED, AT ONCE, JOURNEYMAN in the Houses. Quick at Tying and Potting. Only those well acquainted with the Cultivation of Pelargoniums (all sections), for Cut Bloom and Market Purposes need reply. Must be a Churchman. One willing to sing in the choir would have the preference.—Full particulars as to character, capabilities, and experience, and wage required, which must be moderate, to A. M., St. John's Nurseries, Spalding. No bothy.

WANTED, a steady, energetic young MAN, well up in Propagating and Growing Cut Forced Flowers and Fruit for Market. Must be a good Rose Budder. A permanent and progressive situation to a really competent person.—State experience, wages required, &c.—H. BENNETT, Pedigree Rose Nursery, Shepperton, Middlesex.

WANTED, energetic MAN, to take Charge of House. One who has had some experience in Growing Fruit and Flowers for Market.—C. GOLDSMITH, Kelsey Gardens, Beckenham.

WANTED, an experienced industrious steady MAN, for Outside to Grow Cut Flowers, Spring Bedding Plants, also Mushrooms, Outside and Inside, for Market. Apply, with references, stating full particulars. A permanent situation to a suitable man.—G. A. WILLIAMSON, Smithfield Market, Manchester.

WANTED, young MAN, with thorough knowledge of Herbaceous Plants, Dahlias, Shrubs, Forest Trees.—Apply, by letter, stating experience, wages expected, THOMSONS', Spark Hill Nurseries, Birmingham.

WANTED, a successful GROWER of Wall, and Orchard-house Fruits, Grapes, Cucumbers, &c., where these are wanted in somewhat considerable quantities for private consumption. This is a very fine opening for an experienced man of unimpeachable character. Every assistance in the way of men would be given.—Apply, stating age, and fullest particulars as to experience, &c., and say if any knowledge of Forcing Cut Flowers, to THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

WANTED, TWO or THREE young MEN, used to Growing Soft-wooded Stuff for Market.—JOHN TURTLE, Welling.

WANTED, a thorough good Greenhouse MAN, for first-class Nursery. Good Propagator.—SAMUEL HARTLEY, Headingley Nursery, Leeds.

WANTED AT ONCE, an active, sober young MAN, to take charge and work in a Small Branch Nursery, chiefly Fruit Trees. Must be a good Budder and Grafter, and used to raising Fruit Trees for Sale.—Apply, stating wages wanted and names of references to JOHN WATKINS, Pomona Nurseries, Withington, Hereford.

WANTED, a strong, active young MAN, of good character, principally for Kitchen Garden. Age about 23; wages 17*s.* per week, with Bothy.—Apply by letter, giving references, to Mr. FOX, Holker Gardens, Cark-in-Cartmel, Carnforth.

WANTED, an energetic and experienced young MAN, to work in Flower Garden and Pleasure Grounds. Age about 19. Total abstainer preferred. Wages, 16*s.* per week, with bothy, &c.—E. G. WHEELER, The Gardens, Moray Lodge, Campden Hill, Kensington, W.

WANTED, TWO energetic, young MEN, with a Knowledge of Cucumber and Tomato Growing, and willing to make themselves generally useful.—Apply, stating experience and wages required, to GUIVER BROS. AND LAWSON, Durant's Nursery, Ponder's End, Middlesex.

WANTED, a reliable all-round MAN, to help, Indoor and Out, in a small Nursery, doing a general trade.—State wages, full particulars, &c., to LAXTON BROTHERS, Nurserymen, Bedford.

WANTED, a strong young MAN, for Indoors and Out.—Preference given to one who has had experience in Growing Tomatos and Cucumbers. Highly recommended. Wages 16*s.* and Bothy.—THOS. OLDHAM, Malvern Hall, Solihull, Birmingham.

WANTED, a MAN, experienced in and fond of Seed Saving for Special Strains of Vegetables and Florists' Flowers.—X. Y., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a BOY, about 15, for the Garden.—One accustomed to the work.—Apply, with full particulars, to M. ASCOUGH, The Vineries, Crosshills, Leeds.

A VACANCY OCCURS in a Wholesale London Seed Establishment for a TRAVELLER. Preference given to one who has taken the journies before, and who knows the Midland Counties and Wales.—Applicants state particulars to ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

WANTED, a JUNIOR ASSISTANT for Seed Shop.—Apply, stating references, to JNO. JEFFRIES AND CO., Oxford.

Seed Trade.

WANTED, a Pushing COUNTERMAN.—Send full particulars, with references, to HENRY PODGER, Seed and Corn Merchant, Weston-super-Mare.

WANTED, a SALESMAN, to Drive Van to Market with Market Garden Produce, Fruit and Flowers, &c. Young MAN with experience and good manners, and character. Will also be required to Assist in Gardens, &c.—Apply, by letter only, to JAMES LAKE, Sheriff's Court, Minster, Ramsgate.

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WANTED, as above, age about 24. Must have had experience in all branches of Packing.—Apply to JAMES VEITCH AND SONS, Royal Exotic Nursery, King's Road, Chelsea, S.W.

WANTED, a young LADY, as a First Hand in my Florist Business, well up in Wreaths and Crosses, Bouquets, and Sprays, and obliging in serving. Good character and references indispensable.—State wages to C. H. RATSCH, Florist, Bournemouth.

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B. S. WILLIAMS begs to intimate that he has at present in the Nursery and upon his Register some excellent Men, competent either to fill the situation of HEAD GARDENER, BAILIFF, FOREMAN, or JOURNEYMAN. Ladies and Gentlemen requiring any of the above will please send full particulars, when the best selections for the different capacities will be made.—Holloway, N.

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ORCHIDS.—A man with first-class character and qualifications seeks re-engagement to take charge of a collection of Orchids, or that combined with other duties of a Garden.—H. BURBERRY, 4 côté de l'Hospice, Mont St. Amande, Ghent, Belgium.

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GARDENER (HEAD); age 29.—T. H. SYKES wishes to recommend his Foreman to any Lady or Gentleman in want of a thoroughly reliable man, where four or more are kept. Church of England.—Cringle House, Cheadle, Cheshire.

GARDENER (HEAD); age 33, no family.—The Hon. F. WYNN, can highly recommend M. Hartwell. Thoroughly practical in all branches. Leaving through death of employer. Highest references and testimonials.—M. HARTWELL, Glynllifon Park, Carnarvon.

Orchid Grower.

GARDENER (HEAD).—Age 40, married; skilful Orchid, Grape, and Pine Grower. Many years Head Gardener where every branch has been thoroughly carried out. Twenty years' references.—F. COX, 30½, George Road, Edgbaston, Birmingham.

GARDENER (HEAD).—Age 34, married.—A GENTLEMAN giving up his garden wishes to highly recommend a thorough practical, trustworthy, energetic man. First-class Fruit, Vegetable, and Plant Grower. Twenty years' experience in good establishments.—G. WARRINGTON, 1, Cedar Cottages, Herne Hill, S.E.

GARDENER (HEAD).—Sir THOMAS WHICHCOTE, who is reducing his Gardening Establishment, wishes to recommend his Head Gardener; he is thoroughly experienced in all branches of the profession, and has held his present position for twenty-eight years.—Aswarby Park, Folkingham, Lincolnshire.

GARDENER (HEAD).—GEORGE STRUDWICK, for the past three years Foreman at Grimsthorpe Castle, is open to engagement with any Lady or Gentleman requiring a thoroughly practical man, as above. Thirteen years' experience in all branches. First-class references. Thorough investigation invited as to character and ability.—Upper Church Road, Farncombe, Godalming.

GARDENER (HEAD).—Age 30; fourteen years' practice in, and testimonials from, several of the leading places in the country.—G. E. H., 94, High Street, Bromley, Kent.

GARDENER (HEAD), where two or more are kept.—Married, no family; has a thorough knowledge of Gardening in all branches. Highest reference given.—W. THOMSON, 3, Garden Cottage, Willow Place, Cambridge.

GARDENER (HEAD).—In consequence of the death of Lady Parker, widow of Sir Henry Watson Parker, K.C.M.G., deceased, William Bowell is now seeking a re-engagement as above, having filled the appointment as Head Gardener to his late and lamented employers for upwards of twenty years, where everything appertaining to Gardening was carried out in a thoroughly efficient manner, including Decorative Work, &c., and has a good knowledge of Cattle. Will be pleased to negotiate with any Lady or Gentleman requiring the same.—WILLIAM BOWELL, 2, Elm Villas, Richmond, Surrey.

GARDENER (HEAD WORKING).—Age 30; thirteen years' experience in all branches of the profession. Highest references as to character and ability.—G. H., 3, Oaklea Passage, Kingston-on-Thames.

GARDENER (HEAD WORKING).—Age 46, married; thoroughly experienced in all branches of the profession; also Land and Stock. Wife, Dairy and Poultry.—BAGG, Lima Cottage, Eastworth, Chertsey, Surrey.

GARDENER (HEAD WORKING).—Age 28, single; thirteen years' experience, three years as Foreman in present situation.—Mr. SMYTHE, Basing Park Gardens, Alton, Hants.

GARDENER (HEAD WORKING).—Age 40, married; twenty-two years' practical experience in all branches. Twenty-one years' good character. Total abstainer.—HENRY DEE, Inchbrook, near Stroud, Gloucestershire.

GARDENER (HEAD WORKING).—Married when suited; sixteen years' experience in Vines, Pines, Peaches, Stove and Greenhouse Plants, Flower and Kitchen Gardening, Early and Late Forcing.—G. McLEOD, 6, Glen Cottages, Holly Road, Hounslow.

GARDENER (HEAD WORKING).—Age 26; thoroughly understands the Management of a good Garden, Inside and Out. Four years' excellent character from last situation. Total abstainer.—Wife good Poultry Woman. G. WOODS, Fence Piece, Barkingside, Ilford.

GARDENER (HEAD WORKING).—Age 31, single; good experience in all branches. Good references. Last five years at Waddesdon Gardens, Baron de Rothschild, M.P.—M. C., Gordon Villa, Goldsworth Road, Woking, Surrey.

GARDENER (HEAD WORKING), where two or more are kept.—Age 28; excellent references. Thirteen years' experience. Well up in the general routine of Gardening. Married when suited. Abstainer.—P., 5, Laura Place, Holland Park Road, Kensington, W.

GARDENER (HEAD WORKING).—Married; thoroughly understands his business. Highest references as to character and abilities. Five years' in present situation. Abstainer.—G. GANGE, Bevere, Hampton, Middlesex.

GARDENER (HEAD WORKING).—Mr. DIXON, Gardener and Bailiff, Searles, Fletching, Uckfield, Sussex, will be pleased to recommend his present Foreman, who has been well trained, and has a thorough knowledge of his work.

GARDENER (HEAD WORKING).—Single; Re-engagement desired in a situation where ability and integrity would be appreciated. Very successful under Glass. Excellent character. Town or country.—R. H., 1, Moore Park Road, Fulham Road, S.W.

GARDENER (HEAD WORKING), where one or two others are kept.—Age 46, married; thirty years' experience. Understands Vines, Greenhouse, Flower and Kitchen Gardening. Can have twenty years' good character from present employer.—GARDENER, Trafalgar, Salisbury.

GARDENER (HEAD WORKING), where more are kept.—Age 39, married, two children; over twenty years' thorough practical experience in all branches of the profession in good establishments. Highest references as to ability and character.—GILBERT, Brisworth Hall, Northamptonshire.

GARDENER (HEAD WORKING); age 32, single at present.—ALBERT PARRY, Shendish, Hemel Hempsted, is open to engage with any Lady or Gentleman requiring a thorough practical Gardener in all branches. Fourteen years' experience in good establishments; seven years' reference from present employer.

GARDENER (HEAD WORKING), where three or four or more are kept; age 35, single.—Mrs. LEVERNE, Walcop, Shrewsbury, can highly recommend Wm. Gray as above to any Nobleman, Lady, or Gentleman who may require a thorough practical man. Protestant.—Please state particulars to WM. GRAY as above.

GARDENER (HEAD WORKING).—Age 35, married, no family; twenty years' experience in Grapes, Peaches, Cucumbers, Tomatos, Stove and Greenhouse Plants, Flower and Kitchen Gardens. Eight years' reference from present situation.—W. GREAVES, Hill House, Ifield, Crawley, Sussex.

GARDENER (HEAD WORKING), or FOREMAN.—Age 27, single; thirteen years' experience. First-class references. Two four years' characters.—W. HAMMOND, Newton Hall, Dunmow, Essex.

GARDENER (HEAD WORKING).—Age 36, married; thorough good practical Gardener. Twenty years' experience in Grapes, Peaches, Melons, Cucumbers, Tomatos, Stove and Greenhouse, Plants, Flower and Kitchen Gardening. Abstainer. Highly recommended. Please state full particulars of place.—GARDENER, 3, Albert Terrace, Castle Hill, Ealing, W.

GARDENER.—No children. Wife could take charge of Lodge or otherwise. Good references.—A. C., 9, Tayeaam Place, Baker Street, Enfield.

GARDENER, or Nursery.—Age 30, single; thoroughly experienced in all branches of Gardening. Four years' good character from previous employer.—T. T., 52, Castle Street, Coventry.

GARDENER.—Age 40, married.—Thorough practical Manager of Glass and Gardens for profit. Good all round. Will be disengaged March 2. Excellent character.—E. C., 41, Wellington Street, Strand, W.C.

GARDENER (GOOD).—Age 41; understands his duties. Could manage Land, Stock, and Poultry. Wife good Laundress or Dairy.—JAMES CARLTON, High Brooms, Tunbridge Wells, Kent.

GARDENER (SINGLE-HANDED), or otherwise.—Age 31, unmarried; experienced. Very excellent recommendation for trustworthiness and ability.—NOTMAN, Blairmont, Lugwardine, Hereford.

GARDENER (SINGLE-HANDED).—Age 27, married, one child; nine years' practical experience Inside and Out. Three years' good character.—C. T., 27A, Woodcote Place, West Norwood, S.E.

GARDENER (SINGLE-HANDED or otherwise).—Age 24, single; three years in present situation. Good character.—G. CHEAL, Canon Hodgson's, Crawley Down, Sussex.

GARDENER (SINGLE-HANDED).—Good acquaintance with the Management of Orchids absolutely necessary. A small Garden, Conservatory, &c., to be thoroughly attended to. Good wages to an efficient man.—Address by letter, B. D., Messrs. R. F. WHITE AND SON, 33, Fleet Street, London, E.C.

GARDENER (SINGLE-HANDED, or good SECOND).—Age 25, married, one child; understands Vines, Cucumbers, Melons, Stove and Greenhouse Plants, Flower and Kitchen Garden. Three and a half years' good character and testimonials; abstainer.—FRANCIS, Blakehall Road, Wanstead, E.

GARDENER (SINGLE-HANDED or SECOND). Age 26; eight years' practical experience, Inside and Outside. Good characters from present and previous employers.—M., Conishead Priory, Ulverston, Lancashire.

GARDENER (SECOND), where three or four are kept.—Age 23, single; good references.—M. T., 31, Hay's Mews, Berkeley Square, W.

GARDENER (SECOND), where three or more are kept.—Thoroughly steady and industrious. Total abstainer. First-class references.—W., The Gardens, Mount Mascal, Bexley, Kent.

GARDENER (SECOND).—Age 26, single; twelve years' practical experience in all branches. Excellent references.—J. Y., Park House, Avenue Road, Penge, S.E.

GARDENER (SECOND).—Age 25; ten years' experience. Three and a half years' good character from present situation. Bothy preferred.—E. REFFOLD, Stone Park, Greenhithe, Kent.

GARDENER (SECOND or THIRD), under a good Gardener.—Age 23; bothy not objected to. Six years' good character.—Mr. RIXON, Westwood, Great Horkesley, Colchester, Essex.

GARDENER (SECOND), or ORCHID GROWER.—Age 27; well up in all branches. Good references.—A. BAXTER, Coleshill, Highworth, Wilts.

GARDENER (SECOND), where three or four are kept, or UNDER FOREMAN in the Houses.—Age 25, single; good character.—A. S., Puttenham, Guildford, Surrey.

GARDENER (SECOND), or JOURNEYMAN in the Houses.—Age 23; eight years' practical experience. Two years' good character. Can have good testimonials.—F. MILLS, Brookthorpe, near Gloucester.

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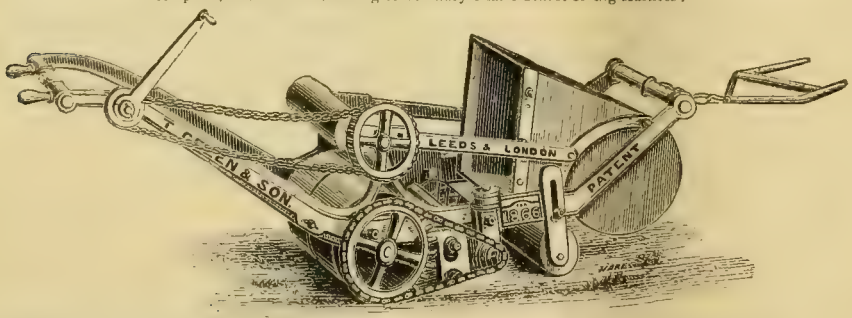


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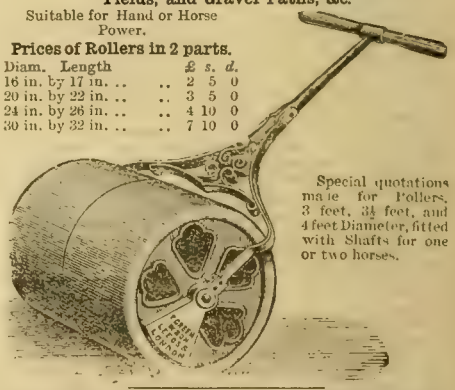
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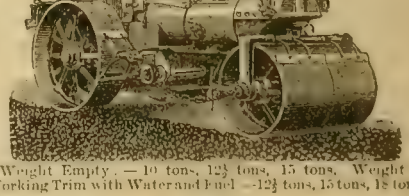
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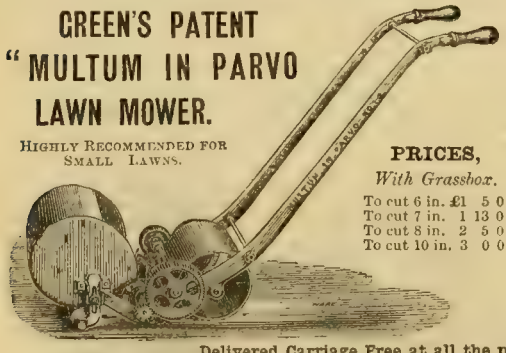
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MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, London, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied.
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PRICE AND CO. will be pleased to RECEIVE and DISPOSE of any quantity of Choice CUT FLOWERS at best Market Prices. 60, Castle Street, Long Acre, W.C., and Flower Market, Covent Garden, W.C. Reference: London and County Bank. TELEGRAPHIC ADDRESS—ADIANTUM, LONDON.

HOOPER AND CO. (Limited), are in a position to guarantee the highest Market Prices for EUCHARIS, LILY of the VALLEY, ROSES, ORCHIDS, ARUM LILIES, and every description of Cut Flowers, Communicate with Commission Department.
HOOPER AND CO. (Limited), Covent Garden, London, W.C.

J. W. BARNHAM (late of Squelch & Barnham) RECEIVES ON COMMISSION, GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found.
Long Market, Covent Garden, W.C.

MARECHAL NIELS—MARECHAL NIELS.—Highest market prices guaranteed for really good Blooms of the above.—HENRY RIDES, Fruit and Flower Salesman, Covent Garden, W.C.

WANTED, POINSETTIAS, in large or small quantities. Any variety. State lowest cash price. Apply by letter only to
BETA, 77, Oxford Gardens, Notting Hill, N.W.

WANTED, Broad-leaf PRIVET, 18 inches high. Price per 1000.
P. MORGAN, Lawn Nursery, Shepherd's Bush Green, London, W.

To Gardeners.
WANTED, various small STOVE and GREENHOUSE PLANTS, in Mixture, by the 100, &c.; also Cactus Dahlia Bulbs, new kinds; new Chrysanthemums, rooted or not; named Show Pinks, Eucharis, Melon Seeds, Daphne indica, alba, and rubra; Dactylis aurea; Hardy Carpet Bedding Plants, Gloxinia Bulbs, Greenhouse Pelargonium Cuttings, named Gold-laced Polyanthus, named Auriculas, Tree Pæonies (offshoots). Send lowest Trade Cash in quantity to
FLORIST, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, JERUSALEM ARTICHOKES and SHALLOTS. Sample and price to
J. W. BARNHAM, Salesman, Covent Garden Market, W.C.

MR. CARL JENSEN, Skovdal, Harhus, Denmark, wishes to have forwarded Trade CATALOGUES and Wholesale Seed LIST, especially Novelties.

SUTTON'S SEEDS GENUINE ONLY DIRECT FROM SUTTON AND SONS, READING.

SUTTON'S AMATEUR'S GUIDE for 1889.—Now ready: price 1s., post-free. Beautifully Illustrated with Coloured Plates of Sutton's Gloxinias, Sutton's Primulas, Sutton's Tomatos, and a Photograph of a House of Sutton's Hero of Lockinge Melon (grown from Sutton's Seed by Mr. J. H. Goodacre, The Gardens, Elvaston Castle). The book contains also the most complete List, with accurate descriptions of the best Vegetables, Potatos, and Flowers, including many Novelties of proved merit.
SUTTON AND SONS, Royal Seed Establishment, Reading.

LAXTON'S "OPEN AIR" TOMATO.—Proved by the Royal Horticultural Society to be *the Earliest to Ripen in the Open Air*, is also the Hardiest and Best Disease Resister. Very prolific, habit shrubby, and fruit of good quality, shape, size, and colour.
Order Seed in T. Laxton's sealed 1s. 6d. packets only, to obtain the latest, selected, and reliable stock.
Priced LIST of best Novelties in Seeds, Potatos, and Strawberries free from
T. LAXTON, Seed Grower, Bedford.

ORCHIDS.—Clean, well-grown plants, at low prices. Specimen Orchids a specialty. Price LIST free.
JAMES CYPHER, Exotic Nurseries, Cheltenham.

TREES and SHRUBS for the Sea Coast. CATALOGUE free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey, and Flower Market, Covent Garden, W.C.

CHOICE GERMAN FLOWER and VEGETABLE SEEDS.
CATALOGUES free on application.
FRED. ROEMER, Seed Grower, Quedlinburg, Germany.

SEEDS.—RICHARD SMITH & Co., Worcester, beg to draw attention to the Low Prices of individual articles (Peas especially), and the liberality of the Collections at Fixed Prices as set forth in their Illustrated SEED LIST, which will be sent Free on application. All Seeds, &c., are of the *best possible* quality.

R. COLLYER, Cart House Lane Nursery, Woking Station, Surrey, begs to offer to intending planters Common HOLLIES and English YEWS for hedges, &c., 2 to 5 feet; and many other TREES and SHRUBS.

Fruit Trees.
50,000 PLUMS and DAMSONS; Standard and Dwarf-trained Morello CHERRIES, all fine grown trees. For price apply to
FLETCHER BROS., Ottershaw Nursery, Chertsey, Surrey.

STACHYS TUBREIFERA, the new Tuberous-rooted Vegetable. Awarded First-class Certificate R. H. Society. Per 100 tubers, 1s. 6d. Free by Parcel-post.
DICKSONS (*Limited*), The Royal Seed Warehouse, CHESTER.

SEND FOR New Illustrated CATALOGUE of Conservatories, Greenhouses, Garden Frames, Propagators, post-free, for 6 stamps, deducted from first order.
CHARLES FRAZER, Palace Plain Works, Norwich.
Great Reduction in Prices.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

PASTUPLANTA, the best Artificial Manure. It enriches the soil with the fertilisers drawn from it by plants; no unpleasant smell; admirably adapted for all pot plants. In bags: 112 lb., 19s.; 56 lb., 11s. 3d.; 28 lb., 6s. 9d.; 14 lb., 4s.; 7 lb., 2s. 3d. In tins, 1s. each. Sole Manufacturers, PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

NICOTINE SOAP.—An effectual eradicator of all insect pests affecting plants, without injury to foliage. Jars, 1s. 6d., 3s., 5s. 6d.; Tins 15s. 6d., 25s., 95s.
All Seedsmen and Florists.

SALES BY AUCTION.

Monday Next.

IMPORTANT and SPECIAL SALE of LILIES,

Consisting of about 3000 Lilium auratum, just arrived from Japan, in magnificent condition; 3000 Lilies in variety, including beautiful Bulbs of Humboldtii, Washingtonianum, Wallichianum, and Brownii; a splendid Collection of IRIS, embracing most of the leading kinds in cultivation; a grand lot of beautiful CALOCHORTI CARNATIONS, PICOTEES, DAHLIAS, 3000 FREESIAS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, March 4, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogue had.

Tuesday Next.

Named CARNATIONS and PICOTEES, in Pots; Standard and Dwarf ROSES, FRUIT TREES, EVERGREENS, CAMELLIAS, and AZALEAS, from an English Nursery.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, March 5, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Tuesday and Wednesday Next.

THE BARVINS PARK COLLECTION of ESTABLISHED ORCHIDS, mostly of the Cool-house Section.

UNRESERVED SALE of the Fourth and Final Portion of this Extensive Collection, byorder of the Proprietor, who is leaving the neighbourhood, and Selling the Estate.

Important to the Trade and Large Buyers.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY NEXT, March 5 and 6, at half-past 12 o'Clock each day precisely, in consequences of the large number of lots, without the least reserve, the Fourth and Final Portion of this Extensive Collection, comprising several hundreds of Plants, mostly of the cool house, and including a large quantity of Odontoglossum Alexandræ, all unflowered, principally selected from Messrs. Shuttleworth, Carder & Co.'s importations of the broad petalled Pacho variety, together with Cattleyas, Lælias, Dendrobiums, Epidendrum vitellinum majus, Odontoglossum Rossii majus, Pescatorei, and citrosmum, Oncidiums, and other ORCHIDS

The Second Day's Catalogue will contain a large number of Odontoglossom Alexandræ that have flowered, and are selected and marked varieties.

On view morning of Sale, and Catalogues had.

Thursday Next.

5000 LILIUM AURATUM, just received from Japan; a fine collection of English-grown LILIES, the latter including several rare species; Standard and Dwarf ROSES, GREENHOUSE PLANTS in variety, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on THURSDAY NEXT, March 7, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.

AERIDES, CYPRIPEDIUMS, DENDROBIUMS, SACCOLABIUMS, VANDAS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, March 8, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a large quantity of choice IMPORTED ORCHIDS, in the best possible condition, consisting of Aërides crassifolium, A. falcatum compactum; Cypripedium bellatulum, C. niveum; Dendrobium Dalhouseanum, D. crystallinum; Saccolabium Blumei majus, Vanda Amesiana, V. Bensoniæ, V. cœrulea, V. cœrulescens, V. Kimballiana, V. Parishii, probably V. Parishii Marriottianum.

On view morning of Sale, and Catalogues had.

Friday Next.

ODONTOGLOSSUM ALEXANDRÆ.

A splendid importation of the best type, just to hand, in fine condition; also a quantity of ESTABLISHED ORCHIDS, including a special lot of Masdevallias.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE of ORCHIDS on FRIDAY NEXT, March 8.

On view morning of Sale, and Catalogues had.

Friday Next.

ONCIDIUM MACRANTHUM.

A WONDERFUL IMPORTATION, the healthiest and by far the finest that has reached this country. The plants have been collected personally by Mr. J. Charlesworth, and every care has been taken to bring them over successfully —and particular attention is drawn to their fine condition. Also a splendid lot of ODONTOGLOSSUM EDWARDII, O. HALLII, and O. CIRRHOSUM.

MESSRS. PROTHEROE AND MORRIS will include the above in their ORCHID SALE, on FRIDAY NEXT, March 8, by order of Mr. J. Charlesworth.

On view morning of Sale, and Catalogues had.

Dulwich.

Close to the Station (L. C. & D. Railway).

UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION on the premises, Claremont, Alleyne Park, Dulwich, S.E., on THURSDAY, March 14, at 1 o'Clock, WITHOUT RESERVE, by order of L. Luders, Esq., who is leaving the residence, the well-grown STOVE and GREENHOUSE PLANTS, Fine Specimen CAMELLIAS, Specimen DECORATIVE PLANTS, ORCHIDS in variety, FERNS; Dark Brown COB, PHÆTON, DOGCART, &c.

On view between 10 and 5 o'Clock the day prior and morning of Sale; Catalogues had on the premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

The celebrated Sunbury House Collection of

ESTABLISHED ORCHIDS.

IMPORTANT UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, March 12 and 13, at half-past 12 o'Clock precisely each day, without reserve, the first portion of this valuable collection of ESTABLISHED ORCHIDS, by order of Major Lendy, who, in consequence of ill-health, is relinquishing their cultivation. The collection includes a large number of fine Cattleya Mendelii, Trianæ, gigas Sanderiana, and imperialis, aurea, Percivalliana, Skinneri, Skinneri alba, Lawrenceana, Mossiæ (one specimen with 30 leads), labiata (autumn flowering), and maxima, many very superior varieties being found amongst them; a considerable number of beautifully grown Odontoglossums, including several very strong pieces of Alexandræ, luteo-purpureum, hystrix, coronarium (with 10 leads), polyxanthum, blandum, madrense, hastilabium, and others; Lælia elegans prasiata, grand, good pieces of the white forms of Lælia anceps alba, splendid specimens of Lælia purpurata, L. purpurath Russelliana and Williamsii, some well grown pieces of Schomburghia Tibicinis, Maxillaria Sanderiana, Epidendrum bicornutum, E. favoris, and Wallisii in flower; several large Cypripediums, including Crossianum, insigne Maulei, Spicerianum, grande Veitchii, also good plants of nitens, Druryi Wallisii, vernixium, Leeanum superbum, selligerum majus, amandum, and others; a large number of Phalænopsis in great variety, Aërides, Dedrobes, Masdevallias, Vandas, Oncidiums, &c.

No plants will be sold privately prior to the Sale.

On view mornings of Sale, and Catalogues had.

Sample Sale.—Thursday, March 14.

MESSRS. PROTHEROE AND MORRIS desire to announce that the next SALE of NURSERY STOCK and GREENHOUSE PLANTS by Sample will take place as above, for which they will be pleased to receive ENTRIES AS SOON AS POSSIBLE.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7884.)

500 Standard and Dwarf ROSES, to name, from a well-known English grower; named Pyramid, Dwarf-trained, and Standard FRUIT TREES; a consignment of AZALEA MOLLIS from Ghent, EVERGREENS, Hardy Ornamental SHRUBS and COMIFERS, CARNATIONS, PICOTEES, DAHLIAS, and other Hardy Plants, in variety; LILY of the VALLEY Crowns, SPIRÆAS, and other Roots, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 6, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7885.)

A fine lot of ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 7, at half-past 12 o'Clock precisely, a fine lot of ESTABLISHED ORCHIDS, mostly in Flower and Bud, including many fine specimens and rare species.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7885.)

20,000 grand Bulbs of LILIUM AURATUM, just received from Japan, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 7.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 13, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of entering Plants for this Sale will send list as soon as possible.

Wednesday Next.—Piccadilly, on the Sutton Estate.

Re GIBBS, deceased.

VALUABLE LEASEHOLD PROPERTY, for Occupation or Investment.

MESSRS. EDWIN FOX AND BOUSFIELD will SELL, at the Mart, on WEDNESDAY NEXT, March 6, at 2 o'Clock, the VALUABLE GROUND LEASES of the commanding Modern Residental and Business Premises, Nos. 24, 25, and 26, Down Street, one door from Piccadilly, immediately opposite the entrance to the Junior Athenæum Club, six storeys in height, with capital suites of Chambers on the Upper Floors, and Shop, Warehouse, and Countinghouse on the Ground Floor. Held for a term of which forty-four years are unexpired, at a moderate Ground Rent. Part of the Premises is Let to responsible Tenants, and possession of the Business Premises and Manager's House can be had. The total annual value of the whole may fairly be taken at £700. Together with the Goodwill of the Old-established Seed Business, for many years successfully carried on under the style of Thomas Gibbs & Co. Also the Lease of the Warehouse and Stable, No. 2, Bridle Lane.

Particulars of Messrs. HURFORD AND TAYLOR, Solicitors, 5, Furnival's Inn, E.C.; of J. J. FREEMAN, Esq., Solicitor, 2, Poet's Corner, Westminster, S.W.; at the Mart; and of Messrs. EDWIN FOX AND BOUSFIELD, 99, Gresham Street, Bank, E.C.

WANTED TO RENT, quantity of GLASS, heated; near Sydenham preferred.—Terms to A. W., 41, Wellington Street, Strand, W.C.

To Grape Growers,—Rare Opportunity.

TO BE SOLD, on exceptionally favourable terms (most satisfactory reasons for disposal), thoroughly genuine and compact PROPERTY, numerous VINERIES, substantially built, and stocked with the best Vines. Every facility. Good returns have been obtained.

Full particulars on application to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

To Amateur Horticulturists and Orchid Growers.

TO BE SOLD at Beckenham, a very charming Residence (9 Bedrooms, &c.), with delightful Garden of Half an Acre, with magnificent Range of Orchid-houses, Forcing-pits, &c.

MONTAGU AND ROBINSON, 36, Coleman Street, E.C.

FOR SALE, NURSERY and SEED BUSINESS. The Subscriber is prepared to treat for the Disposal of a Business, established for upwards of fifty years, in a town 10 miles from Glasgow. Sale Shop in town, and Nursery Ground in the vicinity, well stocked and unsurpassed for situation. Good opening for purchaser with limited capital.

For particulars apply to THOMSON M'LINTOCK, C.A., 87, St. Vincent Street, Glasgow.—February 7, 1889.

IMMEDIATE DISPOSAL.—First-class FRUIT, SEED, and FLORIST BUSINESS, in thriving South of England town. Shop in principal thoroughfare. Greenhouses at rear and Stable at hand. Splendid business doing. Owner going abroad or leaving town.—T. J., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO HIGH-CLASS FLORISTS and FRUITERERS.—Splendid opening for the above Business presents itself on the KING'S ROAD, BRIGHTON, in the best position, next to Mutton's. No other shop of the kind on this fashionable promenade.

Apply to Messrs. AKEHURST AND SON, Estate Agents, 10, Prince Albert, Street, Brighton.

TO BE LET, COASTER'S NURSERY, near Midhurst, an Old-established Business, principally in Forest Trees, has been successfully carried on here for many years by the late George Chorley. Capital opening for a business man. Nursery, 19½ Acres; also 4 Acres of Pasture. Rent, £75.

For terms of Letting, apply to ALBERY AND LUCAS, Midhurst.

To Nurserymen and Florists.

TO BE LET, in densely-populated locality, Large Piece of GROUND, with Two Greenhouses and Potting-sheds. Good living for industrious man. Rent, £18. Apply to Mr. ALFRED RICHARDS, Auctioneer, Tottenham, N.

Fifty Nurseries, Market Gardens, Florist and Seed

BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an Immense Stock of

ESTABLISHED ORCHIDS,

which they offer at the most reasonable prices; and they are continually receiving fresh importations from various parts of the world.

Lists, with Prices and Full Particulars, on application.

THE VINEYARD AND NURSERIES,

GARSTON, near LIVERPOOL.

To the Trade.

MANGEL WURZEL AND TURNIP SEEDS.

H. AND F. SHARPE will be pleased to give special quotation for their fine selected stocks of home-grown MANGEL WURZEL and TURNIP SEEDS of 1888 growth, and raised from picked bulbs. The growth is strong, and the prices will be found very reasonable. Samples may be had on application

Seed Growing Establishment, Wisbech.

CEDRUS DEODARA.—The largest and best stock in the country. Fine handsome well-transplanted Trees, from 7 to 12 feet and upwards. Price moderate.

H. LANE AND SON, Nurseries, Berkhamsted, Herts.

EARL CALTHORPE'S Head Gardener says: —"In a trial of half-a-dozen sorts, CARTERS' JERSEY LILY TURNIP was pronounced to be the best." Price in sealed packets, 1s., post-free, from 237, High Holborn, London.

EUONYMUS (Green).—50,000, all nice bushy well-grown Specimens, 9 to 36 inches, £1 to £10 per 100.

J. J. CLARK,

Goldstone Farm, Brighton.

To the Trade.

Choice Home-grown VEGETABLE and FIELD SEEDS.

H. AND F. SHARPE are prepared to make special low offers of their exceptionally fine Stocks of VEGETABLE and FIELD SEEDS of 1888 growth, and all carefully selected. Prices and further particulars may be had on application.

Seed Growing Establishment, Wisbeach.

MANETTI, well ripened, short-jointed shoots; to make two or three cuttings each, 10s. per 1000. SEAKALE sets, ready for planting, Covent Garden variety, 10s. per 1000.

WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL,

AT

The "ALBION," Aldergate Street,

JUNE 13, 1889,

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Donations and Collections already promised or sent towards the Jubilee Collection of 1889:—

	£	s.	d.
Leopold De Rothschild, Esq.	105	0	0
Baron Henry Schroder, Vice-President	105	0	0
Lord Revelstoke	52	10	0
James McIntosh, Esq., Vice-President	52	10	0
N. N. Sherwood, Esq. (Hurst & Son), Trustee ...	52	10	0
H. B. Mildmay, Esq., Berkeley Square	52	10	0
Herbert J. Adams, Esq., Vice-President	26	5	0
Harry J. Veitch, Esq., Treasurer	26	5	0
C. Czarnekow, Esq., Effingham Hall, Dorking ...	21	0	0
A. A. Sillern, Esq., Sydenham	10	10	0
F. J. Trask, Esq., Chislehurst	10	10	0
John Lee, Esq., Kensington (Trustee)...	10	10	0
Thames Bank Iron Company, Upper Ground Street	10	10	0
J. H. Veitch, Esq., Chelsea	10	10	0
Arthur J. Veitch, Esq., Chelsea	10	10	0
Thomas Manning, Esq., Chelsea	10	10	0
Mrs. H. J. Veitch, Redcliff Gardens, S.W.	10	10	0
B. S. Williams, Esq., Upper Holloway, N.	10	10	0
C. W. Buck, Covent Garden	5	5	0
E. R. Cutler, Secretary	10	10	0
Messrs. John Laing & Son, Forest Hill	5	5	0
Messrs. Webber & Co., Covent Garden	5	5	0
A. Plummer, Seedsman, Staines	4	4	0
R. H. Robinson, The Gardens, Heversham, Milnthorp	7	7	0
John Crook, Gardener, Farnborough	8	5	0
Edward Mitchell, Gardener, Bolton Lodge, Leeds ...	10	10	0
W. R. Hodges, Gardener, Copley Dene, Highgate ...	10	10	0
E. Gilbert, The Gardens, Old Charlton, Kent ...	1	15	0
Mrs. Vincent Nicholl, Red Hill...	2	2	0
W. J. Brown, Esq....	1	1	0
Miss Cattley, Clayden, Edenbridge, Kent	2	2	0

THE PARKS, &c., COMMITTEE of the METROPOLITAN BOARD OF WORKS will meet at the Office of the Board, Spring Gardens, S.W., on WEDNESDAY, the 20th day of March, 1889, at 12 o'Clock noon, and will then be prepared to OPEN TENDERS by persons who may be willing to contract for the Formation of Gravel and Tar-paved Footpaths at Eel Brook Common, and Parson's Green, Fulham, S.W., and Plumstead Common, Plumstead, S.E. Persons desirous to submit Tenders may inspect the Plans and obtain Specification, Form of Tender, and other particulars, on personal application at the Office of the Architect of the Board, at Spring Gardens, between the hours of 9 A.M. and 4 P.M. (or on Saturdays between the hours of 9 A.M. and 2 P.M.), until Tuesday, the 19th day of March, 1889. The Tenders, which must be on the Form supplied from this Office, and be addressed to "The Clerk of the Board," and endorsed "Tender for Footpaths, Eel Brook Common, Parson's Green, &c." are to be delivered at the Office before 4 o'Clock on the last-mentioned day, and no Tender will be received after that hour. Any Tender which is not fully filled up in every particular will be rejected.

The Committee do not bind themselves to accept the lowest or any tender.

J. E. WAKEFIELD, Clerk of the Board.

Spring Gardens, S.W., February 27, 1889.

THE FOLLOWING

RARE ORCHIDS

are now in flower. and

MR. WILLIAM BULL

will be glad to show them to any one interested:—

The pure white CŒLOGYNE (C. CRISTATA ALBA)
The pure white LYCASTE (L. SKINNERI ALBA)
The pure white CATTLEYA (C. TRIANÆ ALBA)
The yellow-flowered PHAIUS (P. BERNAYSII)
The New VANDA AMESIANA
ODONTOGLOSSUM HUMEANUM
DENDROBIUM NOBILIS NOBILIOR
ONCIDIUM WARSCEWICZII
and many others at

Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

TO LARGE PLANTERS of THORN QUICKS.—1 to 1½ foot, 9s. per 1000, £40 per 100,000; 1½ to 2 feet, 11s. per 1000, £50 per 100,000; 2 to 2½ feet, 13s. per 1000; 2 to 3 feet, 15s. per 1000; 3 to 4 feet, 18s. per 1000.
GARLIES MITCHELL, Nurseryman, Stranraer.

VERTEGANS' NOVELTY CATALOGUE of "FLORAL GEMS," free by Post to all applicants.
VERTEGANS AND CO., Chad Valley Nurseries, Birmingham.

VERTEGANS' NOVELTY CATALOGUE of SEEDS for the GARDEN, free by Post on application to
VERTEGANS AND CO., Chad Valley Nurseries, Birmingham.

VERTEGANS' Illustrated CATALOGUE.—Those who have not received one of our Speciality Catalogues should lose no time in obtaining it. Free by Post.
VERTEGANS AND CO., Chad Valley Nurseries, Birmingham.

A New Plant to English Gardens.

HARTLAND'S GOLDEN QUILLED DOUBLE SUNFLOWER, "Soleil d'Or." See *Gardeners' Chronicle*, Jan. 26, 1889, for illustration and full particulars, with a faithful drawing by Gertrude Hartland.
Very large clumps, 2s. 6d. each, post-free, 27s. 6d. per dozen.
Second size ... 1s. 6d. ,, ,, 15s. 0d. ,,
The dozen lots for combined orders, carriage and post-free.
"YEAR BOOK" of SEEDS for 1889, post-free.
WM. BAYLOR HARTLAND, Old Established Garden Seed Warehouse, 24, Patrick Street, Cork.

EARL CADOGAN'S Head Gardener says:—"CARTER'S GIANT WHITE COS LETTUCE stood the dry weather longer than any other kind I grew." Price, in sealed packets, 6d. and 1s. per packet, post free, from 237, High Holborn, London.

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All applications must be made on a proper printed Form, copies of which may be had Gratis of the Hon. Secretary, or any of the Local Secretaries. Such Form must be correctly filled up, duly signed, and returned to the Secretary not later than SATURDAY, April 20.

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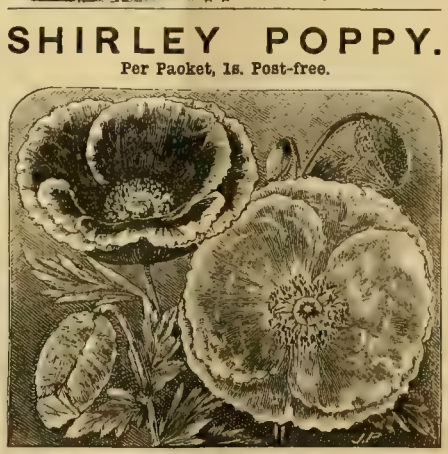
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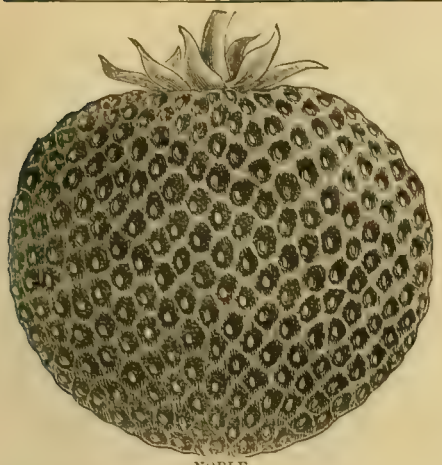
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THE

Gardeners' Chronicle.

SATURDAY, MARCH 2, 1889.

A HISTORY OF ENGLISH GARDENING.

ALTHOUGH Strabo mentions—*Geographia*, lib. iii.—that the ancient Britons who lived in the southern portions of this island possessed gardens, and cultivated a few plants in them, it is clear that the first rudiments of horticultural science must have been introduced into this country by the Romans. At the zenith of their rule they cultivated almost all the commoner plants now under cultivation in Europe, and it can scarcely be doubted that, during the period of their dominion in this country—a period extending over 400 years—they would not but have introduced many of the choicer, as well as the commoner, fruits and vegetables then cultivated in Italy. That they did so, in fact, is proved by the writings of classical authors. Pliny tells us that the Cherry, then a precious fruit, which had only just been introduced into Italy, had been acclimatised in England before the year 42 A.D., and Tacitus remarks that our climate was so favourable to the cultivation of fruits and vegetables that it was suited to all, except the Olive and the Vine. Even this latter plant, we find, soon after the time of Tacitus, thoroughly acclimatised, and very generally grown by the Romans in Britain. But whatever may have been the amount of horticultural knowledge diffused in England during the Roman occupation, there can be no reasonable doubt that much of it was soon lost during the anarchy and devastation which succeeded the immediate period of their dominion. Nature would, however, in a great measure provide against the entire destruction of the trees and plants which they had imported and acclimatised, but the science of gardening would gradually be forgotten. Indeed, it appears that it was not resuscitated in any part of Europe until the revival of religious learning in the seventh century. With that revival came also its first fruits, the erection of churches and monasteries in places where never yet had been

heard the footsteps of those who had brought glad tidings. Besides the manifest value of these monasteries as centres of study and literary work, they also served as places where the monks could store grain, grow fruits, and cultivate flowers with little risk of injury from wars, the soldiers always having respect for sacred property. Each monastery, as a rule, possessed three gardens—the *herbularis*, or physic garden; the *hortus*, or kitchen garden; and the *pomerium* or orchard. To these the larger establishments generally added a vineyard. Each garden had its particular "keeper," who, with several under-gardeners, had to "work and delve in the gardens from morning until vespers."* Indeed, when we consider that many of the monks had to abstain from meat and all animal food for at least five days in the week, and live on nothing but bread, fruit, and vegetables, we can hardly be surprised that the orchard and kitchen garden should have been the principal objects of their domestic economy. In some cases, however, when the rules of the monastery were unusually severe,† only meal, salt, Figs, Apples, and stale beer being allowed, the physic garden absorbed the greater portion of the attention of the monks. In the eighth, ninth, and tenth centuries the gardens belonging to the monasteries were probably the only ones which were to be found in England; but as the country became more and more settled in its government, horticulture began to revive with the other arts of peace, and by the time of the Norman invasion gardens were not merely the ordinary appendage of every Anglo-Saxon noble's mansion, but even the small landowners and villans possessed them.

As the present writer has before shown in the columns of this paper,‡ vineyards were common in England at the time of the Norman Conquest, no fewer than thirty-eight being mentioned in the *Domesday Book*. The word *pomerium* (orchard) occurs but once in the survey, but this is sufficient to show that our ancestors of the eleventh century had orchards.§ The words *horti* and *hortuli* "gardens" frequently occur in the same book. At Barnstaple was situated a garden rented at iij. pence per annum.‖ At Warwick, it is said, that there were one hundred *bordarii* who owned *hortuli*, "little gardens," which were rented at vj*d.* a year each.¶ Even gardens for the growth of vegetables to supply the public demand seem to have been in existence. One such is recorded at Fulham and was rented by eight cotarii.**

As to what these gardens were like—as to the method by which they were laid out, &c.—it must be admitted that we know little or nothing. The ordinary names for a garden in Anglo-Saxon are "wyrt-tun" and "wyrt-geard," a "plant inclosure," and a "plant yard," names which are entirely indefinite, for the word "wyrt" was employed for all plants whatever, both vegetable and ornamental. "Wyrt-geard" was also sometimes written "ort-geard," or "orc-geard," and it is from this compound that we have derived the modern word orchard.

The plants cultivated in these old gardens we know were comparatively numerous. Prone, indeed, as we are to consider the Anglo-Saxons nothing but feeders on swine, they were, however, able to extract a very fair share of comfortable foods, and healing medicines, and savoury drinks, directly or indirectly from the soil. Besides a fair spread of animal food, birds, and fish, the cookery of which was by no means contemptible (it was, we learn from contemporary records, entrusted to "professed" cooks), they had served upon their dinner-tables quite a variety of vegetables and fruits. There was the Colewort and Cabbage, the Bean and Pea, the Radish, Lettuce, Chervil, Onion, Leek, Garlic, Fennel, Mint, Carrot, Parsnip, Beet, Ache, Alexanders, Savoy, and Parsley. This latter vegetable was used together with bread, as now, for stuffing poultry.* The favourite vegeable appears to have been the Leek, which was largely used—so largely, in fact, that the kitchen gardens of the period were called "leac-tuns," Leek enclosures. The gardener who attended to these "leac-tuns" was called the "leac-weard," or Leek-keeper. For dessert our Anglo-Saxon forefathers had Pears, two varieties of the Apple, Plums, Cherries, Quinces, Chestnuts Hazel-nuts, Strawberries,† Peaches,‡ Walnuts,§ and very probably Mulberries, Almonds, and Figs‖. Of ordinary ornamental flowers they did not possess a great variety; only a few sweet smelling species, such as the Rose, Lily, Southernwood, Violet, Rosemary, Basil, and Camomile were cultivated. *P. E. N.*

(To be continued.)

* Ashm. MS., 1519, f. 37a.
† As was the case with the Franciscan order.
‡ Vol. iv., 1888, p. 563.
§ At Nottingham it is said: "*Willmo Penvel ecessit rex X acras terræ ad faciendū Pomerm*," tome i., f. 280.
‖ "*In Barnstaple uno hortus reddt iij, denār*," tome i., f. 238.
¶ Tome i., 238. Comp. also tome i., f. 158 b., 200, 264, &c.
** Tome i., 64.

KEW TREES.

Ginkgo adiantifolia.—Considering the peculiar appearance of this tree it is not surprising to learn that it is, so far as is known, the sole survivor of an otherwise extinct race, The tree in question is a native of China and of Japan, but, according to the geologists, it, or its immediate progenitors, must have at one time been pretty generally diffused throughout the colder and temperate parts of the northern hemisphere. Professor Heer goes so far as to constitute over sixty species from the fossil imprints of the leaves found in secondary and tertiary strata in various parts of the world. Those, however, who are familiar with the variations in form of the leaf in living examples will naturally doubt whether the number of fossil species has not been exaggerated. In any case the type is one of unfathomable antiquity, and the wonder is how the one representative we know in a living state could have held its own and survived through so many changes of climate and other conditions. Its powers of endurance and adaptation are curiously illustrated by the fact, that not only is it hardy in this country, but that it is with few or no exceptions the tree best suited to withstand the pernicious atmosphere of crowded towns, its thick leathery leaves and their thick epiderm enabling it to resist the smoke and other atmospheric impurities. On this account, as also by reason of the singularity of its appearance, we strongly commend it to the notice of those who are interested in trees, and like to see some variety among the trees planted in towns. The fan-like leaves are borne in tufts on the ends of short-spurs, like those of an Apple tree, and in autumn before they fall they turn of a beautiful golden-yellow.

The male catkins are produced at the end of similar spurs. The female flowers are on different trees to the male, and ripen into an ovoid berry-like fruit, placed at the end of a long stalk. Pollen from a male tree, therefore, is required for purposes of fertilisation, or a scion from the female tree may be grafted on the male, or *vice versâ*. All the female branches that have flowered in Europe come from grafts of a tree received from England in 1790, and discovered by Pyramus De Candolle near Geneva, as narrated in our columns by M. Alphonse De Candolle, 1866, p. 413. "This tree was cut down by a new proprietor, caring nothing for botany," and thus, continues M. Alphonse de Candolle, "my present letter may serve as an epitaph to a female, about which several pages have been written, and whose scions are numerous." In the Geneva Botanic Garden we saw, a few years since, a male tree, on which a female scion had been implanted under the direction of the elder Candolle—a truly historic tree.

The botanical history of the tree is very curious, but may be read in any text-book, so that it is not necessary to enter into details here concerning them. There are several large trees of this species (sometimes called Salisburia), in the country. One, at Whitfield, near Hereford, was in 1868, 50 feet in height, with a girth of 7 feet 2 inches at 5 feet from the soil. Another at Panshanger, was estimated by Mr. W. Paul in 1868, to be about 53 feet high, with an ascertained girth of 8 feet at 6 feet from the ground.

At Blaize Castle, Henbury, is, or was, a fine tree of this species, estimated in 1879 to be 65 feet in height, and with a regular oblong head (see *Gard. Chron.*, December 6, 1879, p. 795).

On July 22, 1882, we published a page illustration of a fine tree at Broadlands, stated at the time to be 40 feet in height, with a trunk 7 feet in girth at 3 feet from the ground, and a spread of branches of 45 feet.

There is an old tree in the Chelsea Botanic Garden, but much less in dimensions than those mentioned. The tree in the Royal Gardens, Kew, of which we now give an illustration (fig. 47), measures, as we learn from Mr. Nicholson, 60 feet in height, with a spread of 41 feet, while the girth at 4 feet from the ground, is 9 feet 3 inches.

The tree is usually propagated by layers, but also by seed. We remember seeing a quantity of seedlings in the nursery of Messrs. Garraway, at Bristol, several years since. The mode of germination, as shown in a sketch by Mr. Weathers (fig. 48), is almost exactly like that of an Oak, but the primary leaf-scales are 3-seriate.

* See *Liber Medicinalis*, iij. xij.
† Cockayne, *Saxon Lecchdoms*, ii., 9.
‡ *Lb. Med.*, 176; Lacn., 39; Alð., 31.
§ Alð., 53.
Ingulf, p. 50.

NEW OR NOTEWORTHY PLANTS.

CATTLEYA BALLANTINIANA×, *n. hyb.*

This is a grand success of Messrs. F. Sander & Co.'s, who raised it from Cattleya Warscewiczii gigas×Trianæi. I am informed by Mr. J. Godseff that the leaves and bulbs are like those of C. Trianæi, the seed-parent, and that the plant is a stout free grower. The flower has the general shape and mostly the petals of Cattleya Warscewiczii gigas. The sepals and petals are rose-coloured, lip distinctly trilobed, very wavy on the anterior half, but emarginate in front. The sides of the lateral lobes are fine rose-coloured, the disc is white with a median double series of extrorse purple reddish-brown short radiating lines, like those which are so conspicuous in Cattleya Luddemanniana. The anterior part is of the warmest clearest mauve-purple, surrounded on the sides and front by white areas of the large swallow-tailed acute orange spot we find in many individuals of Cattleya Trianæi. The base of the column is greenish-white.

This fresh pride of the establishment of Messrs. F. Sander & Co. has been inscribed, at the desire of Mr. F. Sander, with the greatest satisfaction to Mr. Ballantine, the popular and intelligent head gardener of Baron von Schroder's model collection. *H. G. Rchb. f.*

Dendrobium Harveyanum, *Rchb. f.*

This rare species has appeared once more at St. Albans, at Mr. Sander's, who kindly sent me fresh materials. I was very pleased at last to see the leaf. It is more than 6 inches long, and a little over 1 inch in breadth. Its substance is rather thick and soft. The blade is cuneate-ligulate, very acuminate, very dark grey and shining above, light green underneath

where not only the median rib is prominent, but also on each side there is most distinct lateral rib. *H. G. Reichb. f.*

IVIES.

Of all the evergreen plants that pay for liberal treatment in the shortest time, the various forms of Ivy are amongst the first on the list. For general use, as a covering for walls, fences, and screens of wood or metal, the Irish Ivy stands unequalled for denseness and rapidity of growth. Where plants of this variety exist on a wall, vigorous young shoots will frequently be thrown out from the base, which should not be laid in, as when once the wall is covered it is not well to allow new growths to crowd those shoots already fixed to the wall, but instead of cutting these off, they should be laid in or on the ground to the extent of 6 inches at the base, and covered with half a foot of soil; and if this be of a heavy nature, fastening down the shoots will not be required, the soil itself being sufficiently weighty to keep the shoots in place. If this layering be done at any time during the winter, the shoots will be well furnished with roots by the following autumn, and ready to be removed. This is one of the quickest ways to raise healthy plants, and, owing to their vigorous growth, these quickly establish themselves when planted in a proper manner.

Cuttings of the current year's growth, taken off in the autumn, about 1 foot long, and planted in rows on a shady border, will in two years' time make nice stocky plants. In preparing the border, mix some sand with the soil if it be heavy, and put a little in the trench when putting the cuttings in; it will be noticed that layering is the quicker method of raising Ivies, but one not always practicable.

During the last eight years I have had to employ a good deal of Ivy. The east side of a dwelling-house, 30 feet high, has been covered to the top in places in that time. In another instance the walls of a stable were covered thickly. In this case, growth as much as five feet long was obtained in one year after the plants were firmly established. In another instance, a wall which was built in step-fashion, was made level at the top, and was afterwards covered with Irish Ivy. By fixing small iron supports in the wall and fastening rabbit-proof netting to these, a trellis was made to which the Ivy could be fastened; and now it would be difficult to say at a glance whether there was a wall or not under the Ivy, so dense is the covering. Some flint walls which bounded the public road have been rapidly covered with this variety of Ivy; in this instance the plants were put in behind the top of the wall, the shoots being trained downward. The latest use to which Ivy has been put is that of hiding an iron fence which separates the garden proper from the park. Here the plants are exposed to the west winds. In covering this fence there were two objects in view, viz., hiding the rails of the fence; and to prevent the tree leaves which blow across the park having ingress to the shrubberies and lawns. With the rails covered with Ivy the leaves will be blocked there, and will be more easily collected. First the rails were covered with rabbit netting, then the Ivy was planted outside, and the shoots threaded through the wire. Most of the work done with Ivy has been carried out with Ivy grown from layers. The method of planting pursued was to take out at the base of the wall a space a foot wide, and as much in depth, and when the soil was poor it was entirely removed; then the bottom was broken six inches deeper, the trench being filled in with soil consisting of decayed vegetable refuse, old potting-bench refuse, or road-scrapings, decayed manure being freely added to the whole. In planting, the soil was trodden firmly about the plants, and finally a thick mulching of manure was put over the roots, which remains till the second year. The shoots were at once made secure, and as fast as growth was made it was laid in. By timely attention to this last matter much quicker progress is made than when shoots are allowed to hang loose; and, moreover, the closer the shoots are kept to a wall from the first, the quicker they become self-supporting, the little roots readily clasping the wall, and in this way growth becomes rapid. Should the weather be dry the first summer after planting, copious supplies of water are beneficial, the plants growing then with increased rapidity. When once the wall is well covered, no attention will be needed beyond an annual clipping of the leaves and shoots; this should take place the first week in April, and the closer the leaves and shoots are cut in to the old growth, the neater will the covering be, the leaf-stalks not being so long as when clipping is done only occasionally.

For covering a very high wall, Regner's Ivy is a capital variety, it being vigorous in growth, and the colour a deep green. Shoots four feet long will be made in one season, and these should have the point cut off, thereby inducing side shoots to break out throughout its entire length. This sort is especially good for clinging to walls, and needs only the minimum of attention in the matter of fastening and training. For a northern aspect, where a close dense covering is wanted, Hedera palmata is a very good variety, as is Clouded Gold for a sunny spot, much sun rendering its colour still brighter. As a covering for some of the larger parts of the rockery, the silver variegated Ivy is excellent, and forms an agreeable contrast to shrubs of green foliage.

We have here a winding path, one side of which is bounded by a flint wall 2 to 3 feet high for the purpose of retaining a bank of soil. This wall is covered with English Ivy, which was taken from the



Fig. 47.—Ginkgo adiantifolia (the maidenhair tree) in the royal gardens, kew. (see p. 264.)

woods hereabouts, and planted at the top of the wall in good soil, the shoots being trained in a downward direction. The roots quickly found their way under the stones, and the Ivy soon covered the wall. We have also a low retaining wall bounding the Vine border, which is covered with the same species. Many beautiful forms of leafage and colour may be picked out of plants of English Ivy, some of them assuming in winter beautiful bronzy tints. I find that all Ivies are partial to soil of a heavy retentive kind, especially if it be liberally enriched with manure, and the foliage quickly responds to its use by showing larger size and greater depth of green. Where Ivy is required to cover a screen, or form one of itself, the better the treatment accorded the plants the quicker will the object in view be achieved. *E. M.*

MARKETING OF FRUIT.

The report of the Fruitgrowers' Association of Ontario for 1887 contains a paper on "Canada at the Colonial Exhibition," from which we take the following interesting particulars:—Speaking of importing Apples to England, President A. McD. Allan says:—"I found that the experience of every man there who had received fruit from this side direct to London was disastrous. The fruit was injured on the passage up the Thames, and arrived in the market fully a week later than if landed at Liverpool and forwarded on to London by rail, thus entailing a double loss—the loss of a week's time, and the damage and pilfering consequent of their having to pass through so many hands. For this pilfering the steam-ship companies blame the dock hands, and they in turn blame the Custom-house officials, and you can get no satisfaction at all; and we found that much better prices were always realised by shipping *viâ* Liverpool by rail to London. Besides that, coming up the River Thames is expensive. The dock companies' fees were something enormous—8*d*. per barrel landed on the dock, and then fees to the Duke of Bedford, and goodness knows whom not. The railways charge too high a rate, however, from Liverpool to London at present; but they are going to pull the rates down. I have talked that matter over pretty thoroughly with the officials there, and I also suggested that the railway companies should provide accommodation at their stations centrally located in the city, where buyers could in a reasonable time buy, and the fruit be disposed of without expense, on rent being charged if the fruit is disposed of, instead of dealing at Covent Garden Market, where the ubiquitous Duke of Bedford has to be paid a fee of 1½*d*. on every barrel. The railways took that up pretty well—the Midland so heartily that they had bought out half a block and started a new depôt expressly for this purpose before I left, so that next year they will compete strongly for all the Canadian fruit going to London, and there will be no rent or charge to the shipper, and the fruit can be sold right in their own depôt, or kept for a considerable length of time without charge, a point which will be of great value to our shippers. Then there is another point. All the last part of the season, through December, I cabled shippers sending me fruit to London *viâ* Liverpool, and I made an arrangement that if the Liverpool prices were better than the London prices, to stop it at Liverpool and sell there. If it would pay the difference in freight, we allowed it to come on to London straight and be sold there. Some of the gentlemen I dealt with in London also did business in Liverpool, and in that way I had the advantage of two markets; then again in other markets. Liverpool, of course, is the distributing point; they handle more than London or Glasgow. I found the markets varied a good deal with the supply or demand. I had one cargo, I remember, of 14,000 barrels, of which I had advice. The moment the steamer was in the Mersey, I thought to sell in Liverpool, but prices went up in Glasgow and I sent it on there; but before the vessel had arrived at Glasgow I had sold he 14,000 barrels in Copenhagen, Denmark. I took the night train to Glasgow, had them transhipped, and got my money in Glasgow. That is the best sale I made—32*s*. That, however, was delivered free in Copenhagen, but after paying all the expenses, there was a very handsome profit left for the shippers, several of whom were concerned. . . .

There is one point I noticed in Great Britain. You see a spirit of progress in Canada in all departments of agriculture, horticulture, and everything else which is lacking in Britain. People there seem to have the idea that everything in that country is done and finished, and certainly many things there are brought to a much more perfect state than they are here. The buildings look as if they were built to last for ever, and the farms and lanes and gardens are very beautiful. But the people have settled down to that idea, and they are loth to adopt any new improvement. That is a point in which we have a great advantage in this country. I don't think I could give our government too high a word of praise in speaking of that Colonial Exhibition, and of everything I observed there of the conduct of our Canadian affairs. I think everything was done there that could be done to advance the interests of the country in every department, and I believe that the result will be reaped at no distant day."

Another subject under discussion was "Apples and their Best Markets." The President said:—"If you could grow an Apple as large as a Pumpkin, and ship it to Covent Garden on December 1, you would get an enormous price for it. They will pay fancy prices about December 15 at the market at which they sell for the Christmas use. They will pay fancy prices for having samples of large varieties. They don't care what price they pay. They get particularly wild. I had an opportunity of testing them on their wildness last year, and I purposely went to work, and culled out a large quantity. I had about 6000 barrels, right on the market, in the morning of December 15, just to try their wildness; and they did get wild. I concluded they were paying ridiculous prices for a great many varieties I had there! I got enormous prices for Gloria Mundi, a variety that I think very little of; it is only a cooking variety at best. It is a large, coarse Apple, but they paid enormous prices for it, just simply because it was a large Apple; and I observed they paid prices there for Pears — Belle Angevines, from the Channel Islands—that were enormous in size, but about as worthless a Pear, I suppose, as we grow anywhere, and yet they would pay from 5*s*. to 10*s*. apiece for each Pear, according to size and colouring. They don't care what they pay at that time. That was the reason I mentioned as one point, if you have anything large or fine looking, that is the time to sell it. And whether it has quality or not, they want it at that time. They want those fruits for the purpose of decorating dinner-tables. They are not used in eating. They don't eat them at all. You will find there in Covent Garden fruit dealers who keep those large specimens for the purpose of lending them out to dinner parties—they charge so much rental for them. That is quite a common thing for them." . . . .

With regard to the cost, &c., of sending Apples to England the President said:—"It depends altogether on the firm you are dealing with. As a rule, amongst firms that do a straight, fair business, they would probably hold the freight and sell it some time within thirty days, and they would charge 5 per cent. to cover everything. There are some markets where there are fees; for instance, in Covent Garden the Duke of Bedford has to receive a certain fee from every fruit-grower in Canada. He has got to receive for rental for every barrel of freight that is sold in Covent Garden, a penny-half-penny a barrel; that is the market fee in Covent Garden; but I found that the way a good many brokers work there for the shippers is to take as few barrels into Covent Garden as possible; they will go and sell at the docks or sell at their own store-houses. They will only take into Covent Garden what they can't sell otherwise, and run them off for the best price they can get; but usually you can calculate about 5 per cent. commission."

ORCHID NOTES AND GLEANINGS.

CULTURE OF DENDROBIUMS.

There are some very fine species of these Orchids which anyone possessing a pinery or ordinary stove may grow well, and the following are some of the more desirable of these:—D. Dalhousianum, a striking Orchid, the blooms appearing on old growths in drooping racemes of five to ten. They are 3 to 4 inches across, the sepals and petals being pale lemon-yellow, tinted at the margin with rose; the lip has two dark crimson blotches at the base. The pseudobulbs are 4 or 5 feet high, stout, and marked with purple, longitudinal lines. D. densiflorum, a native of Nepal, has rich bright flowers in dense pendent racemes, which spring from the upper joints of the pseudobulbs. The latter are four-sided, about 1 to 1½ foot high, and continue to bloom for several years. The variety albo-luteum has flowers white, with a golden yellow lip. D. fimbriatum and its variety, oculatum, are free-flowering species. The pseudobulbs are usually 2 to 4 feet high, thickest at the base, and tapering at the top; they vary greatly, however. I have seen a plant with pseudobulbs 8 feet high, and of the same thickness throughout. The flowers are borne near the ends of these, which bloom in the spring for several years in succession. The flowers are bright yellow, and, in the variety oculatum (which is the more desirable), have a blackish-purple blotch on the lip. With similarly coloured flowers, but of pendent habit, is D. chrysanthum, a species that flowers in autumn on the current season's growth.

D. nobile, however, is a species which has an extensive natural range in India, and is also found in China. Owing, probably, to this, a considerable difference is noticeable in the size and length of the pseudobulbs of imported pieces. I have seen those from the cooler localities not more than 1 foot long, whilst those from more tropical regions are sometimes 3 to 4 feet in length. The flowers, which are produced from the growths of the preceding year, are usually white, with the tips of the sepals and petals rose, and the throat of the lip crimson-purple; but in good varieties the greater part of the sepals and petals is of a glowing rosy-purple. D. Wardianum (which botanists consider a variety of D. Falconeri) was introduced in 1863, and is a native of Assam and Burmah. It has the pseudobulbs, which are 2 to 3 feet long, thickened at the joints. The flowers grow in twos and threes on the current season's growth; they are mostly white, but the tips of the sepals and petals are magenta, and in the centre of the lip is an orange-coloured blotch. One of the most sweetly-scented of all Orchids is D. aureum (D. heterocarpum), its fragrance resembling that of Violets. It flowers from January to March. Its pseudobulbs are 10 inches to a foot high, thickest in the middle. The flowers, which occur on the growth of the preceding year, are of a pretty canary-yellow, the lip being downy, and streaked with crimson. The variety philippinense has much longer pseudobulbs, and its flowers are paler, and destitute of fragrance.

D. Pierardi has long slender pseudobulbs and delicate pinkish-white flowers, which are at their best in February. The above named species, when grown in a stove, require shading to a lesser degree than plants of the usual class, and it would be desirable to reserve one end of the stage for them, so that the blinds could be manipulated so as to meet their peculiar requirements. Except on the very hottest days the shading may be removed at 4 o'clock; the temperature will then perhaps rise to over 90°, which, if the atmosphere be loaded with moisture, exactly suits them. After the pseudobulbs are fully formed the plants should be gradually inured to a much cooler drier treatment. This ripening process is most essential to the production of abundance of bloom. As the flowering season approaches little prominences will appear at the nodes, and warmer moister conditions will again be needed. I prefer to grow these

plants in baskets rather than pots, and the peat in which they are planted should have every earthy particle shaken out. *W. B.* [Our able correspondent, Mr. W. Smythe, Basing Park, grows his plants in the Pine-stove, removing them after growth is made to a cooler house. Ed.]

Scuticaria Steelii.

The long, almost terete, pendent, thong-like leaves of this species make it an attractive object, even when not in flower. The flowers are large and fragrant, and prettily marked with reddish-brown blotches on the sepals and petals; the labellum is thickly marked with parallel and oblique lines of a rather brighter shade, especially on the lateral lobes, which are much incurved, the central lobe being spread out and deeply notched; the two lateral sepals are much curved (falcate), joined together at the base, and form, with the spur of labellum, a very prominent chin. The ground colour of the flowers is orange-yellow, the prominent three-toothed crest a clear yellow. The scapes are said to have as many as three flowers, but two are much more common, in which condition I saw a plant recently in the gardens of E. F. Hubbock, Esq., The Hawthorns, Red Hill, where in the warm Orchid-house it was nicely established on a small Teak slab with a little sphagnum-moss. It was carrying half-a-dozen twin-flowered scapes. *F. Ross.*

Angræcum hyaloides.

This is one of the smallest and most floriferous of Angræcums, as may have been seen from a plant recently flowered at Kew. It forms a compact little tuft, about 2 inches high, the stems being scarcely at all elongated. The numerous spikes are scarcely longer than the leaves, and the small pure white flowers are distichously arranged along the rhachis. Those whose tastes lead them to include these little gems in their collections will find in the present a most attractive plant. It was introduced a few years ago from Madagascar. *R. A. R.*

Growing Phalænopsis (see p. 246).

That a proper position is a necessity for success in cultivating Phalænopsis I am fully persuaded; at the same time it is impossible for me, or any one else, to give directions whereby that position can be found. It becomes a discoverable matter to those concerned; that is, if the plants are in an unsatisfactory state; by changing the plants from house to house we may find the position or place best suited to them. The house in which the plants stood which called forth my remarks is a low structure—a three-quarters span, with a north aspect—and it has side-stages, and a path in the middle. The plants are placed on the front stage, and grow towards the interior. Although under apparently the same conditions as regards aspect, &c., as in the house they had previously occupied, yet what I term the proper position sought for proved not to have existed; hence their removal to what Mr. O'Brien (with whom I perfectly agree) deems a more suitable house, inasmuch as the proper position was found therein. *F. Ashton.*

NOTES ON VEGETABLE CULTURE.

Asparagus.—We all know the old system of cultivating Asparagus in thickly crowded beds, and which seems to be giving way to a more sensible one of leaving a yard between the plants and half a yard between the rows and on the flat. It is only in wet or heavy land that raised beds are now thought to be required. Much manure, garden refuse in any quantity must be incorporated by means of deep trenching where the depth of good soil allows of it, so that the plants shall remain in vigour for a period of five or six years. This preparation of the future Asparagus bed should be done in early winter, so that a well pulverised surface be obtained by the spring. Some do the planting immediately the roots begin to grow, but it is better to let the shoots advance a little more than that, and I have met with the most success when the stems were 1 foot high before planting. The roots at this stage seem to take to the soil at once, and growth is continuous, no check seeming to occur. Seedlings a year old are the best for forming fresh plantations. When planting a trench should be thrown out alongside of a line, and the plants placed in it at 1½ foot apart, with their roots spread out in all directions and then covered; but before the trench is filled up finally copious watering should be given when, if the soil be raked or shovelled in it will be a long time before the soil again becomes dry beneath. As the rows will be a yard apart the intervening space can be planted with some dwarf growing crop, such as Onions or Lettuce, the first year, but the following season the Asparagus should have the whole space to itself, and no digging or disturbance of the ground take place beyond the needed hoeing and cleaning. In the autumn, when beds are cleared, a heavy dressing of rubbish-heap stuff and rotten manure will be a great help, and these top-dressings should be afforded the beds annually, not only for enriching the ground, but to cover the roots, the tendency of the plant being to raise itself out of the soil. Some growers plant deeply, and thus get blanched heads, but Asparagus is better flavoured when it has green tops. To have strong shoots none should be cut off before the second year after planting, and then it ought not to be continued late in the summer, as so much depends on the quantity of young shoots that is allowed to attain full development. If liquid manure can be given during the summer or a soaking or two of water afforded, either will be a great help. *J. S.*

(To be continued.)

SMUT-FUNGI:

Recent Discoveries as to the Nature and Action of Ustilagineæ.

(Concluded from p. 235.)

Brefeld's Observations. — In 1883, Professor Brefeld published a most startling series of observations on the germination of the spores of the chief species of Ustilagineæ; it was the result of several years of patient labour, and deserves more attention than can be given to it here, where we are only concerned with general results. Brefeld showed that if the spores of the Ustilagineæ are sown in solutions of organic food-materials, such as washings from soil, manure, vegetable substances, &c., the promycelia go on buddin off the yeast-like sporidia, and these in their turn bud off others, which repeat the process, and so on, until the food-materials are exhausted. If some of these budded-off cells (which Brefeld terms conidia) are taken and sown in a fresh drop of the culture-fluid, they again start to bud off others, and the process is repeated again until the solution is exhausted. Brefeld kept such cultures going for years, carrying the process through more than a thousand "generations" of conidia, but always with the same results; the buds simply reproduced new buds, behaving exactly like the cells of the yeast-plant, except that they induced no fermentation. After many months, however, a gradual diminution in the vigour of the conidia was observed, and at length they ceased to develope farther. It is useless to attempt to describe the differences in the behaviour of the different species in this connection; the point of importance is that Brefeld proved that these fungi are capable of carrying on their existence and of multiplying their conidial cells enormously, outside of and quite independently of a host-plant. Obviously, it was argued, these yeast-like conidia may be produced in any quantity in the soil of fields, &c., where the rain-water dissolves food materials from rotting vegetation, manure, &c.

Further researches showed that these yeast-like conidia are extremely delicate and sensitive; instead of retaining their power of germinating, &c., after desiccation, they lose it in a few hours. They are adapted for a rapid spread of the fungus at a critical period—when the spores are sown and the corn is germinating. So sensitive are these delicate conidia that the dressing on the sown Wheat kills them almost immediately on touching them; but of course their enormous numbers constitute a source of danger amply sufficient to account for the known failures.

Artificial Infection of Wheat.

Hitherto, however, we have had no direct proof of the infection of the Wheat, &c., by means of these yeast-like conidia, and one of the most interesting pieces of biological research that has been published of late years is Brefeld's account—which by his favour has just come to my hands—of the infection of various cereals by these artificially cultivated conidial cells. Shortly summarised, the method was as follows:—The spores of the fungus were allowed to germinate in organic solutions, developing their promycelia and sporidia as usual, and then proceeded to bud off the yeast-like conidia, which then, multiplied by budding until the liquid was exhausted; fresh cultures were then made with these yeast-like conidia in new liquid, and so on for several generations; until finally, Brefeld had obtained large quantities of the conidia, which had been cultivated artificially through many generations, and were, therefore, so much the further removed from the conditions of parasitism.

The infection-experiments were then made by spraying these yeast-like cells on to the plants concerned, and with the most startling success. Begun in 1884, Brefeld carried on the experiments up to this last summer. I need not here dwell upon the precautions taken, or on the methods of culture pursued; they are characteristic of the times and of the man, and we may proceed to the account of the results obtained.

Numbers of seedlings of the various cereals—Wheat, Barley, Oats, Maize, &c.—having been obtained and laid on the soil in flat metal pans, the spray of water and yeast-like conidia was allowed to play over them, thousands of the conidia adhering to the seedlings in the tiny drops of liquid; the infected seedlings were then covered with a bell-jar, and kept at about 10° C. for ten to twelve days. Then the seedlings were transplanted to the open, and allowed to develope, the smut or bunt appearing as the ears ripened. An interesting point comes out here—one of those subtle adaptations so often met with in biology, and on which great events sometimes turn. The minute conidia will only stick properly to the seedlings if they are thoroughly wetted, and distributed in extremely small droplets of water. Now when the "blade" of the corn first peeps above ground it is apt to "weep" relatively large quantities of water from its tip by means of the water-stomata; this water, running down in large drops, washes off the conidia into the soil around, since they are at once rolled away in the heavy drops. This is one source of failure in infections. Another is owing to the difficulty of having the conidia ready in exactly the right condition at the right time; for as their nutritive materials are becoming exhausted they are apt to begin to germinate, and if they have already germinated when sprayed on the seedlings there is not enough vigour left in the germ-tubes to effect an entrance. Provided the conditions are satisfied, however, the results are all that the most carping critic could require, and amount to absolute proof of the infection of the embryonic tissues of the fungus.

Parts of the Seedling which alone can be Infected.

It will be remembered that Kühn and Wolff (who worked only with the spores germinating in water, and putting forth their promycelia and conidia direct on to the seedlings) had shown that it is the "collar" region of the young seedling which is susceptible to infection—Kühn showing that Wolff was wrong in limiting the area still further to the base of the first leaf-sheath. Brefeld not only proves the accuracy

of Kühn's conclusions, but he shows that on the third and fourth days after the emergence of the radicle (say a week after laying the grain on the damp soil) the epidermis in this region was pierced through and through by the germinal tubes. Each point of entrance being represented by a tiny hole, which is perfectly distinct when fresh, but becomes less and less evident day by day as the part grows older. From each point of entrance, in the fresh condition, he traced a fungus filament into the delicate growing tissues beneath, and increasing in vigour as it penetrates towards the growing point of the plumule. The younger the tissues the more easy it was to trace this entrance of the germ-tubes; as the tissues age, the infection-holes disappear, and the older parts of the infective germ-tube lose their contents, and consequently the forward parts of the germ-tube seem to be isolated in the embryonic tissues of the growing point of the seedling.

Every attempt to infect parts of the seedling, the epidermis and tissues of which had passed out of the embryonic stages, failed, and comparison of all the sections and results shows that the filaments of the fungus are unable to grow, or even to enter into tissues the cells of which have passed beyond the embryonic and stretching phases. Consequently, as will be at once seen, the filaments when once inside the young seedling, go on growing in and with the tissues of the growing points, branching into each lateral growing point, and following the tips of every branch, &c., until it begins to flower; then, and then only, the filaments obtain the power to produce spores, as we have seen.

This proved—and it is not going too far, I think, to use the expression—a further inference at once suggests itself, namely, if it is only because the tissues of the seedling are young and tender that the infection is possible, then any embryonic tissue of the host plant ought to be susceptible to infection.

We may be sure that this did not escape Brefeld's attention, and he at once proceeded to inject the "heart" of the terminal buds of older plants of cereals, —and with complete success. The infective germ-tubes were found boring into the embryonic tissues of the growing points in thousands. More than 600 such infections were made by pushing a long-drawn capillary tube into the "heart" of the buds, and driving drops containing conidia into contact with the tissues inside, where they could be gradually drawn between the leaf-bases by capillarity. Brefeld found in such cases that the whole surface of the growing-point became riddled with infection-holes: transverse sections gave dozens of infection points in profile—a sight that must have startled even so deft a manipulator. In many of these experiments the buds were, of course, destroyed; but in others the parasite simply went on growing with the host, and in due time the smutted grains were produced In the Maize he succeeded in infecting just any branch he chose, by thus putting conidia on the growing points.

Practical Applications.

I have put these observations together because they have so obvious and important a bearing on the practical application of biology, and because they seem to me to go far towards clearing up several points of difficulty hitherto, both on the side of husbandry and on that of the general theory of disease. They show why so many seedlings escape at all, for the period of germination of a grain of wheat may be very short—and at any rate the period of exposure of the tiny area susceptible to infection may be short. For it must never be forgotten that even if thousands of conidia are near the tender collar of the seedling, no infection can occur unless the germ-tubes (minute, very delicate, and short-lived as they are) reach it at the critical time. There is a practical inference to be drawn here also, namely the importance of selecting vigorous, rapidly-germinating seed grain; and the advantage of favourable soil and season at the critical period. Everyone knows that a cold, damp soil, or unfavourable cloudy weather may prolong the period of tenderness of the tissues, and it is easy to suppose that every hour of exposure is to the advantage of the parasite. The earlier the fungus gains an entry, moreover, the more chance it has of reaching the growing points, and starting well in its upward growth; whereas the more the growing points start onwards ahead of the infection-tubes, the less the chance of the latter is to catch them up, and send branches into their off-shoots.

Other things equal, then, the farmer should select quickly-germinating sorts, and aim at securing all conditions which ensure the rapid fixing and hardening of the young seedlings. Some experiments already exist to show that a fairly high spring temperature—15°—20° C.—influences the germination of the grain for good more than it does that of the conidia: if further experiments demonstrate the accuracy of this conclusion (and I can support this by evidence derived from the culture of other parasitic fungi), we have still more reason to look for good results by close attention to conditions which favour the hurrying processes in germination.

These results also suggest a clearer view of the danger of allowing wet new manure to come on to corn fields in seed. The practice of agriculture is against this on other grounds, but it is worth while to consider the nature of the danger. Manure washings furnish just such organic solutions as favour the enormous and rapid development of the yeast-like conidia, and it would be a madman's act to wittingly shed such crops on to the seedlings. Every argument that applies to such manure applies to all organic refuse, and general cleanliness is thus an implied factor for successful grain culture, &c., in as far as organic infusion furnish pabulum for the conidia of smut fungi.

With respect to the whole question of "dressing" grain there is no doubt much to be found out. In so far as copper sulphate retards germination and threatens to injure seedlings, we may be disposed to criticise it unfavourably; but as to its directly disinfective action on the conidia germs and germ-tubes there can be no doubt. Experiments have been made showing that the application of lime after the copper salt had a good effect, in so far that it rapidly neutralised the action of the latter, and prevented its useless or even dangerous prolonged effects, and no doubt this occurs naturally in the soil. But it seems even now desirable that further experiments should be made to determine more exactly the action of definite quantities of such antiseptics in definite times on, not the fungus, but the seed. I cannot help thinking that much valuable information could be obtained by further research in this direction at some agricultural station: much has been done, but these new points of view suggest that much more remains to be done, However, the discussion of these matters is beyond the present purpose. *H. Marshall Ward.*

CAMBRIDGE BOTANIC GARDEN.

The following report on the condition of the Botanic Garden has been issued:—

February 9.—The Botanic Garden Syndicate having been authorised by grace of the Senate to build part of a new range of plant-houses at a cost not exceeding £3000, a contract with the well-known horticultural builders, Messrs. Boyd of Paisley, was signed on March 28, 1888; the work was begun on April 17, and is now completed.

The total cost amounts to £3000 16s. 10½*d*. The work has been carried out under careful supervision, and the Syndicate have reason to believe that the material used and the methods of construction are thoroughly substantial and satisfactory. Solid foundations have been laid, so that whenever new woodwork is required, it may be rebuilt on the same walls. The heating is done by two boilers, which are so arranged that either may be used separately, or both at once. An efficient water-service has been provided; and either hard or soft water may be forced with considerable pressure to the taps in the various parts of the range, for use with hose, or may be allowed to gravitate from elevated tanks. The houses now built have been designed so as to form part of a complete range, that is a series of houses capable of accomodating the whole of the collection. It is to be hoped that the completion of the range in a manner worthy of the University will not be long delayed.

The part of the range now put up includes warm Orchid-house, warm Fern-house, stove, Palm-house, aquarium and stove-pit. Of these the aquarium is the only house that had not been provided before; and it is a valuable addition from a scientific point of view, obtained without materially increasing the area of glass.

A laboratory, much needed for investigations that require to be carried on in close proximity with the plants, has been built. The building contains two large working rooms and a dark chamber, and is heated by hot water from the mains of the new range of plant-houses, with which, when the remaining houses have been built, it will be in communication by the corridor. The plants in the houses will thus be practically under the same roof with the laboratory.

Before removal to the new houses the Orchid, Fern, and stove collection were carefully examined throughout; more than the usual amount of potting was done, and these collections are now in a very satisfactory condition. Special efforts were made to exterminate insects, and the collections generally are now cleaner than hitherto. The cool Orchids have greatly improved in condition, and valuable additions have been made to the collection.

The hardy Cactuses have been removed from their old position to the border in front of the new stove. The development of this lot of plants is probably unsurpassed, and here, in this conspicuous position, it forms a fine feature. The extensive collection of Crocuses has been replanted along the borders of the new range, by taking a single corm of each kind, so that each clump may be formed from one individual.

A new bed has been made, entirely of peat, for the choicer hardy Ericaceæ, which, on account of the exhaustion of the soil in the old bed, had ceased to succeed. The old bed has been planted with Rhododendron ponticum, for which the soil may still be sufficiently good.

Revision of nomenclature has had all possible attention. The collection of stove Ferns has been carefully examined, and the names when necessary have been altered in accordance with a set of dried specimens authenticated in the Kew Herbarium. A dried set of species of the genus Berberis was taken to Kew, and the names now stand in accordance with the specimens of the Kew Herbarium. Various plants have been named or authenticated from time to time.

New labels have been written for all parts of the garden; about 3875 have been required for specimen plants, and about 2050 of smaller size for seed-pots and for various purposes. The large "Order" labels on the herbaceous ground have been re-painted and re-written., and those belonging to the various shrub-groups in the garden are in course of renewal. The re-labelling of the Orchid collection is in progress. The plants in the new houses have been re-labelled as far as possible.

Among the principal plants of scientific interest that have flowered are Aristea Eckloni, Arum Besserianum, Asarum Hartwegi, Blumenbachia Hieronymi, Catasetum Bungerothi, Chrysanthemum hæmatoma, Convolvulus malvacea, Dominica Ginger (received from the Pharmaceutical Society, and now proved to be Zingiber officinale), Eichornia tricolor, Erythroxylon Coca var. E. ovata Griseb., Fontanesia Fortunei, Gladiolus aurantiacus, Gladiolus n. sp., Gomphocarpus albens, Iris Kingiana, I. Korolkowi, I. Saari, I. Suwarowi, Mormodes buccinator, Narcissus Broussoneti (remarkable in having its corona reduced to a mere rim), Pilocarpus pennatifolius (of interest in pharmacy as yielding Pilocarpine; this is the true Pernambuco plant, but whether it is the P. pennatifolius of Lemaire is not easily determined. Flowers were sent to Kew as

affording the first living material for examination). Polemonium flavum (figured in *Bot. Mag.*, t. 6965), Primula Reidii, Roscoea spicata, Sechium edule (the Chocho of the West Indies, a Cucurbit with one-seeded edible fruit), Statice Suwarowi, Zantedeschia Rehmanni Engl., and Zephyranthes macrosiphon.

About 1879 plants and 897 packets of seeds have been received from [numerous] Botanic Gardens, and a return has been made to most of them, 1482 plants and about 1564 packets of seeds having been distributed.

The following plants may be mentioned as among the most interesting and important that have been received:—Gerbera Jamesoni, a fine Composite introduced from the Cape; Iris Rosenbachi, Ostrowskia magnifica, with various other choice plants, from Herr Max Leichtlin; Iris Barnumi, with several other new and choice species and various bulbs and seeds, from Professor Foster; Isonandra Gutta (important as yielding gutta-percha), Napoleona imperialis (of interesting floral structure), Reinwardtia tetragyna, Restio tetraphyllus, Stifftia chrysantha (a fine shrubby Composite), Washingtonia robusta (a choice new Palm), Stachys tuberifera (a new vegetable, the Crosnes of the Paris markets), Strophanthus hispidus, Remijia pedunculata (the bark of which is known as "Cuprea bark," and contains quinine), and several other economic plants. Zantedeschia Rehmanni, a choice Aroid introduced from the Cape, is of interest as possessing a leaf-form quite unlike that of its congeners.

Important additions have been made to some of the special collections. The collection of hardy Bamboos, already a good one, has been increased by the addition of twelve reputedly distinct kinds, and all obtainable additions have been made to the genus Pæonia.

On Whit Monday last about 1600 visitors entered the garden, and no misconduct of any kind was observed.

C. E. Searle, Vice-Chancellor.	M. Foster.
C. Taylor.	Francis Darwin.
L. Neville.	J. W. Hicks.
G. E. Paget.	Francis Jenkinson.
Chas. C. Babington.	Walter Gardiner.

THE NITROGEN OF VEGETATION.

A comprehensive and valuable treatise on the present position of the sources of the nitrogen of vegetation, has been published by Sir J. B. Lawes, Bart., and Professor J. H. Gilbert, LL.D., in the *Philosophical Transactions of the Royal Society*.

The object of the papers, as stated by the authors, is to summarise some of their own more recently published results, bearing on various aspects of the subject, to put on record additional results, to give a preliminary notice of new lines of inquiry, and to discuss the evidence so adduced with reference to the results and conclusions of others which have recently been put forward.

1. The Evidence Relating to other Sources than Free Nitrogen.

In their earlier papers the authors had concluded that, except the small amount of combined nitrogen coming down in rain, and the minor aqueous deposits from the atmosphere, the source of the nitrogen of our crops was, substantially, the stores within the soil and subsoil, whether derived from previous accumulations, or from recent supplies by manure.

More recently, it has been shown that the amount of nitrogen as nitric acid in the soil, was much less after the growth of a crop than under corresponding conditions without a crop. In the case of Graminaceous crops, it was concluded that most, if not the whole, of their nitrogen was taken up as nitric acid. But, with Leguminous plants, the evidence indicated that, in some cases, the whole of the nitrogen had been taken up as nitric acid, but that in others that source seemed to be inadequate.

It was further shown that, under otherwise parallel conditions, there was very much more nitrogen as nitric acid in soils and subsoils, down to a depth of 108 inches when Leguminous, than when Graminaceous crops had for some time been grown, indicating that nitrification had been more active under the influence of the Leguminosæ.

Action of Root Sap.

In the course of investigation the question arose—whether roots, by virtue of their acid sap, might not, either directly take up, or at any rate attack and liberate for further change, the otherwise insoluble organic nitrogen of the subsoil. Accordingly, specimens of the deep, strong, fleshy root of the Medicago sativa (Lucerne) were collected and



Fig. 48.—Germination of Ginkgo adiantifolia. (see p. 264.)

examined, when it was found that the sap was very strongly acid.

But the manipulation in the laboratory not being comparable with those of the action of living roots on the soil, the results obtained did not justify any very definite conclusions as to whether the action of the roots on the soil, by virtue of their acid sap, is quantitatively an important source of the nitrogen of plants having an extended development of roots, of which the sap is strongly acid. Supposing, however, this to be the case, the question still remains, whether the amide substance thus rendered soluble is taken up as such, or whether it undergoes further changes before serving as food for the plant?

Upon the whole it seems probable, that green-leaved plants can take up soluble nitrogenous organic bodies when these are presented to them under such conditions as in water culture experiments, and that they can transform them and appropriate their nitrogen. Thus, it is thought not improbable that they can take up and utilise amide bodies rendered soluble within the soil by the action of the root sap.

Insoluble Organic Nitrogen.

In connection with the subject of the conditions under which the insoluble organic nitrogen of soils and subsoils may become available to chlorophyllous plants, some results of Professor B. Frank are referred to. He observed that the feeding roots of certain trees were covered with a fungus, the threads of which forced themselves between the epidermal cells into the root itself, which in such cases had no hairs, but similar bodies were found external to the fungus mantle, which prolonged into threads among the particles of soil. The conclusions were that the tree acquires its soil nutriment through the agency of the fungus. Such a mode of accumulation by some green-leaved plants obviously allies them in this respect very closely to fungi themselves, and in view of the office within the soil which is by some attributed to micro-organisms and other low forms of plant-life, these observations are of considerable interest. It is stated that the development has not been noticed on the roots of any herbaceous plants.

2. The Evidence Relating to the Fixation of Free Nitrogen.

In the experiments of M. Berthelot, in all of which the gains of nitrogen are comparatively small, they have in some cases been attributed to electrical action, and in others to the agency of micro-organisms within the soil.

M. Berthelot first showed that free nitrogen was fixed by various organic compounds under the influence of the silent electric discharge at the ordinary temperature; and suggested that such actions probably take place in the air during storms, and (when the atmosphere is charged with electricity) organise matters absorbing nitrogen and oxygen. The special interest attached to this fact is that by these means the free nitrogen of the air may be brought into combination within the plant. Subsequently he found that free nitrogen was brought into combination by argillaceous soils when exposed in their natural condition, and that there was also fixation due to living organisms. These gains of nitrogen not only serve as compensation for exhaustion by cropping, &c., but explain how originally sterile argillaceous soils eventually became vegetable moulds.

From experiments of M. Joulie it was concluded that micro-organisms probably play an important part in the fixation of nitrogen. He did not think, however, that his results were favourable to the supposition that the plants themselves effected the fixation.

Professor Frank considers that, independently of direct evidence against the supposition, that gains of nitrogen may be due to absorption of combined nitrogen from the atmosphere; an objection to such a view is that it would not explain the circulation of nitrogen in Nature; and his main conclusion is that there are two actions going on within the soil, one liberating nitrogen and the other bringing it into combination, the latter favoured by vegetation.

The most remarkable of the results indicating the fixation of free nitrogen are stated to be those of Professor Hellriegel and Dr. Wilgarth. Hellriegel found that whilst plants of the Graminaceous, Chenopodiaceous, Polygonous, and Cruciferous families required combined nitrogen to be supplied within the soil, Papilionaceous plants did not depend on such soil supplies.

Peas sometimes grew luxuriantly in washed sand with nutritive solutions free from nitrogen, but sometimes failed, root-nodules being developed coincidentally with luxuriance, but not without it. At first, he was disposed to connect the action of nitrogen fixation with the root-nodules and their contents.

Dr. Wilgarth gave the results of a subsequent season's experiments, which fully confirmed those recorded by Hellriegel, both as to the native results

with other plants, and to the positive results with Papilionaceæ; from which it was concluded that those plants can derive the whole of their nitrogen from the air, but that it is doubtful whether the root-nodules are connected with the fixation, though the results point to the agency of bacteria in some way.

A summary of the work of several other experimenters is also given.

Conclusions.

In reference to the foregoing results, Messrs. Lawes and Gilbert say, whilst it can hardly be said that there is any unsolved problem in regard to the source of the nitrogen of other than our Leguminous crops, it must be admitted that, in spite of all the investigations and discussions of the last fifty years, the source of the whole of the nitrogen of those crops has not been satisfactorily explained by results obtained on the lines of inquiry until recently adopted. Evidence obtained on new lines should therefore receive careful consideration, and there can be no doubt that, in recent years, cumulative evidence has been adduced indicating that certain chlorophyllous plants avail themselves of nitrogen brought into combination under the influence of lower organisms, the development and action of which would seem in some cases to be a coincident of the growth of the higher plants to be benefited. But such a conclusion is of such fundamental importance, that further confirmation must yet be demanded before it can be considered to be fully established.

We must leave the general considerations of the subject to a future occasion. *John J. Willis, Harpenden.*

Cultural Memoranda.

HINTS ON RAISING GLOXINIAS FROM SEED.

The improvement that has been effected in these during the last few years has been great, and instead of rather small drooping flowers, we now have them large and erect, and much expanded, and of beautiful colours, selfs, spotted, &c. The time for sowing the seeds of Gloxinia is the present, and later, and as the seeds are minute it is necessary to be careful when sowing them. The pot or pan must be crocked efficiently, and partly filled with rough peat or partly rotten leaves, finishing off with finely-sifted light sandy soil, which should then be pressed firmly and smoothly, watered through a fine rose, and stood aside for an hour or so before sowing the seed. In sowing, sprinkle the seeds thinly, and sprinkle a little silver-sand over it, finally covering with a piece of glass, and over that a piece of paper to exclude the light and prevent undue evaporation. The seed will come up quickly if placed in a brisk moist hotbed, or in a stove. As soon as the plants are seen the glass should be tilted, and in a few days removed. The best place then, for the pot or pan is a shelf near the light. Frequent sprinkling with water will be necessary, and when large enough to handle they must be pricked off singly into small pots.

As a compost use loam and peat or leaf-mould, and the first-named in the proportion of two to one of either of the other, and this kind of soil will be the right one for them when repotting is needed. Five inch pots will be found large enough for one-year seedlings, and a shelf up near the glass at the back of a warm moist stove is the best place in which to grow them. As the plants need shade, and get thrips or the leaves are injured if exposed to the sun, shading should receive great attention when the sun is shining strongly. When starting old corms of Gloxinias, all that is needed is a watering to moisten the soil they are in, and an increase of heat, to cause the roots to grow; and where it is observed that growth has begun they may be re-potted, and treated in the same manner as seedlings. *J. Sheppard.*

The Alpine Garden.

ALPINES FROM SEEDS.

I am much obliged to Mr. Ewbank for directing attention to the time of sowing seeds of the above, for on referring to my notes I find they might have been a little clearer. When I wrote "might well be done at once," I ought to have added, "if not already done." There is no doubt that the seeds of the majority of hardy plants, *i.e.*, alpine and hardy herbaceous and such things, are best sown in autumn unless special facilities exist for keeping them. Exceptions, however, according to my own experience, must be made with such things as Anthericums, Hellebores, Hepaticas, and Gentians, which should be sown as soon as ripe, these invariably remaining in the ground a long time before germination takes place. It should also be noted that it is a mistaken practice to sow all species of alpines, as is often advised, as soon as ripe, and this is especially so for such as germinate freely and quickly, inasmuch as the advent of winter finds them just springing from the soil at which time the greatest care will be needed to prevent loss by damping off. When growers of alpine plants are aware of the ease with which many of the best of these plants are raised from seed, and that it is possible to obtain the seeds in a fresh condition as collected, alpine plants will become cultivated more extensively than at present. I have also a conviction that alpine plants raised from seeds rather than by cuttings or divisions, will be more likely to endure our trying climate with greater impunity. Still we may always find find some, as for example, the Eritrichiums, which will never be enduring livers in this country; such as these, which are difficult to establish and to keep, are, however, not numerous; and though beautiful, they need not be regarded as being the most indispensable. *E. Jenkins.*

Plants and Their Culture.

The Stove Work to be Done.—Plants of Gardenias will now in many gardens be coming into bloom, and should have occasional waterings with liquid manure, to assist the swelling of their flower-buds. Plants of Tabernæmontana coronaria fl.-pl. should be similarly encouraged. Francisceas will now have commenced to grow, and should be repotted or top-dressed as may be required. The soil to employ in repotting them should consist of good fibrous loam, peat, and silver-sand. The stock of plants of Francisceas may be increased by taking cuttings of half-matured shoots of the current season's growth; these if put into light sandy soil, in small pots, and placed on a brisk bottom-heat in a propagating-frame or dung-frame, will soon make roots, and should then be grown on quickly, so as to get the wood ripened before winter. Eranthemum pulchellum, and others, struck from cuttings now, will be found very serviceable for autumn blooming. Vinca alba and V. rosea should be propagated for autumn decorations, the young plants being kept well pinched at the points of the shoots to induce bushy growth. Large plants in pots of species of Allamanda, Clerodendron, Bongainvillea, and Dipladenia, started at the commencement of the season, should be occasionally examined, keeping the shoots clear of the glass, but not tying the shoots too closely until they are much farther advanced. These plants should be afforded all the light possible. The shrubby varieties of Clerodendron, of which fallax is one of the best, and which should be raised annually from seed, may now be pruned back to the old wood to induce bushiness of habit, the plants being repotted as soon as growth recommences. In doing so, shake off most of the old soil, and place them in smaller pots. Ixoras now making free growth should be kept stopped as required. I. coccinea is one of the best and most useful varieties, but it requires to be more stopped than other dwarf plants. Great care should now be taken to free the plants from mealy-bug, scale, and other insect pests, before the bloom trusses form, as it will be impossible to get rid of them without injury to the flowers at a later period. Some of the young stock of these plants which was propagated early in the year will now be ready for potting, and these plants should receive every encouragement from bottom-heat to make a quick growth, they being the plants which are destined to take the place of the old plants thrown away after blooming. The collection of Gloxinias may now be repotted, and if the tubers are very dry, which is often the case, they should be soaked in warm water for an hour or two before this is done. A certain number of tubers not showing signs of renewed growth may be kept back to give a succession of bloom. The plants when re-potted should be placed near to the light. A sowing of Gloxinia seed may be made in a light compost, well watering the soil before sowing. Plants raised from this sowing will be found of great service in the late autumn.

Greenhouse.—Any specimens of Azalea indica required to flower in the summer should be placed in a cool north house to be retarded; if such a house be not available the plants may be retarded somewhat by placing them on the north side of the greenhouse, and shading them there from sunshine. Any plants infested with thrips should be dipped in, or syringed with tobacco-water, and the plants at this period of the year will bear a much stronger solution than when furnished with tender foliage. If the plants are slightly affected much time and labour will be saved afterwards by a thorough cleansing being made now, so that any spreading of the insects on to the new growth may be avoided. Red-spider being present may be got rid of by dressing the plant with any approved insecticide. Plants that were forced into flower should now be encouraged to make free growth, and may be assisted, if well rooted and not over-potted, with a suitable fertiliser. Old or unsightly plants requiring to be cut back, or which may have become bare at the base, should now be taken in hand, and, after a slight growth has been made, repotted, and afforded a close and warm treatment for a time-frequently syringing them. All training and tying that is really necessary at this period should now be completed, but avoiding too much training and staking; and most species and varieties of plants that are grown for the supply of cut flowers will not need any tying in, the knife keeping them within bounds. *G. Wythes, Syon House Gardens, Brentford.*

The Orchid Houses.

Seasonable Hints. — The earliest opportunity should be taken of fixing the blinds on all the Orchid-houses, the thicker material being employed to shade the cool-houses, the Phalænopsis, and East India house, and that of a lighter texture for the houses in which Cattleyas, Lælias, &c., are placed; the thinnest material sufficing for the Mexican Lælias, Barkerias, &c. Roller blinds, running on supporting wooden bars, to keep them at a short distance from the glass, are the best, as it is of much importance in the successful culture of the plants that the blinds be only used to exclude the rays of the sun whenever they are powerful enough to cause damage. The plants wanting all the light we can afford them up to that point, materials for painting on the glass as a permanent shading should only be tolerated where canvas blinds cannot be used, and never because of their cheapness, for if it were possible to estimate the difference in the condition of the plants, it would be found that the most expensive roller-blinds would, in the end, be the cheapest. *James O'Brien.*

The Flower Garden.

Preparations for Bedding Out.—An anonymous correspondent writes to me privately:—"I wish that in your Calendar notes in the *Gardeners' Chronicle* you would give me something 'original.'" Rather complimentary this, to one who does not copy even from his own old notes! The said correspondent then proceeds:—"Tell us how to arrange bedding plants in a different way to that which has so long prevailed, as I, for one, am tired of whole beds of Pelargoniums, Petunias, Ageratums, and Coleus." Space will not admit of my quoting him further, and though, as a rule, I take no notice of anonymous communications, this one seems so genuine in respect of desiring information that I make an exception in this case, and answer his queries thus punctually that he and others may have time to prepare the necessary plants for the various arrangements now to be described. Simplicity of

design, great variety, quiet colours, abundance of foliage, and wide stretches of turf, are essentials necessary to the production of lasting beauty in a bedded-out garden, and there is no better way of securing these points—these essentials—than by the adoption of what is called the mixed style of bedding out, *i.e.*, beds planted with a variety of plants, and yet in orderly fashion, so as to harmonise with the stiff geometrical form of most bedded-out gardens. I give an example: a circular bed, 7 feet in diameter, the central plant is a 5-feet high Grevillea robusta, and round the middle part of the bed, equidistant, are six plants of the same, only smaller; the edging of the bed, 6 inches in width, is of Mesembryanthemum cordifolium variegatum; then dotted at regular intervals all over thebed are crimson and rose-coloured tuberous Begonias, and the remainder of ground-work is filled in with white and blue Violas. Another way of treating the same bed would be to have the White, Fish-bone Thistle, Chamæpenuce diacantha, instead of the Grevilleas; edging of Gnaphalium lanatum, and the remainder of bed to be filled in with a mixture of blue Ageratum, crimson-coloured tuberous Begonias, and the pink-flowered variegated Pelargonium Manglesii. The standards, or what I call sentinel plants, should in all such arrangements stand out conspicuously from the other plants, and it is therefore necessary occasionally to press or peg down the bulk of the other plants in the bed.

My next example is that of a large square bed. A central square is formed in this bed, and is thinly planted with Fuchsias from 2 to 3 feet in height, the ground beneath them being carpeted with dark and light blue Violas. The four oblong borders formed by the cutting out of the central square are then cut up into a series of small circles, three on each side, the lines of the figures being formed with the green Herniaria glabra, the small angles are filled out with variegated Mesembryanthemum, and the circles have each a centre plant of Iresine, and are then filled out with variegated Pelargonium Lady Plymouth. The said small circles look extremely well if edged with the blue Kleinia repens, a central plant of Dracæna australis, and filled out with Leucophyta Brownii. Another and less formal arrangement is that of an oblong bed 14 feet by 8 feet with three straight lines, running the entire length of the bed. There are in the central line five foliage plants, three Aralia Sieboldii, and two Grevillea robusta and on each two outer lines are three variegated Abutilons. The entire bed is then filled in with blue Ageratum, white Violas, pink Pelargonium, and blue Marguerite (Agathea cœlestis). The outer edging of the bed consists of Gnaphalium lanatum, pegged and pinched; and the line next to the mixture of plants, and the edging is a band of Iresine 6 inches wide.

The foregoing arrangements may, I think, be classed as partaking sufficiently of a formal character, as to be in perfect keeping with the strictest type of a geometrically laid-out garden; but those who prefer still less formal mixtures, need have no fear as to their inappropriateness, so long as due regard is paid to having a true balance of mixture of plants and colours over the entire garden, and each bed edged with some distinctive plant, as then each bed looks complete in itself. I shall continue this subject next week. *W. Wildsmith, Heckfield.*

Fruits Under Glass.

Operations in Peach-houses.—The fruit in the first house will now be about the size of a Walnut, and the thinning of the small and badly placed ones may be continued, leaving more than are sufficient for a crop for the present, to be finally thinned to about 10 inches apart. The evil effects of a tree carrying a too heavy crop are felt in various ways in the next season, so over cropping ought to be avoided. The shoots left for fruiting next year will require to be tied in, but not too tightly, nor so as to be in the way of the fruit. The border should be watered with manure-water, and the trees syringed morning and afternoons at closing time; and when air is given it should be gradually, and advantage should be taken of sun-heat to close the house while it has the power to raise the temperature. Manage the heating apparatus so as not to be caught with too much heat in the pipes in the mornings of bright yet cold days. March is proverbially a changeable and trying month for the forcing gardener. Whilst the sun has great power to raise the temperature, the wind is —when blowing from north and east—very penetrating, and is just as powerful to lower the temperature. The tender foliage of forced plants is very liable to injury if great attention be not paid to ventilation. A temperature of 55° to 60° should be kept up at night, and one of 60° to 65° by day, and with sun it may be raised to 80° at closing time. Keep a look-out for red-spider, well syringing the trees to dislodge it; also for greenfly, fumigating when it is necessary.

Second House.—The fruit on the trees will be of a fit size to be thinned out somewhat; attend also to the pinching, disbudding, and thinning of the shoots, giving air early when it is favourable for doing so, closing with sun-heat early in the afternoon. Water the border when necessary, using soot, guano, or cow-dung-water alternately, bearing in mind the state of the border, if it be deep, shallow, well drained, or the reverse. The temperature may range from 50° to 55° by night, and 60° to 65° by day. Follow previous directions as to management.

In later houses, where the fruit is set, syringing the trees must be done morning and afternoon. Let the night temperature be 50°, and that for the day 55° to 60°; attend to disbudding, &c. The following house is, or soon will be, in bloom, when a temperature of 45° at night, and 50° by day, will have to be maintained, giving air in favourable weather, and keeping it rather drier when the trees are in flower. Pay attention to the setting of the flowers.

Trees in late houses will be swelling their buds, keep them, therefore, quite cool, whilst excluding frost, and let no more moisture be present than is really necessary.

Cucumbers.—The plants will be making good progress under the increasing light. Canker may yet lurk at the base of the stems, and it is prudent to sprinkle dry powdery lime and sulphur about that part. A moist atmosphere should be maintained by damping the paths with water, and sometimes with manure-water, syringing, and shutting up early with sun-heat at 85° to 90°; 70° being the degree of warmth at night. With the increase in growth following longer days more water will be required by the plants at the roots, and liquid manure at 85° may occasionally be afforded them, or a little of Thomson's Vine manure, the latter being washed in with clear water. Attend to the training and thinning, cutting off of the old winter leaves as fast as they can be spared, thereby getting rid perhaps of much red-spider. Lay as much young wood in as the trellis will hold, the fruit being the better for it. Pick off male blooms when very numerous and thin out the fruit when in bunches and cut all that are of usable size and stand in a trough of water in the same house. Plant out Cucumber plants in any vacant pits on beds prepared for them, as advised in previous Calendars. Sow a few seeds now and then or strike cuttings under a hand-glass in the same house, these will strike readily.

Dungbed.—Frames will require close attention in the matter of airing, covering up at night, &c.; the lights should be given a good pitch and do not expose the young plants to cold draughts in frosty weather, and even where air is given it should have its force broken by passing it through a strip of muslin or hexagon netting folded once, and fixed over the opening. *W. Bennett, Rangemore, Burton-on-Trent.*

The Hardy Fruit Garden.

Cultural Memoranda.—Where Gooseberry bushes have been left unpruned, owing to birds being troublesome, no time should be lost in getting the operation finished. Let the centre of the bushes be kept open. Remove also suckers from the roots and top-dress as previously recommended at p. 111. Any late made cuttings which were made and heeled in, should be put into the beds without further delay, in rows 1 foot apart and 6 inches from cutting to cutting, putting them in as firmly as possible—the ground allotted to them should be in a somewhat shady position.

Strawberry Beds.—I am an advocate for cleaning and heavily mulching Strawberry beds as soon as the fruit is gathered and more especially if the soil be of a light or poor description the object being to assist the plants in forming vigorous crowns early in the autumn. All runners and weeds and some of the lower leaves being removed before the manure is put on to the beds. Fork up the alleys lightly to prevent the soil from cracking—the results of much trampling upon it, to allow the water to soak into the ground; this is the more necessary on soils which are heavy. Were this method of proceeding carried out in dry seasons afterwards deluging the beds with water, we should doubtless hear much less of barren plants. Any beds which may have not as yet been attended to, should, before growth begins, receive moderately heavy dressing of rotten manure, long stable litter being placed over it. The rains will wash this clean before the ripening of the fruit takes place, and it will serve to keep the fruits clean. Strawberries planted last year should have the earth made firm about them by trampling, choosing dry weather to do this very necessary operation. Young plants in nursery beds, if lifted with a good ball of earth and planted on well prepared ground at this season of the year, make fine fruiting plants by the end of the year; the flowers of these and also the runners as they appear being removed, so as to throw the strength of the plants into the crowns. Ground to be planted with strawberries later on which have been forced should be got in readiness.

In my last Calendar the manure recommended as good for Nuts should be "fur waste, and not "fresh waste." This manure is the refuse from skin dressings; but not from tanned skins, and is considered by all to be a good manure. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

Practical Reminders.—Advantage should be taken of the first fine day to get planted out those Peas and Beans which were sown on turves and reared on a hotbed. A drill of sufficient depth to hold the turves should be made, the sods set in and the soil drawn up to within an inch of the tops, the only danger from cold is when it reaches the stems, some Spruce branches (with foliage if possible), should be placed on each side to protect the plants from cutting winds, but not to shade them, and if the permanent stakes are also put in these will materially assist as a shelter. A line of Round Spinach or Early Milan Turnip, Radish, Lettuce, &c., may be sown between each line. Peas which were sown out-of-doors will be appearing above ground, and should have the soil round them drawn up and be staked as just recommended.

The Cauliflowers, Cabbages, Brussels Sprouts, Lettuces, &c., which were sown in heat should now be pricked off into boxes, and kept in heat a little longer, or they may be pricked out in a cold frame. The earliest sown Celery should also be pricked out on a gentle hotbed, and every attention given to keep it stocky. Let all arrears of work be brought forward as speedily as possible. Replant Box or other edgings where needed, and any dirty and worn-out walks should be turned over and re-gravelled. Let all hedges be trimmed. Take advantage of bad weather to get a stock of labels ready for seed sowing, the requisite quantities of Pea stakes pointed and sorted into sizes ready for use.

Celery still in the trenches should now be lifted, to prevent running to seed; leave all the foliage on the plants, but tie up the leaves and place the heads in an upright position in an open shed, packing them round with cocoa-nut fibre refuse or leaf-mould. Leeks may also be thus treated. If any scarcity of autumn-sown Onions is likely to arise, small bulbs, to yield green tops should be planted. Onions in store should be inspected, and all unsound bulbs removed, the stock tied up in bunches, and hung in an airy shed facing the north. Seed Potatos should be spread out in the light, out of danger of frost, to sprout. Lift Mint, Tarragon, Sorrel, &c., and place in boxes in a Peach-house or where there is mild heat. Continue to put in as it is required Rhubarb, Seakale, Chicory, and Endive to blanch. Sow some Egyptian Beet to pot off for planting out when all danger of frost is over: also Autumn Giant Cauliflower, Brussels Sprouts, Lettuce, and Chervil, may now be sown on a warm sheltered border; and a net or other protection should be placed over them to exclude birds. Red-lead powder mixed with petroleum, and the seeds immersed prior to sowing, is a capital preventative. Some early Potatos may now be planted at the foot of a south wall, or on a favoured spot. When the ground has been ridged the Potatos may be planted in the hollows, and as the plants grow the ridges are levelled down. *W. M. Baillie, Luton Hoo, Luton.*

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THE GARDENERS' CHRONICLE,
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W. RICHARDS, 41, Wellington Street, Strand, W.C.

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY,	Mar. 4	Lilies, and Bulbs, at Protheroe & Morris' Rooms.
TUESDAY,	Mar. 5	Greenhouse Plants, Roses, Fruit Trees, &c., at the City Auction Rooms, by Protheroe & Morris. Final Portion of the Barvins Park Collection of Orchids, at Protheroe & Morris' Rooms (2 days).
WEDNESDAY,	Mar. 6	Roses, Fruit Trees, Shrubs, &c., at Stevens' Rooms.
THURSDAY,	Mar. 7	Established Orchids, 20,000 Lilium auratum, from Japan, at Stevens' Rooms. Lilies, Roses, &c., at Protheroe & Morris' Rooms.
FRIDAY,	Mar. 8	Imported Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—41°.3.

The Use of Reserve Food.*

During the progress of a long series of investigations into the structure, composition, and growth of the Beech tree, Professor Hartig had occasion to examine the contents of all parts of the trees at all stages of growth—in young trees and in old, trees grown on poor soil and trees of the most luxuriant habit, some under good and others under bad management. The consequence was that he obtained results as to the amount of food substances, such as starch and proteids, or nitrogenous substances, &c., at variance with our ordinary notions on the subject.

It has been customary to assume that the reserve materials, especially starch, which are found stored in the cellular tissue and medullary rays of the young wood, are annually consumed in order to furnish material for the development of the new crop of leaves of the current year and of the first layers of the annual woody ring; and it has been further considered that these stores are replenished by new deposits coming from the leaves in full activity during the later part of the summer and in autumn. Hartig finds, however, in the first place, that very little of the reserve-material is used up in starting the young buds and annual rings, and that the current shoots and rings are developed chiefly at the expense of materials directly produced in and sent immediately down from the active leaves. He has further found that the total reserves of starch in a Beech fifty years old would not suffice to produce more than 5 per cent. of the normal annual increase; and that in a tree 100—150 years old the reserves just prior to a flowering year represent about 20 per cent. of the annual increase. This was proved by so pruning trees that their next year's increase was entirely dependent on the stores in the trunk.

The nitrogenous reserves undergo no such changes as the starch contents in these experiments, but remain fairly constant in correspondence with the average constancy in the amount of cambium.

But it is only when such powerful exhausting forces are employed as those put in operation when trees are utterly deprived of their current year's leaves that it is possible to even nearly use up all the reserve materials. The question then arises—What is is the use of the stores of reserve materials?

Hartig suggests in reply to this they are a provision to supply the sudden drain on all resources when what is known as a "seed year" occurs. As is well known, such forest trees as the Beech are only capable of producing seeds after some years, and then exhibit a periodicity in their degree of fruitfulness—*i.e.*, for some years they produce few or no seeds, and then suddenly a rich harvest is gathered, and valued because the seeds of such years are not only abundant, but also strong and good.

This view has been confirmed by observing the periodicity in the storage of the food materials, and their exhaustion during a "seed year." The past year (1888) yielded a good harvest of Beech mast, and Hartig investigated trees of the same planting as those examined in 1886 and 1887, and of which he knew the (so to speak) normal condition. He examined both trees which were fruitful this year and trees which bore no seeds. Attention was paid to all such points as uniformity in the height of the specimen pieces, proper season, identical treatment, and so on. The following facts came out;—The past cold wet summer had had its effect in a smaller increment of stem growth and breadth of the annual ring; this in trees which bore no seeds, and the starch reserves of which were found to be normal.

In similar trees, but which bore abundance of seeds this year, it was found that the relative proportions of the annual rings this year and last were very different.

Thus, whereas in trees fifty years old, and without seed, the breadth of the annual ring of 1888 was to that of 1887 as 0·82 : 1; and in trees a hundred years old as 0·86 : 1; Hartig found with trees bearing seeds that the relative breadth of these rings were much different—in trees 150 years old = 0·355 : 1; in trees 100 years old = 0·470 : 1. In other words, although the season was answerable for a general reduction of the relative breadth of the annual rings in 1888; in the specific cases the rings in those trees which were exhausted by seed-bearing were only half as broad as in the trees not so exhausted. Having thus eliminated the possible source of error due to season, Hartig then proceeds to compare the contents in reserve materials. In all the seed trees he found that from ½—⅔ of the starch reserves had disappeared, and in some much more had gone, leaving only small traces behind. Still more striking and convincing was the loss in nitrogen on reserve materials, for whereas he had shown by numerous researches that the trees normally contained 0·2 per cent. of proteids the year before the seeding had exhausted almost every trace of this reserve supply.

* *On the Influence of Seed Production on the Accumulation of Reserve Materials in Trees.* R. Hartig. *Bot. Centralblatt.*, 1888, p. 388.

Linnean Society.—At a meeting held on February 21 Mr. Carruthers, F.R.S., President, in the chair, Mr. G. A. Grierson was admitted a Fellow of the Society, and on a ballot having been taken Messrs. Hindmarsh, Kirkby, Lowe, and Morton were elected Fellows. Mr. George Murray exhibited a fossil Alga, Nematophysus Logani, Carr. Mr. G. C. Druce exhibited some rare British plants from Scotland, amongst which were Calamagrostis borealis, Ranunculus acris var. pumilus, and Bromus mollis var. decipiens, Professor Marshall Ward exhibited a sclerotium of a fungus produced from a Botrytis spore, and explained the method by which it had been obtained. A paper was then read by Mr. F. Townsend, M.P., on "Euphrasia officinalis," with a description of a new sub-species, and a discussion followed, in which the President, Mr. J. G. Baker, and others took part. In the absence of the author a paper by Mr. C. T. Druery on "Sexual Apospory in Polystichum angulare" was read by the Botanical Secretary, Mr. B. D. Jackson, upon which remarks were made by Mr. Murray and Dr. D. H. Scott. Mr. Murray then gave the substance of a paper on a new genus of green Algæ, proposed to be named Boodlea, and in so doing made some instructive observations on the affinities and distinguishing characters of allied genera. The paper was criticised by Messrs. A. W. Bennett, Reay Greene, and D. H. Scott. In continuation of his researches upon the eyes of insects, Mr. B. T. Lowne gave an admirable exposition of the structure of the retina in the Blowfly, illustrated by preparations under the microscope, and some excellent photographs.—At the evening meeting, on Thursday, March 7, a paper will be read "On the Vascular System of Floral Organs," by the Rev. George Henslow, F.L.S.

The Gardeners' Orphan Fund.—The usual monthly meeting of the committee took place at the "Caledonian" Hotel on Friday, Feb. 22, Mr. George Deal presiding over a good attendance of members. The minutes of the last meeting having been read, it was reported that the balance at the bank was £435 10*s.* 4*d.* The Secretary also reported that the share of receipts from the benefit performances at the Princess's Theatre was £21 4*s.* 6*d.*, less a sum of 20*s.* for printing. A cordial vote of thanks was passed to Miss Grace Hawthorne, the lessee of the theatre, for her kind co-operation. Mr. Hodges, of Lindfield, Sussex, sent the sum of £5 10*s.* as the proceeds of a concert on behalf of the Fund. In reference to the Covent Garden *Fête* in aid of the Fund, a letter was read from Mr. J. R. Bourne, informing the committee that His Grace the Duke of Bedford will feel much pleasure in granting the use of the Flower Market for a second *fête*, and the Duke consented that a price be put upon the tickets, but on the distinct understanding that the whole of the money so obtained will go to the Orphan Fund. Mr. Bourne stated his willingness to afford every facility for carrying out the scheme. It was resolved that a meeting of the market growers should be called at the Hummum's Hotel, Covent Garden Market, on Friday, March 8, at 9 p.m., to request their co-operation in carrying out the *fête*; and for the appointment of a committee of their body to work in conjunction with the committee of the Fund. The Chairman laid before the committee an actuarial computation of the capacities of the income of the Fund in relation to placing children upon it, which had been prepared by Mr. A. H. Smee, and it appeared from the computation that the committee would not be justified in placing upon the Fund more than five children at the ensuing election in July next. A hearty vote of thanks was given to Mr. Smee for his valuable report. Authority was given for the insertion of advertisements announcing the intention to place five children upon





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VIEWS IN THE ROYAL GARDENS, KEW.

the Fund, and inviting applications on behalf of candidates. Subject to being able to obtain the use of the Cannon Street Hotel for the purpose, it was resolved that the annual meeting and election to the Fund should take place on Friday, July 19 next. A hearty vote of thanks to the Chairman concluded the business.

Flowers at the Drawing Room.—Madame Catalani's flowers were, we learn from a daily journal, the feature of her costume. "She wore a skirt of black satin with over-drapery of guipure lace, caught up at intervals with large sprays of Violets of the dark shade shown in our English flower and the paler hue seen in the double Neapolitan variety. The berthe of the low bodice was entirely made of Violets arranged with their own foliage. Sleevelets were also entirely covered with these flowers, which, though singly modest, are in masses capable of most effective display. Bodice and train were of black velvet, the latter lined with satin. Upon it were placed long thick trails of Violets, and it is only necessary to add that the perfumed blooms were real to convey the charm of so floral an adornment." Ladies, we need not invoke flower-lovers, please don't copy! —A large bouquet of "Bishop Mann" white trumpet Narciss, simply tied up with its own foliage, and containing nearly a hundred blooms, was sent from Mr. Wm. Baylor Hartland's nursery, at Cork, as an open-air, Irish production, to be worn at Her Majesty's Drawing Room at Buckingham Palace, on February 26. It is a remarkable fact, which bears witness to the extraordinary mildness of the winter in Ireland, and it would seem to point to the suitability of Southern Ireland for the cultivation of early varieties of Narcissus.

New Roses.—In writing of the Tea-scented Rose (Sappho, p. 235, of our last issue), our valued correspondent, "Wild Rose," omitted—as Messrs. W. Paul & Son, the raisers of this Rose, reminded us—to state that the variety received a Floricultural Certificate of Merit from the Royal Botanic Society.

Horticultural Club.—We understand that the usual monthly dinner will be postponed from March 12 to March 26, in order to give the Club the opportunity of welcoming the Dutch gentlemen who will be at the Hyacinth show of the Royal Horticultural Society.

Emigration to Washington Territory, N.W. America.—We have received the following amusing communication from a correspondent, whose letter we believe to be genuine, and against whose good faith we know nothing; but while publishing *it literatim et verbatim* we must decline to accept any responsibility, and advise anyone who may be induced to accept the invitation, not to make the venture without the most careful consideration and the fullest inquiry possible. Our correspondent's name and address, as also that of a referee named by him, living at Newbury, Berks, can be had on application to the Editor:—

"I am in want of a *smart active willing*, healthy boy from 16 to 18, to come here, and learn my business and as soon as ever he gets man enough to succeed me in the greater part of my out from home day work. Plot gardening and attend with the other men to that work. I have all the best work from the leading people of the town and cannot do all & constantly increasing business. If he will give his mind to his work &c. I will make him my partner in 3 or 4 years moreover than that if he is a steady non smoker & non drinker like myself and takes to us, & we to him we will adopt him as our son, having no family ourselves *chick or child* I am 60. wife 50. he would live with us in comfort and when we dropped off our mortal coil all would be his, he must be a protestant like myself & wife I am Berkshire, she is, Derbyshire of respectable people both of us, I propose to board lodge, &, wish him live with me as a son and child, and give him 5/- per week pocket money for first 6 months & if I find him a good useful lad 10/- &, so, on &, when he is capable of earning his 10/- per day he may bord or pay us the general rate of board.

"I will on the day of landing here make him a present towards his passage monoy of £6 . 0 . 0, and every 3 months £3 . 0 . 0 till the 12 . 11 . 9 £ passage money from Liverpool to here is paid: we will both be a father and, mother to him; here is a good chance to, make a early fortune for him. I, have one nice man, elderly, living with me from suffolk, the country is bautiful in grandeur and is destined to become a great place, climate is much like Berks, Hants, Dorset, Devon, &, Cornwall ½ inch ice is all we have had this winter, I think when I say I am 35 years this day a member of the English Free Mason Society is quite sufficient, Mr. —— will answer any enquiry about me as a persevering energetic goahead man, Send me along at once a suitable boy no, delay, he will bless his stars ever he came, I shall be very buisy next month building my new house, garden hot houses, &c. I send you guidance for the lad when coming & what & how to act on way I have sent you one of our weeklies, you will see my weekly contribution to it marked, the enormous sales of Real Estate for building purposes will show you what the place is likely to, be.

"Instructions.

"Take train to Liverpool, at the station ask for 'John Fry' Allen Line Agent when you get out of train stay at his house over night 1/- meals 1/- ('comfortable place')—bring knife & fork tin cup, & plate, 2 Brown Blankets, &, Pillow, that is all you want to load yourself with, there is plenty food for you on board. I have crossed 3 times in those boats,

"Buy some Bread, &, Cheese a little fruit some tea & sugar at Halifax or Portland which ever you land at, keep buying bread at 'Callandao' & Winnipeg . . 6 days Railway Travel generally Direct your Box your name first, then care of ———— Seattle Washn. Terr. U.S.A. via Canada Pacific Ry, see it checked when landing, see it on to the Cars Keep your check till you arrive at Seattle dont fret your luggage will be safe.

"Messrs. The Armstrong

"Tranfer Co. Seattle. W. T. 'Landing Stage'

"Please tranfer bearer, &, luggage, in 1 Horse express Waggon to my address.

Natural History Society of Aberdeen.—The monthly meeting of the members of this Society was held on Tuesday evening, February 19, in the Zoological Laboratory, Aberdeen University Buildings, and took the form of an exhibition of illustrations of the flora and fauna of the north-east of Scotland, and other rare specimens collected by the members. The president, Mr. John Roy, had on view a complete collection of dried Scotch Ferns and their allies. Mr. Mathers, Aberdeen, showed a collection of Crustacea, remarkable for neatness of handling. The collections of Scotch marine and fresh-water sponges, shown by Messrs. Sim and Gibb, were much appreciated. Mr. Laing, of Granton Lodge, sent a rare collection of living plants. A large number of varied objects was shown with the aid of the microscope. The exhibition, which was very successful, was visited by a large number of members and their friends, the room being crowded throughout the evening. The museum of the University was also open to the visitors.

Quality of Pears in 1888.—A somewhat interesting phenomenon has presented itself this winter (says Mr. Alfred O. Walker, in a recent communication), which seems to point to the influence of a hot July and August extending not only to the quantity, but also to the quality of the fruit borne in the following summer. It will be fresh in the recollection of your readers that while these months were hot and dry in 1887, they were the reverse in 1888. Yet at least two varieties of Pears that in the former year were worthless (as they usually are with me), have, this year, been decidedly good. These are Josephine de Malines, and a long narrow Pear which I take to be Bishop's Thumb. The former I am now eating, the latter is just finished, and was really delicious both as regards juiciness and flavour, though I never remember its being even eatable before. Both were grown on pyramids. Other Pears, and some Apples, were at least as good, and some better, than usual this year.

KEW NOTES.

[See Supplementary Sheet.]

With the present issue, we lay before our readers a supplementary illustration, showing two views in the Royal Gardens, taken on our behalf last autumn. The one is a view across the lake in the Pleasure Grounds, looking towards Sion House, and in which the tall Poplars in the foreground form an admirable contrast to the horizontal lines of the building. The lower view shows one of the many bits in the new rockery—a delicious bay in which as it seems the horizontal rock strata have in former ages been hollowed out by a cataract, in course of ages diminished to a tiny fall, which now trickles over the edge, moistening the rocks on either side, and forming a miniature bog at the bottom. Such, we take it, was the intent of the designer, and if objection be raised that the realisation is small in extent for so great a conception, it must be pointed out that this is but one of many similar nooks. Yuccas crown the summit, Saxifrages bedeck the rock-faces; the bog is filled with Primula, Roses, Heaths, Myrica Gale, and a profusion of similar subjects.

The Rockery.—This is a delightful spot even in midwinter, and its keeping is such, that while there is no sense of untidiness and neglect, there is no obtrusive sweeping and raking such as are prone to flay the beauty from such places and in an exaggerated love of tidiness to kill the tenants.

The Bamboos have not suffered nor the quaint Aciphylla, so curious a contrast to the Euphorbia myrcinites. The pink tips of Rhodiola sibirica are delightful to look on, and still more so in the anticipations they provoke of other delights to come. The Hellebores are hardly so fine as usual. Leucoium vernum, Snowdrops, and Scilla bifolia catch the eye, but Crocuses are late. Among plants that seem to demand special notice, we note:—

Narcissus minimus.—This is the first Daffodil of the season in the open air, and in the rockery a nice little clump at the base of an old wall looks charming, and speaks of better times coming. This little clump has been in full bloom for a week or more, but nearly a month ago we noticed two solitary flowers, fully open, at the base of an east wall sheltered, of course, from cold east winds, but still in the open air. These early flowering Daffodils are all the better for a little shelter, because, although hardy enough in every way, their flowers are often disfigured if exposed to cold winds. Mr. Dewar tells us he lifted a clump of Corbularia nivalis from the open ground in full bud, the seeds of which were sown four years ago, and now in a cold frame they are a perfect little picture. N. pallidus præcox is showing bud, and if the weather proves at all mild will soon open their flowers.

Cyclamen Coum and C. ibericum, both very charming plants, and with the addition of what are known as the Atkinsii varieties, form a fine little varied group of spring flowers, indispensable alike for the rockery and for pots for the alpine-house. Mr. Baker, in his synopsis of the Cyclamen in the *Gardeners' Chronicle*, March 10, 1883, says in a note:—"We owe several fine garden varieties to the efforts of Mr. Atkins, of Painswick, of which the best known is C. Atkinsii, Lemaire, *Jard. Fleur.*, t. 297, a form with large pure white flowers, with a bright-coloured purple spot at the base of each segment." This note is under C. ibericum, and that is the species to which we have always understood the Atkinsii forms belonged, the leaves of which are distinctly zoned with white. Among forms of spring Cyclamen received lately from nurserymen under the name of Atkinsii many, we are informed, had beautifully zoned leaves, but others also with similar flowers had the small dark green, orbicular leaves of C. Coum, not zoned and neither lobed nor toothed. Mr. Atkins probably raised all his seedlings between C. Coum and C. ibericum from one seed-parent, viz., C. ibericum, and hence the greater likeness to that species; but since Mr. Atkins' time thousands of seedlings have been raised from both parents, and it may be seen

how easily the raisers, seeing substantially similar flowers, should send them out as Atkinsii varieties; This, of course, is not at all unusual in hybridising; indeed, nearly all the intermediate links between two species may be had from one sowing, Primula pubescens and others being striking instances of this sort of variation. Mr. Atkins, who watched these Cyclamen carefully, found that if kept apart from each other they could be raised true from seed, but when grown together were certain to hybridise. It will no doubt be difficult now to find out who raised these Coum forms, but it would avoid confusion in future if some distinctive garden name were given them.

Vernal Snowflake.—Next to the Imperati forms of Crocus, we think this Leucoium one of the most beautiful of all vernal bulbous plants. We are, however, rather puzzled with the names L. vernum and L. carpathicum; the latter is not mentioned in Nicholson's *Dictionary* at all, and although we have always understood that the Carpathian variety was most common with two flowers, the figure in *Bot. Mag.*, 1993, is quoted, and called biflorum. We have been lately looking at a large number of flowers, the bulbs bought in the trade as the common form; some have green tips, some yellow tips, others yellow-green tips, and indeed all the shades between yellow and green may be seen in any large batch. However this may be, they are splendid bulbs for the rock garden, and at the present time form one of the chief attractions in the Kew rockeries, and, in particular, one patch, the bulbs of which have been planted in a clump of Saxifrage cuneifolia, which forms a fine groundwork, and helps to protect the bulbs. It looks well mixed with Scilla bifolia; both flower at the same time.

Anemone blanda (*Winter Windflower*) is certainly one of the most charming spring flowers at present on the rockery at Kew. It has been flowering more or less for the last month, but only within the last few days have all the blooms opened and at mid-day it is certainly a lovely picture. It is very nearly allied to A. apennina, the flowers, however are larger, fewer, and more finely rayed, and of a deeper blue. In many ways is this species superior to the Apennine plant, it begins to open its blooms soon after Christmas, and continues usually until apennina begins flowering, so that for spring work it is indispensable. It is perfectly hardy, and however severe the frost, even after the blooms have opened, it does not seem to suffer in the least. A cool shady spot on the rockery or where to be had in quantity for uncultivated spots, shrubberies, &c., it is certainly one of the best early spring flowering plants we know. It increases rapidly and may be divided to almost any extent.

Rhododendron Collettianum.—To see the above plant perched on the top of what purports to be an old wall, and where the soil does not seem over plentiful, is very curious, after what we have been taught about the making of Rhododendron beds. But such, we are told, is the position chosen by the finder of this new plant, it having been found in similar places on the ridges of Sikarâm and Shendtoi, Afghanistan, from 10,000—13,000 feet. It commences at near the limit of trees in these regions, and is found mixed with masses of Juniper, forming quite large thickets. It seems a very sturdy plant, and seems hardly likely to exceed a couple of feet in height, even in rich peaty soil, where we have seen it growing for two or three years. It will doubtless be taken advantage of to hybridise with many of our large and beautiful flowered species for hardiness and dwarf character.

The Alpine House.—It is just possible, however, that some visitors may feel their love of plants a little interfered with by north-east winds and whirling snowflakes. Kew—catholic, cosmopolitan, comprehensive Kew—provides amply for the need of such folk. If driven from the Rockery by stress of weather, the Alpine-house is a very little way off, and this is full of floral treasures —Primroses, Narcissi, hybrids and species; Cyclamens, Crocuses, Hepaticas, Hellebores, among the latter, one with almost pure white flowers, with only a few spots at the base of the segments (H. guttatus var.), H. punctatus, H. abchasicus, etc. Primula obconica, Mr. Dewar finds requires to be grown on without check in a big pot, and not allowed to get pot-bound. Epidendrum citrinum is a very delicately-coloured species that seems quite amenable to pot culture. This Alpine-house has proved a great success, and, we should hope, may be greatly extended in the future with a rockery at one end. One thing, however, we hope will not be done. A gardener often begins with a hand-light, goes on to a frame, then proceeds to a greenhouse—something to keep the frost out then becomes a desideratum, and so on. We would fain hope that this tendency will not be allowed to have sway in the Kew alpine-house. We have never met with hot-water pipes in the fissures of the rocks in the Alps, and we should deem them equally out of place in this particular house, which should be allowed to remain an example of what can be done by a little shelter only without other artificial aid. There are plenty of warm greenhouses and similar structures at Kew to suit the requirements of plants that demand more coddling than the alpines.

The Show House, No. 4.—This is a house always kept gay as an attraction to the general public, and as a bait held out to tempt some of them to plunge more deeply into the delights of botany. Here are a few of the show things:—Camellias, Azalea amœna and indica, Primula sinensis, Narcissus, various species; Strobilanthes isophylla, Cinerarias, Poinsettias, Lachenalias, Arums (they do not call them Lilies at Kew!), Lily of the Valley, Allium neapolitanum, Hyacinths, Muscaris Cestrum elegans, Forsythias, Lilacs, Amaryllis Astilbe, Staphylea colchica, Cliveas, Rhododendron Countess of Haddingdon, and many more, the whole giving a gardener the idea what he ought to or might have in his conservatory at this season. The plan of showing plants in batches is a good one for instructional purposes, and displays and fixes the character of the respective plants better than if they were scattered. We do not remember to have ever seen such a group of Bletia hyacinthina before. This system of grouping, too, affords excellent scope for the manifestation of taste in association, and contrast in form and colour. As carried out at Kew it has many advantages, but it might prove too formal and patch-work like in a private establishment.

In the Orchid-houses the plants are looking well, but we must confine ourselves to the mere mention of a few names of some of those in flower:—Oncidium splendidum, cucullatum, Cœlogyne cristata, Dendrobium nobile, var. nobilius, Wardianum, Findlayanum; Lycaste Skinneri, Pleione humilis, Cattleya Percivaliana, Lælia cinnabarina, a nice group of the smaller Masdevallias, such as triangularis, melanopus, polysticta, ignea, pulvinaris, &c.; Odontoglossum cirrosum, Rossi, triumphans, pulchellum, maculatum; Ada aurantiaca, Gomeza Barkeri, Phalænopsis Stuartiana, Sanderiana, Cypripedium Boxalli, concolor, barbatum, politum, villosum, venustum; Aërides vandarum, Vanda Amesiana, Trias picta with its curious Stapelia-like flowers; Angræcum hyaloides, a little gem. Many more might be cited, but a catalogue is dreary reading. Our object will be gained if we can induce the plant lover to go and see for himself, and we have said enough to show that he will find ample compensation at Kew even against keen wind and hovering snowflakes.

Fruit Register.

JERSEY APPLES.

Your correspondent, "X. Y. Z.," in last Saturday's issue of the *Gardeners' Chronicle*, expressed the desire to become better acquainted with some of the varieties of Apples I cultivate, and I am not surprised that some of them are not well known, but when I inform him that my nurseries have been established since 1816, and that my father and predecessor was an ardent horticulturist, never tired of collecting varieties of fruit, especially Apples and Pears, for which this climate is so well suited, he will easily understand that the collection grown in them is extensive and varied.

The pretty little Apple Api panaché is one of them, the sister varieties being Api rose and Api noir; they are so pretty that they are sold in Paris and other French markets packed in coloured paper and neat little boxes, in a manner so well known to the French dealers in selling their produce. They take a profit when the more [query less] matter-of-fact Saxon lets it pass by as useless. There is more in the appearance of these pretty little fruits than in their flavour, but they give variety to a dessert, although they may not compare with Cox's Orange Pippin, Cornish Gilliflower, and Ribston Pippins, which are so much more acceptable to English taste.

Belle du Bois is a fine, large, round French Apple, which keeps well, and is excellent as a culinary fruit. The same may be written of Belle du Havre and Calville St. Sauveur, with the addition that both of these are acceptable as dessert fruits when well ripened; they keep well, and become yellow when well matured.

White Doctor is a fair-sized Apple, of good quality, but is liable to become mealy if kept too long.

Elletson's Prize Apple is a beautiful fruit, flat, angular in shape, and very prettily coloured. I have fruits of it by me at the present time.

The Fairy Apple is a variety of Crab, larger and flatter than the Siberian and Tartarian, and quite acceptable as a dessert fruit on account of the tartness of its flavour.

Borovitsky is the same Apple as is grown in Cornwall under the cognomen of Sops in Wine. A Cornish friend residing here says he prefers it to Ribston Pippin, but I do not: hence there is an allowable difference of opinion as regards good Apples. Grosse Caisse, as its name implies, is a large culinary Apple. Jacques Lebel is one of the very finest Apples grown; it is not a late keeping sort, but its fine size and beauty of colour and form tend to make it a great favourite; the tree is a vigorous grower, and abundant bearer. Hammond's Jersey Pippin, Saunder's Pippin, and Mallet's Guernsey Pippin, are all three Channel Island varieties, raised by devotees to fruit culture half a century since, and still, like the Old Golden and Count of Wick Pippins, which they somewhat resemble, worthy of continued culture. Reinette Franche d'Espagne resembles Terwin's Goliath, and is a big Apple, and not an abundant bearer. Vermilion d'Espagne is a very highly coloured fruit, of medium size and beautiful form; it needs only to be seen by pomologists to attract their admiration. This last, with Red Astrachan, is one of the most beautiful of early Apples, but differing both in form and texture. There is an endless variety of beautiful varieties of Apples. *C. B. Saunders.*

The Herbaceous Border.

THE FLORISTS' VARIETIES OF PYRETHRUM ROSEUM.

It is considerably over half a century since the parent of this popular species was introduced from the Caucasus, and it shows in a remarkable degree what may be achieved by the florist by careful and continual selection. Since Salter first turned his attention to the improvement of the then few varieties, the plants have undergone a complete change of character, and from a simple single flower we have now among the double varieties the Anemone-flowered, quilled, and flat floret forms, and all the intermediate shades of colour, from pure white to deep crimson. Although the single varieties are not so diversified in form, they have more shades of colour than the doubles. The Pyrethrum is now slowly but surely making its way into favour, and enormous quantities are to be met with in trade establishments where hardy plants are a specialty. As border plants they are very useful, for, after being thoroughly established,

they are well able to take care of themselves, but they may be more successfully cultivated in beds entirely devoted to them, so that the little attention they need is not so liable to be overlooked. If the grower intends to exhibit, this system will be found specially suitable. Attempts to grow them in pots for indoor decoration has resulted in questionable success, as they soon become weak. Wherever cut flowers are in demand they prove themselves invaluable, retaining their freshness for twelve or fourteen days in a cool dry room, and on account of their long stems they are specially serviceable for filling tall vases, &c.

The culture is simplicity itself. The best time to procure the plants is from February to October, and they will thrive in any ordinary soil if it is in good heart. The ground for beds should be thoroughly prepared by deep digging and working in enough rotten manure to give the plants a good start. If it be intended to let them remain three or four years in the same position, plant at 18 inches apart. Deep planting and slugs are the two great foes to success. They should be planted exactly level with the collar, and the soil made firm all round; if the crown is covered, failure is certain. Slugs are most likely to attack the young crowns as they appear, and hand-picking is the surest way to exterminate this pest. A slight sprinkling of equal parts of soot and fresh slaked lime may also be dusted over the roots. At the beginning of May the plants will have made several inches of growth, and may be staked. As soon as the first flowers are getting past and unsightly, cut them down to within 6 inches of the ground, and if dry give a good soaking of water; slightly prick the surface, and spread a light coat of rotten manure over the bed, and in two or three weeks they will commence to throw up a second crop of flowers, and will go on flowering until late in the autumn. On no account attempt to protect them in winter, as this excites early growth.

Propagation is best done by division, either early in April or after the flower-stems are cut down in August, and it is from these young plants that the finest flowers are obtained for the exhibition board; they may also be raised from seed, but seed of the doubles is rarely obtained here. The singles on the other hand yield a fair proportion of seed in all average seasons, and where the strain is good one or two telling flowers may be obtained from a good packet of seed. Seed may be sown in the open as soon as ripe, the young plants remaining in the seed-bed during the winter to be planted out a foot apart in the following April, or sowing may be done in spring and the young plants put out as soon as they can be handled. These will flower well the next season. Those sown in the autumn will flower the following June. A list of the best varieties in each section is here given.

Double Varieties.—The following will be found really good exhibition flowers:—J. N. Twerdy, brilliant red-tipped with gold; Flore, blush; Gustave Heitz, rosy-pink; Progress, dark red; Lischen, lilac-rose; Ajax, rosy-red; Melton, brilliant crimson; Aphrodite, purest white; Haage et Schmidt, bright carmine; Voie Lactée, delicate flesh; Figaro, rose-lake; Chamoise, chamoise-yellow; Minerva, soft rose-pink; Placida, peach; Cleopatra, yellow and white; Nemesis, rose, tipped crimson; Dante, rosy-orange; Aurora, sulphur, yellow centre.

Anemone-flowered Varieties.—Seldom met with as at their best they are valued for their quaintness rather than beauty: Sulphureum plenum, white, yellow centre; Anemoniflorum sanguineum, rosy-carmine, white centre; elegantissimum, purple, yellow centre; Marguerite d'Anjou, rose, blush centre; Prince of Wales, purplish crimson, orange centre; Endymion, soft peach; Charles Baltet, deep rose-pink, yellow centre.

Single Varieties.—Nearly all of this section are of recent introduction. The best are—Hamlet, rich pink; Neville Goodman, rose-cerise; Orlando, brilliant red; Princess of Wales, flesh; Ferdinand, cherry-rose; Tasso, the most brillant of all; Mathilda, pure white; Margaret More, delicate blush; Sherlock, crimson-scarlet; Ruby, rosy-purple; Roseum, rosy-blush; George Wallace, vermilion-red; Mrs. Bateman Brown, carmine-crimson, the finest single Pyrethrum grown; Darwin, cherry-red. *F. Gifford.*

DISEASE OF SNOWDROPS.

POLYACTIS GALANTHINA, B. and Br.

Numerous correspondents have during the last week or two complained of, and forwarded examples of diseased Snowdrops. In several instances the disease was first noted directly after the snow suddenly melted a fortnight ago, the rotting of the Snowdrops and growth of the fungus had taken place beneath the snow, and the disease was not observed before the snow fell. The fungus growth



Fig. 49.—Disease of Snowdrops (Polyactis galanthina: × 400 diam).

was close to the ground, but in many instances it extended from the ground-line downwards well into the bulb; in a less number of examples the fungus covered all the plant above ground. In badly attacked bulbs the substance had become soft and pulpy, whilst the leaves and buds were covered with a pale brownish flocculence which ultimately became whitish.

Under the microscope the fungus is seen to be a Polyactis, and I take it to be the fungus described by Messrs. Berkeley and Broome in the *Annals of Natural History*, for May, 1873, as Polyactis galanthina, with which it agrees in the size of the spores. The original material was received from Mr. G. F. Wilson, and the fungus is described as affecting the outer coats of the bulb, and "very destructive." Perhaps Mr. Wilson will kindly give us his experience.

The accompanying illustration (fig. 49) shows a Snowdrop attacked by the fungus, and the fungus itself, the latter enlarged 400 diameters. The fungus is an ally of Polyactis vulgaris, illustrated in the *Gardeners' Chronicle* for February 6, 1866, and of the fungus of the Lily disease. The disease of Tulips mentioned in last number of *Gardeners' Chronicle* is also identical with the disease of Lilies (see *Gardeners' Chronicle*, August 18, 1888). The disease of Humea is also identical. *Worthington G. Smith, Dunstable.*

FLORISTS' FLOWERS.

PERPETUAL FLOWERING CARNATIONS.

We have but few flowering plants so really useful and so universally admired as these Carnations, and not only is this the case during the autumn, but also in winter and spring, for a Carnation bloom is always welcomed whenever it can be had. Unfortunately we do not at present possess many really first-class fragrant winter flowering Carnations. This is to be regretted, for, although bright and beautiful, their value would be considerably enhanced were they all sweet-scented. Fragrance, moreover, one expects to find in a Carnation almost as much as in a Rose, but such expectations often meet with disappointment. Another disappointing circumstance about these Carnations is the large additions which of late years have been made to the lists which have no claim to be placed in the perpetual section at all, and though some of them have very beautiful flowers these are but sparingly produced, and at long intervals.

A year or two since when taking up the cultivation of these flowers, there was got together a large collection of the very cream, but a large proportion of these have been discarded, and others are awaiting a like fate. Among these I may name Souvenir de Breyer, Louise Chrétien, James Metral, Magnifica, of which I have not seen even a passable bloom after three seasons, and my plants are large bushes in 8-inch pots; Alex Regnier and Tussot's Yellow, a most delightful tone of soft primrose yellow, but very poor flowering, and in habit a perfect rambler; White Swan, another rambler, rarely flowering before 4 feet or more of growth has been made; Empress of Germany Jean Sisley, and others; a decided improvement on the last-named is Suzana Pellet, although its peculiar colour does not recommend it. In Indian Chief we have a crimson-flowered Clove-scented Carnation, but the bloom invariably bursts its calyx, and it is difficult to find two flowers alike, it is, moreover, a weakly grower; although at the same time a continuous bloomer. For good free flowering Tree Carnations of decided colour, and fragrant flowers there is still plenty of room, and growers of these plants for market purposes are always ready to purchase a stock of promising kinds.

Among the best, Miss Joliffe must always hold a foremost place, and the variety which displaces this one will need to assert its superiority pretty decidedly before our best Carnation growers will part with their old favourite, which is pleasing in colour, shape, and fragrance, and it is undoubtedly the most popular Carnation of this class in commerce.

For a pure fragrant white we must look to Mdlle. Carle, which is free-flowering and continuous, and a long way ahead of any other white variety; when well grown it is very free, as many as three dozen buds being apparent at one time on plants in 8-inch pots.

In scarlet we must still look to A. Alegatierre for vivid colouring, perfection in form, freedom of flowering, and vigorous constitution; were this variety sweet-scented, it would hardly be possible to improve upon it.

If greater variety be needed, Andalusia, yellow; Irma, rose; Laura, salmon-pink, and fringed; Mrs. Llewellyn, rose-magenta, a brilliant flower and excellent grower; Le Zouave, brick-red, splashed scarlet, should be chosen, though in my opinion it is far better where flowers are of the first importance to grow batches of the best kinds rather than an assortment.

Taken as a whole, Carnations are by no means satisfactory this season, owing to the con-

tinued absence of sun last year; and, as a result, neither flowers nor cuttings for producing a supply of plants for the autumn and winter ensuing are anything approaching their usual standard of quality; the maggot, too, has in some districts made great havoc. The time is now upon us for the propagation of the plants. Cuttings of these as well as many other plants root more readily when fresh growth is apparent, and the best cuttings of perpetual flowering Carnations are those produced upon the flower-stems; for example, of those plants which furnished blooms up to and prior to Christmas. Many growers prefer cuttings of 2 or 3 inches in length, but if these persons knew the value of 6-inch cuttings, or even longer ones, they would abandon those of lesser size. We all seek to obtain the best plants possible in a short space of time; therefore, I consider it a point gained to allow the cuttings to attain 6 or even 8 inches in length, as then the chances of loss from damping off are less, and when the cutting is rooted you have a plant which, by careful treatment first, and liberal treatment by-and-by, will make a specimen in an 8 or 9-inch pot by the autumn. Cuttings with a heel attached are always preferable, and are possessed of greater stability that those cut to a joint. An American writer, in a contemporary, recently stated the knife to be fatal to the Carnation cutting, though many will be able to prove the contrary. For myself I do not use it more than I am obliged, believing a cutting with heel to be far safer for the reason above stated: this is particularly applicable to spring cuttings; autumn cuttings rooting readily enough cut to a joint; indeed I rooted several hundreds thus treated last autumn, and which have recently been shifted into 48's, a loamy rather sandy soil, and well drained pots, is all these plants will need; plunge the cutting pots in a gentle bottom-heat of about 65°, give one thorough watering at first, and afterwards water with great care. Remove the lights at night from the cuttings—this will dispel damp and hinder the growth of certain fungi that revel in damp surroundings better than anything else. *E. Jenkins.*

The Calceolaria.—Early in the year there is considerable difficulty in our own case in obtaining sufficient space in the greenhouse or heated pits for these plants, and unless they have space enough to develope their foliage the prospects of a good bloom are doubtful. The month of March is rather a critical time for Calceolarias. As a rule during the two previous months the temperature is low, and sunlight wanting; before the middle of March we have, as a rule, drying winds, with sudden bursts of sunshine, and such plants as the Calceolaria and Cineraria suffer more than some other herbaceous plants. It is, therefore, well to have some light shading ready, and if the sun causes the large leaves to become flabby it should be put into use. The path and stages of the house at such times may be made moist. Many growers of these plants, finding that they grow well and make very large leaves in a rich compost and with plenty of space for the roots, do not seem to know when to say "Hold, enough;" and as a matter of fact it is easy to overdo them in this respect. A fifth, or at most a fourth part of well decayed cow and stable-manure added to the loam, and a fair proportion of leaf-mould and sand, make a sufficiently rich compost.

I have recently heard of several failures with Calceolarias and Cinerarias, and in most of the instances the failure appeared to be due to the use of artificial manure in excess. I never use any such for the plants; and if it has to be used because of the want of farmyard manure, it is better to err on the side of too little than too much. If the best of specimens are required for exhibition the plants must not only have ample space, but they should be placed near to the roof-glass, and be kept in a light airy place devoid of draughts. When greenfly and mildew are more than usually troublesome, it is most likely due to the fact that the plants have not been well cared for. Where the plants have not yet been put into their flowering pots this ought to be done at once, care being taken to avoid bruising the leaves. Calceolarias do not mind if the temperature should fall as low as the freezing point, but it is not desirable that it should fall thus low when the flower-stems have grown considerably, inasmuch as the plants do not suffer when in leaf only, they may be seriously checked at this period. It is of importance that the plants be kept free from greenfly and mildew, and that means should be taken to destroy both enemies of good culture without delay. It may be remarked that seedling Calceolarias are more vigorous, and require larger pots to flower in, than those raised from divisions of the old plant or by cuttings. *J. Douglas.*

Nursery Notes.

ORCHIDS AT HEATON, BRADFORD.

Mr. J. Charlesworth's establishment at Bradford has now become an important centre for handsome Orchids, imported direct from their native habitats by that indefatigable collector Mr. W. Hennis, who has been attached to the firm ever since it started some years ago. The homes of the Cattleyas, Lælias, and Odontoglossums are the sources mainly drawn upon, and with healthy, chiefly unflowered specimens of these the greater part of the neat and convenient block of houses may be said to be filled, the whole of the stock being highly creditable to the grower Mr. R. Eichel. For Orchids generally, and especially for Cattleyas and Odontoglossums, the air of this pretty suburb of Bradford seems very suitable, and the flowers comprised in the grand display of imported Cattleya Trianæ now open and in bud for the first time in England, have a brightness of colour and a firmness of substance which would excite the envy of anyone who has to flower his plants in winter in fog-haunted districts. There is also a fine lot of Cattleya Percivaliana in bloom; C. nobilior, and some exceptionally large-flowered and richly spotted C. amethystoglossa. C. citrina is here well grown in an intermediate-house, although some consider the species does better in the cool-house. Mr. Eichel says, that in northern counties they will not do so well in a cool as in an intermediate-house. In another division of the intermediate-houses, Oncidium sarcodes, O. bifolium majus, O. Krameri, O. maculatum Russellianum, O. Weltonii, and others are in flower and bud, as well as some Epidendrum Wallisii and the pretty E. Stamfordianum. In stock there are large quantities of Cattleya Sanderiana, C. Mendelii, and many of the showiest Lælias and Cattleya.

In the warm-houses a good selection of Cypripedium was observed, as C. Morganæ, with five growths; C. vexillarium, with thirteen; C. superbiens, with twenty; and the unique C. concolor chlorophyllum, with three growths. Among these, C. Leeanum, C. Spicerianum, C. euryandrum, C. Chantini, C. Harrisianum, and others are in flower. In the same house with these were some healthy plants of Phalænopsis Stuartiana, P. Schilleriana, P. Sanderiana, Aërides Godefroyæ, A. Leonisæ, and other Aërides and Vandas pushing spikes.

The cool-houses contained some thousands of Odontoglossum crispum and O. Pescatorei of the best type, some being in bloom—other species in bloom were O. Harryanum, O. Rossii majus, O. Cervantesii O. C. decorum, O. Edwardii, O. sceptrum, O. Oerstedii (with eight spikes), and a showy lot of Lycaste Skinneri, and amongst them L. S. alba.

The new Cattleya Hennisiana, which has the growth of a vigorous C. Skinneri, was in bloom; it exhibits great variety of colour and form. One plant had a spike of flowers like a richly coloured C. Skinneri, but the major part of those which have flowered (nearly a dozen in all) have been white with a faint blush tint and a lip rose-veined; the plant is apparently a winter flowerer, and is well worthy of being included in collections. Just arrived, too, are fine importations of Odontoglossum Hallii, O. Edwardii, O. cirrosum, and Oncidium macranthum, which Mr. Charlesworth himself selected in their native habitats, his enthusiasm for Orchids having led him to undertake a journey for the purpose of observation as much as of collecting.

Messrs. H. Low & Co.

Pilumna Wagneriana.—A number of plants of this pretty Orchid are now in flower at this nursery at Clapton. In habit P. Wagneriana is like P. fragrans, but it is rather slenderer than that species, and its flower pure white with an orange-coloured eye, the segments being wavy at the edge. It is fragrant, and is a good plant to supply cut flowers. The Phalænopsis and Cattleyas at Clapton are likewise making a good show.

Cypripedium Argus.—The half-dozen houses set apart for the Cypripediums have many good things in flower and bud in them, but none is handsomer than C. Argus, of which a large number is in flower. Some of the flowers of the varieties have very broad petals heavily blotched with dark chocolate colour, and closely approaching those of a fine C. a. Moensii.

Angræcum citratum.—Many hundreds of spikes of this pretty white Orchid embellish the plants, making a display not easy to describe. Those contemplating a visit should go while these last good, as alone they are well worth seeing.

Home Correspondence.

☞ *Correspondents will greatly oblige by sending early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

PLANT COLOUR.—At p. 182 Mr. Burbidge draws attention to the development of colour in plants; and, judging by the light of practical experience, I think that some of his suggestions are somewhat wide of the mark. The means by which colour is developed or transmitted to certain parts of a plant is certainly one of the greatest mysteries of plant-life. Mr. Burbidge suggest that by cultivation and cross-fertilisation colour may be transposed from one part of a plant to another. Now, if this is the case, we might expect to obtain plants with stems, leaves, and flowers of a uniform colour, but, so far as I am aware, no such results have yet been obtained. My experience of cross-fertilisation is that colour in flowers may be changed without affecting the foliage. We have evidence of this in the Chinese Primula. In cross-fertilisation the result, as a rule, is that the progeny will favour the pollen-plant in the colour of flowers, and the seed-bearing plant in habit and colour of foliage. It appears to me that cultivation rather tends to fix colours, otherwise we should not possess such distinct localising of colour as is to be found in many florists' flowers. Mr. Burbidge speaks of gardeners having a partiality for red colour in leafage; this is easily explained. The sun being an important factor in the development of colour, the bronzy red tint is direct evidence that such plants have been growing in an exposed position, and, consequently, are well matured, and will succeed better than those that have been growing in a shady position, and which are much greener. Although I have had considerable experience in growing Primulas, I have not discovered that those with red leaf-stalks are less liable to damp off than those with green ones; on the contrary, double red varieties are more difficult to manage than the white varieties. There is little analogy between red as found in Beet, Beech, Hazel, &c., as quoted, and red produced by exposure to the sun only. *A. H.*

—— With every desire to oblige Mr. Burbidge, I am yet afraid that we have got on to the discussion of a topic which has little practical interest or value, especially when it is made to take such an erratic range. Here, for instance, do we find the red-stalked Primulas quoted as being hardier than

white stalked ones, and yet green Cabbages are quoted as being more robust than red ones; whilst further on we are involved in a maze with respect to floral reversions. Messrs. Pope & Sons give valuable evidence against my contention with respect to the hardiness of Chinese Primroses. What have the market growers of tens of thousands of red and white kinds annually to say in the matter? I decline to admit that the old double white, or its finer form, alba grandiflora, are delicate. They are, by those who understand them, grown into fine plants literally in myriads every year, very largely excelling in quantity all the sorts which are miffy, difficult to propagate and grow—all the other red-stemmed, or other kinds in cultivation. That illustration will not do at all. If the red Dutch Cabbage is not so big-headed as the green Drumhead, it has for its dimensions, got far more in it. There is the dark-leaved Sweet William, for instance, very much more robust growing and has far finer leafage than have the green-leaved kinds, but then it does not withstand hard weather so well. Again as to Celery, there is absolutely none hardier than is a true stock of the dwarf white Incomparable. As to reversions no amount of illustration can induce me to believe that double flowers are such. They may be abnormal, and even monstrous botanically speaking; but are far removed from being reversions. With respect to Potatos, a dissertation as to the relative connection between colour in tubers, in foliage, and in flowers, where, so far as my experience goes, there is no absolute regularity of character, and all is caprice, would be but a waste of time. Life is too short to indulge in chimeras, at least it is for the gardeners. Those pleasantly placed, as Mr. Burbidge is, may have ample opportunity for their elucidation

—— Since I first wrote on this subject in these pages I have had many letters from amateur and professional gardeners interested in the question. I have hitherto looked at plant colour from the standpoint of evolution, considering it as a progressive and upward movement, aided, even if not originated, so far as the floral leaves are concerned, by insects of many kinds. That insects have assisted in the evolutionary progress of flowers, in form as well as in colour, is now a generally accepted opinion, but against this notion we find not a few exceptions. Even if we grant that colour, apart from honey or pollen, does attract insects, and that bright coloured fruits rather than experimental instincts or inherited experience do attract the bird and animals, so that their seeds thus become more generally diffused under conditions most suitable to their growth and future welfare; we are still met by the fact that many roots and underground stems are beautifully coloured without any very apparent reason, for if the wild pigs selected the brightest coloured Yams or Potatos, &c., they would only destroy them all the more surely, so that in these cases local colour seems to be produced to the disadvantage of some of these plants rather than otherwise. In a word, there is an abundance of beautiful inanimate colour, as well as that localised in plants, held in reserve it may be, but still produced without any apparent reason. Of course we know that there are no "accidents," and perhaps no "exceptions" in Nature; the laws are always there if we could but discover and read them. One can never believe, however, that the lovely grain and colouring of many kinds of timber were primarily intended solely for the wood-boring larvæ or other insects, or for the cabinet-maker, however highly he may prize it to-day. The exquisite colours of stones and jewels is another case in point, colour of the most exquisite hidden away in the earth, and, so far as we at present know, perfectly useless in the economy of Nature, although of the utmost value in decorative art. Whenever I see the vegetable gold of autumnal foliage, when Elms and Planes, Horse Chestnuts and Tulip-trees glow with the mellow hues of "a Daffodil sky," I do not think of that gorgeous influx of red and crimson which we are told sets Maples, hardy Azaleas, and Virginian Creepers aglow like a fire in America or Japan; but I do wonder how and when, and to where the blue colouring once in those now golden leaves has flown. Has it really left the trees for ever, become evaporated as it were, or has it become absorbed from the leaves back into the branches and trunk, and so become for the time invisible? The absence of the blue pigment from those once green leaves is quite as interesting a question to me as the fact, if it be a fact, that the highest and rarest note of floral colouring is blue. Colour after all as seen in plants may be the same thing physically, but different chemically as I suspect will some day be proven, if not already known. The question I should now like to ask, however, is this—Is floral colour, other than green (blue and yellow mixed), an advance towards a higher plane, or is it not rather a symptom of decadence, or the beginning of the end? Taking the case of "annual" plants for example we know that flowering is a decadence of the individual, which dies on its having produced and perfected its seed. We here get a glimpse of the facts that fertility is injurious to the vegetative vigour of the individual, although essential to the race. We have some proof of this when we pinch off the blooms of some so-called annuals, and so make biennials or perennials of them, so far as their vegetable economy is concerned. I think we shall find that floral colour—indeed all colour other than green—is usually a symptom of vegetative decadence, rather than of vigour, which is better expressed by green leaves than by coloured ones. If this is so, then green must be the highest type of plant-colour, and all its transformations to yellow, white, pink, red, purple, and blue, are degradations; highly necessary and important at times they may be, but still they represent a lowering of the colouring-scale instead of an upward movement. So that we see that "Grant Allen's" colour theory, although undoubtedly correct, as showing how the colours of flowers vary or slide from one into another, from yellow through red and purple to blue, yet that the original movement is probably not an upward one as is generally supposed by himself and his disciples. Considered as an upward movement, this flower colour theory fails us just when we want it most. It is all right as confined to flowers only—*i.e.*, to floral leaves; but when we want to apply it to variegated foliage leaves or to the hectic flush of the dying leaves of autumn, it breaks down. Of course a theory must be like a perfect sphere, and not merely a triangle or a square. It must stand looking at from all points alike if it is to be of real service to us; and if we consider colour as an ennobling sign in floral leaves, we are met point blank by the contrary when we consider the coloured foliage of plants generally as opposed to their natural green colour. Of course, some may argue that the bright coloured foliage of autumn serves as a distant lure to the fruits which ripen on the trees at that season; but so many trees and shrubs remarkable for their leaf-beauty are devoid of fruits by the time the leaves assume their bright colouring. So far as one can see, floral colouring, like that of fruits, is made attractive for show or advertising purposes. The co-operative work of the leaves, the savings-bank like functions of nodes, pseudobulbs, tubers, and corms, are other real business matters; but flower and fruit colour are mainly for advertisement, and so as necessary to the perpetuation of the species or race, by securing occasional cross-fertilisation and rotation of crops, or in other words, redistribution. It is said that "Good wine needs no bush," but Nature herself evidently does not believe in that old proverb, as is shown by the numerous devices, offerings to sight, taste, and smell, adopted to show off her produce, and to enhance the attractions of her wares. She even adopts the "free lunch" notion, and provides "feasts of honey," but only "free" to such workers as can and do give her material aid. Whatever or whichever view be taken of the colour question one thing seems abundantly evident to all observers in the garden or the field. This is the now patent fact that nothing exists without a purpose or which does, or will not in the future, supply (or has not at one time supplied) a definite requirement. The poise of a leaf, the twist of a stalk or stem, the deflection of a hair, or the crimp on the margin of a petal, all are the sure results of certain laws, and have a story to tell to all who can read the symbols or sign-language of vegetation. The moral is a most important one to us all, but with singular force does it apply to those who make drawings of plants and their flowers. When we look back two or three centuries we may smile at the rude engravings and plates of the time, just as we do at the science in works like those of Bacon, Green, Bradley, Gerard, or Hill, and others of the "old school," but in half a century from now the work of our artists and writers of to-day will be weighed in a balance a hundred times more exact and delicate than ours. *F. W. B.*

EARLIEST RHUBARB GATHERED.—I shall esteem it a great kindness if anyone of your readers will favour me with a post-card stating the date when the first 1 lb. avoirdupois of Rhubarb—not forced but grown in the open garden—is this year gathered. Also the name of the sort. *Vicar, Yaxley, Suffolk.*

ROSA FŒTIDA.—In the amusing paragraph in your last issue, on p. 240, commenting on the recently published French caricature of the supposed discoverer of the above-named plant, the writer places it among the impossibilities of horticulture, and classes it with the black Tulip, the blue Rose, &c.; and yet it is by no means so, as in the beautifully illustrated French works by Redouté, published at Paris between 1817 and 1824, and entitled *Les Roses*, no less than three varieties of this class are figured and described, all of which are deserving of the name of fœtida. They are:—1, Rosa eglanteria punicea, a very beautiful large, deep yellow, single-flowered variety, figured opposite p. 69 of the first volume of the work, the odour exhaled from the flowers of which is said to be most disagreeable, while the foliage when squeezed or rubbed in the hands exhales quite a pleasant odour of Apples. 2. Rosa fœtida, a slender growing variety with smallish pink flowers, resembling those of the common Dog Rose of the hedges, which are followed by hips, which when crushed exhale a most disagreeable odour, the flowers being almost scentless. This is figured opposite p. 131 of vol. i. of the work. 3. Rosa Eglanteria luteola, a small single-flowered variety, with flowers of a much paler shade of yellow than those of the first-mentioned variety, and which also exhales a less disagreeable odour than its much handsomer sister. This variety is figured opposite p. 21 of vol. iii. The coloured plates in Redouté's *Les Roses* are quite the most beautifully executed, both for grace of drawing and delicacy of colouring of any known to me. *W. E. Gumbleton.*

APPLE RIBSTON PIPPIN.—Could the three Pippins in a letter mentioned by John Dent-Dent, Esq., at p. 244, have been Normandy Pippins, *i.e.*, dried Apples? It would appear so to have been, since otherwise there is a discrepancy as to number—five proved (? bad), and two proved good Apples—showing that more than three Pippins (= pips) were imported. I am interested in this tree as being one that was never grafted, and so its descendant, a sucker, survives to this day. Where on earth could we find a grafted Apple tree 150 years old? *F. W. B.*

WHITE ARUM.—Though many gardeners plant Arums out-of-doors, I do not quite understand what are the advantages of the method as against keeping them in pots. If, as may be inferred from the closing remarks of Mr. T. Coomber (p. 211), the season of 1888 was such a good one for these flowers, I am certain such was quite the reverse, for a large number of other flowering plants, many of which—and perpetual flowering Carnations in particular—suffered to a great degree from the coolness of the summer; and while teaching us many lessons, and showing how helpless the most skilful of gardeners are when sunlight is lessened in amount, we can hardly regard (as Mr. T. Coomber appears to do, if I gather correctly from his remarks) the summer of 1888 as an example of the summers we have had in some years. I am persuaded that the culture of Arums in pots has a number of advantages over the planting-out method. If an abundance of water be essential in summer, why not as well supply it to plants in pots as in the open ground? If an absence of sun is needful, why not shade them in pots also? One of the greatest drawbacks to these plants when planted out is the lifting and potting in the autumn. An illustration of this came under my notice a year or two ago, when calling upon Mr. Cypher, of Cheltenham, directly after that destructive frost in the waning days of September, which took so many by surprise. Mr. Cypher grows Arums largely, and that year the majority, if not all, of his plants were planted out. Had these been in pots, the whole lot could have been housed in a very short time, or laid on their sides and covered with mats; this, however, could not be, for lifting must be done with care; and, however great the care exercised, many roots must be sacrificed as the result, and though they recover injuries thus caused more readily than some plants, it is still no reason that they should be inflicted. I grow several hundred Arums and keep them to pots, and, strange to remark, while Mr. Coomber's plants were enjoying the rainfall of last summer the whole of my plants were packed one above the other on their sides to keep them dry, against a wall having an eastern aspect. Under this treatment they lose all their leaves, a solid

stem enclosing the crown alone remaining. Early in August they were repotted, and stood out on a bed of coal-ashes and watered as required with occasional doses of liquid sewage as soon as I considered this latter of service to them. Their growth after potting showed reinforced strength, and early in October we began to cut spathes, and from that time to the present the average yield per plant has been between four and five spathes, and they are still productive to a degree, nearly all my plants producing two spathes from one leaf in quick succession, the second being visible in many instances as soon as the first is cut. In potting I free the base of all small side growth, and sow thickly in boxes to make successional batches. Some growers, while keeping the plants in pots, do not dry them off, but place them in a turf pit and mulch with short stable-litter, which is also a good way, the labour of lifting in autumn in this latter, as in my own case, being avoided. Until recently I was quite in ignorance of the pleasing lemon scent which these Arums emit, and although not powerful it is certainly agreeable. One item of importance to growers of these in quantity is not to endeavour to produce spathes of large size, as this is rarely appreciated in the market, medium sized ones being preferred, and these are adapted to a greater variety of uses, and are, therefore, of equal value, except for church decoration, when size is usually considered of importance. *E. Jenkins.*

STOCK FOR FRUIT TREES.—I for one am much indebted to Mr. Webster for the light he has thrown on this subject at p. 213 in the issue of the *Gardeners' Chronicle* for February 16. Sixteen years ago we planted a Peach-house here, of 30 feet in length by 14 feet in width, with Barrington and other varieties of Peaches, all of which exhibited the deformity of swollen stems. We did everything we could by lifting, root-pruning, and top-dressing, to remedy and improve matters, but all to no purpose. In the house were several richer trees, and visitors often remarked the curious fact the stems of these trees should be thicker at the top than at the bottom. The consequence of the deformity was that we had eventually to root out the whole of the trees. In a matter of this sort gardeners are very much at the mercy of the nurserymen, and for their own sakes and ours, I trust they will not neglect to note this. *Alexandria, N.B.*

LILY DISEASE.—I have read with interest your valuable article on the above in a recent issue; will you kindly allow me space in your journal to offer to my brother horticulturists a few remarks on this fatal disease? I have been a cultivator of Lilies for about twenty years, but have never had this unwelcome malady, Polyachis or Peronospora, on them. Towards the end of last June I had two large beds of Lilium candidum, and the first to be attacked were those planted in rows at 3 feet apart, and 1 foot apart in the rows. Between these were planted summer flowering Chrysanthemums, and these were so small at the time that they could neither hinder the circulation of air nor shade the Lilies to their detriment. At first it was supposed that the plants had been struck by lightning, because others in a bed 30 yards away were not touched, and there the matter rested, but only for a day, for those that looked black the day before were blacker than ever, and the buds of the green ones all covered with small light brown spots, which caused me to think that some other agency is at work. On inspecting the plants on the third day, it was found that not only were the plants first attacked completely spoiled, but that it had spread like "wild fire" to others at a distance of 30 yards. Up to this time I had not seen any accounts of the Lily disease, and not knowing what to do to arrest the loss of plants going, I had them all cut down to the ground, and the tops carted away and burnt with the aid of a lot of dry sticks. Having done this, I waited, all the time keeping my attention fixed on the pages of your journal. But meanwhile an opportunity occurred of studying the fungus on some Lilium candidum in a neighbour's garden. The plants affected were Lilium Harrisii, of which all affected parts were cut off, and, the plants being in pots, they were removed to dryer quarters. With respect to the L. candidum in the open air, suffice it to say that they removed to a remote place in the autumn, and did not seem to be in the least hurt by their decapitation. The L. Harrisii, of which some were cut down, came up with two or three breaks each, and show well for flowering next time. On looking to the *Chronicle* we saw that what we had done was quite right and proper—the cutting and burning of the affected stems and leaves, it being a very important thing to do. I have tried sulphide of potassium with good results under glass or in dry weather, but as to applying remedies to the smooth buds and glazed foliage of Lilies, I think it is not likely to have much use. *W. Watson, Higham Hill, Walthamstow.*

CYLETHRA ARBOREA.—I willingly give "A. H." (p. 212), the information he asks for respecting this beautiful shrub. At Sion we have a number of plants, but so far no young plants have produced flowers. They were propagated from a grand old plant standing in the cool portion of the conservatory, which is 30 to 40 feet high, and which never fails to bloom profusely each year. This plant is quite close to the glass, and is never shaded; it is also close to the ventilators, which, for four or five months in the summer and early autumn, are not closed. From this we may learn that plenty of air and sunshine suit it. The younger plants stand far from the roof, and may never ripen their wood sufficiently well to form flower-buds. I have come to this conclusion, from observing a plant some eight years' old, which stood nearer the glass, and close to the entrance-door, which was open all day long in the summer, did flower after the hot, dry summer of 1887. The other plants were all pot-bound and more or less shaded from the sun by other plants. I intend to place a number of the smaller plants in a warm corner, outside, next summer, to see if that kind of treatment will induce them to bloom. I should state that our old plant has not been repotted for years, but top-dressed only. I had a large plant in my charge some years ago, growing under similar conditions to the one here. It flowered freely, but was always placed out-of-doors for a time in the late summer months, but we never succeeded in getting young plants to bloom under the same treatment. I am doubtful if young plants will flower. I believe in their native habitat they do not bloom till grown into large bushes. *G. Wythes, Sion.* [We believe it is not so much treatment as mature age which causes the plant to flower. In Southern Europe young plants are just as little inclined to flower as here. By cutting it in during its early years a bushy head may be formed, and the plant kept to a moderate height, and as severe cutting causes no loss of bloom—there being none to sacrifice—it is better to adopt the practice, and thus fit the plant for growing in houses of moderate height. Ed.]

THE BULB MITE ON EUCHARIS, AMARYLLIS, &C.—In last week's issue of the *Gardeners' Chronicle* mention is made of a fine potful of Eucharis amazonica, at Brookman's Park, Hatfield, growing in a 12-inch pot, and carrying nine spikes and fifty flowers. It may interest your readers to know that we had some time ago several very fine specimens in flower in 12-inch pots, carrying thirty-two and thirty-three spikes, with an average of 185 flowers each. They were, indeed, noble specimens, and were very much admired. I cut from one plant on Christmas morning eighty fully-expanded flowers for church decoration. I am sorry to say our whole stock of plants is very much infected with the bulb mite, and find to my grief that it is not confining itself to the Eucharis, but is doing immense damage to Amaryllis, Vallota, and Urceolina pendula. We are at present using rather severe measures, which I hope will thoroughly exterminate it. I should be pleased to know if any of your correspondents have been troubled with the mite on Amaryllis. *D. Inglis, Howick Hall, Lesbury, R.S.O.*

STREPTOSOLEN JAMESONII.—As I have been fairly successful in the cultivation of this fine old plant for several years past, I will explain my method to "Amateur," who asked for information in these pages of February 23, p. 248, respecting its treatment. I take cuttings of half-ripened wood early in March, and dibble them round the edge of a 4-inch pot filled with finely-sifted soil consisting of two-thirds loam, one-third of leaf-soil, and silver-sand, pressed moderately firm into the pots, a layer of sand being placed on the top. After being well watered, the pots are allowed to stand for ten minutes, and then the cuttings are inserted firmly, and the pot is then plunged in a brisk bottom-heat, and a bell-glass placed over the pot. The cuttings are examined every morning, and the bell-glass is wiped quite dry and put over the cuttings again, and in about three weeks the cuttings are struck, the glass is removed, but the cuttings are kept shaded for a time, when they are potted off and returned to their former quarters. The plants are never allowed to become dry at the root, and are lightly dewed over with the syringe on fine afternoons. They soon fill their pots with roots, when they are shifted on into 6-inch and 7-inch pots, and treated as before until they have attained a flowering size, which is about the end of June or early in July; they are then gradually hardened off, and placed out-of-doors in a sheltered situation where they do not get the full force of the midday sun. The plants must be carefully watered, and are never allowed to become dry at the root, as this would cause the leaves to fall, thereby disfiguring the plants. To ward off attacks of red-spider, to which the plant is rather liable, the syringe must be freely used. The plants ripen their wood, and set their flower-buds, at the end of the month of September, or early in October, when they should be removed to a warm greenhouse. I have said nothing about stopping or pinching the growths, because I think the less that this is done the better for the plants, they having a natural tendency to break freely. It makes a fine pillar-plant if allowed to grow freely. "Amateur" might venture to keep his plant a few degrees warmer in winter, for I find that it likes more warmth than ordinary greenhouse plants; but I think the secret of getting it to flower freely is in standing it out-of-doors in the summer time to ripen its wood thoroughly. The plant is also known under the name of Browallia. *T. A.*

Law Notes.

SUTHERLAND *v.* THE CADDER LOCAL AUTHORITY.

The Cadder local authority applied and obtained Parliamentary powers for a sewage scheme extending over a considerable area. Like all schemes of the kind where a wayleave is granted by Parliament, it is subject to suitable compensation to the owners and occupiers of the lands touched. Mr. John Sutherland, nurseryman, Lenzie, feued about 10 acres of ground some fifteen years ago, upon which ground he had founded his nursery business, and carried it on with more or less success during these years. It may be explained that Lenzie is one of these suburban localities, about 6 miles from Glasgow, which has been taken up for cottage and villa residences by the merchants of Glasgow, and consequently the land and the sites for building have correspondingly increased in value. Mr. Sutherland, fully alive to the spirit of the times, had a feuing plan prepared for allocating sites for building purposes in 1874, and in making up his claim for damages, demanded a value quite different from that of the land of some adjoining proprietors, chiefly occupied with agricultural subjects. Moreover, the wayleave selected intersected the lower portion of his holding, and very much interfered with his building plan. The drain itself, which is an ordinary 15-inch spigot and aucet sewage pipe, enters his grounds about 7 feet below the surface, and leaves them about the same depth, while a considerable portion—say 150 yards—towards the centre, from the nature of the ground, the pipes are about a foot above the surface. From the long run of the whole scheme and the want of a sufficient gradient—to speak nothing of flushing from the various months,—the engineer could not give more of a fall than about 1 in 600 which, so far as the claimant is concerned, only aggravates what he looks upon and demands compensation for as a nuisance. After several fruitless efforts to settle the matter amicably there was nothing for it but a submission.

Mr. Sutherland, therefore, named Mr. John Lamont, of Edinburgh, as his arbiter, and the Cadder local authority named Mr. Brand, of Colledge & Brand, C.E., Glasgow, as their arbiter, who, having met, agreed upon Mr. James Hunter, of Austin & McAslan, Glasgow, as the oversman in the reference. Mr. Macquaker, of Martin Mackay & Macquaker, was agent for the claimant; and Mr. Malloch, of McLelland & Malloch, for the respondents; withMr. Morrison, writer, as clerk in the reference—all of Glasgow. These gentlemen having agreed upon a proof, the following parties were cited for the claimant:—Mr. Turnbull, architect; Mr.

C. P. Hogg, C.E.; Mr. Mayberry, valuator, Glasgow; Mr. Ross, builder; Mr. Thos. Scott, valuator, Hawkhead Main; Mr. Jas. Anderson, landscape gardener, Uddingston; and Mr. Welsh, of Dickson & Co., Edinburgh. These gentlemen having visited the ground, they assessed the damages due to the claimant, who in this case, is both owner and occupier, at sums varying from £680 to £850. It was agreed to begin with by the parties that the subject should be treated with as a feuing subject, and consequently evidence was led almost entirely in that direction, with, of course, the loss assessible in the value of one year's crop. In capitalising the value the witnesses differed as to the number of years' purchase, but there was a general consensus of opinion as to the amount of damages.

The witnesses for the respondents were Mr. Copeland, C.E., the engineer for the works; Mr. Colledge, land agent; Mr. Denison, C.E.; Mr. Taylor, property valuator; Mr. Sutherland, Edinburgh; and Mr. Jas. Thyne McCallum, of Glasgow. These gentlemen assessed the damages from £130 down to a benefit, most of them looking upon the drain as a benefit to the proprietor, and assessing the damages of loss of crop at about £20 to £30, allowing about 2 yards' breadth for the wayleave. The interest of the contest can easily be imagined when it is stated that the proof and debate before the arbiters lasted three days.

Proof being closed, arbiters met subsequently, and Mr. Lamont, on the part of the claimant, averred that, notwithstanding he had proved by his skilled witnesses the major amount of the claim, he, to effect an offhand settlement, would take £600. Mr. Brand, on the part of the respondents, maintained that the claim set forth was excessive, and all he could see his way to offer was £125. Neither of the arbiters would settle the matter, consequently the clerk in the reference was instructed to write out a minute of devolution, and the oversman or umpire, who was present, intimated that he would make "avizandum." We understand that the proposed findings are £439, with costs, against the respondents.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature: Accumulated: Above (+) or below (−) the Mean for the week ending February 25.	Temperature: Accumulated: Above 42°, for the Week.	Temperature: Accumulated: Below 42°, for the Week.	Temperature: Accumulated: Above 42°, difference from Mean since Jan. 1, 1889.	Temperature: Accumulated: Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall: More (+) or less (−) than Mean for Week.	Rainfall: No. of Rainy Days since Jan. 1, 1889.	Rainfall: Total fall since Jan. 1, 1889.	Bright Sun.: Percentage of possible Duration for the week.	Bright Sun.: Percentage of possible Duration since Jan. 1, 1889.
	Day-deg.	Deg-deg.	Day-deg.	Day-deg.	10ths	Inch.		In.		
1	1 —	1	30	— 5	+ 20	1 —	44	9.7	29	12
2	0 av.	3	32	— 3	— 7	3 —	33	3.1	17	24
3	1 —	1	27	— 24	+ 2	3 —	29	2.0	24	21
4	3 —	0	33	— 48	+ 79	2 —	29	2.4	15	19
5	3 —	2	30	— 45	+ 53	5 —	27	2.7	17	18
6	4 —	2	26	— 50	+ 54	3 —	29	3.1	20	17
7	0 av.	6	22	+ 2	— 25	5 —	36	7.8	29	22
8	2 —	1	24	— 24	— 22	6 —	30	3.9	26	20
9	3 —	8	26	— 41	+ 37	8 —	29	5.4	36	24
10	0 av.	12	22	+ 6	— 29	4 —	42	6.2	20	18
11	0 av.	22	12	+ 6	— 20	5 —	37	6.8	23	22
12	1 —	13	4	+ 1	— 30	6 —	38	4.3	26	26

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending Feb. 25, is furnished from the Meteorological Office:—

"The *weather* has been cloudy and unsettled very generally, with occasionally slight falls of snow over the greater part of the kingdom, and some sleet or rain in the extreme west and north. In some localities, however, a few intervals of bright sunshine were experienced.

"The *temperature* has ranged from 3° to 4° below the mean over England; but in Ireland, and also in most parts of Scotland, it has equalled the normal values for the time of year. The highest of the maxima, which were recorded either on the 19th or 20th, ranged from 48° in 'Scotland, W.,' to 56° in 'England, S.' The lowest of the minima were registered in most places on the 24th, and varied from 22° to 26° in Scotland, from 23° to 24° in Ireland, and from 23° to 29° over England. In the 'Channel Islands' the lowest reading was 33°

"The *rainfall* has been less than the mean in all districts. Over the greater part of England the fall has been very slight.

"*Bright sunshine* has been in excess of that recorded last week in the north and west of Scotland, but in nearly all other districts it has been less prevalent. The percentage of the possible amount of duration ranged from 15 in 'England, E.,' and 17 in 'Scotland, E.,' and the 'Midland Counties.' to 36 in 'England, S.W.'"

Obituary.

John Reynolds Vaisey.—We greatly regret to announce the death, on February 24, of this gentleman at Cambridge, from the effects of fire, under very distressing circumstances. Mr. Vaisey was a promising botanist.

MARKETS.

COVENT GARDEN, February 28.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. Ed.]

A steady business doing, with prices firm. *James Webber, Wholesale Apple Market.*

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	–18 0	Foliage plants, various, each ...	2 0	–10 0
Arum Lilies, p. doz.	9 0	–15 0	Ficus elastica, each	1 6	– 7 0
Azaleas, dozen	...24 0	–42 0	Genista, dozen ...	9 0	–18 0
Cineraria, per dozen	8 0	–12 0	Hyacinths, dozen ...	6 0	– 9 0
Cyperus, per dozen	4 0	–12 0	— Rom., doz. pots	9 0	–10 0
Dracæna terminalis, per dozen ...	...30 0	–60 0	Lily-of-Val., doz. pts.	18 0	–30 0
— viridis, per doz.	12 0	–24 0	Marguerites, doz. ...	6 0	–12 0
Erica, various, doz.	12 0	–30 0	Palms in var., each	2 6	–21 0
Euonymus, in var., per dozen ...	... 6 0	–18 0	Pelargoniums, scarlet, per dozen	6 0	– 9 0
Evergreens, in var., per dozen ...	... 6 0	–24 0	Primulas, per dozen	4 0	– 6 0
Epiphyllums, doz.	...18 0	–30 0	Solanums, dozen	6 0	–12 0
Ferns, in var., doz.	4 0	–18 0	Tulips, dozen pots	6 0	– 9 0

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutillons, 12 bun.	3 0	– 6 0	Marguerites, 12 bun.	3 0	– 6 0
Anemone, Fr., 12 bun.	2 0	– 6 0	Mignonette, 12 bun.	2 0	– 4 0
Arum Lilies, 12 blooms	3 0	– 6 0	Narcis., paper-white, (French), 12 bun.	2 0	– 6 0
Azaleas, 12 sprays	0 6	– 1 0	— double, 12 bun.	1 6	– 3 0
Bouvardias, per bun.	0 9	– 1 6	Pelargoniums, 12 spr.	1 0	– 1 6
Camellias, white, 12 blooms ...	2 0	– 4 0	— scarlet, 12 spr.	0 6	– 0 9
— red, 12 blooms	0 9	– 2 0	Primroses, 12 bun.	1 0	– 1 6
Carnations, 12 blms.	2 0	– 3 0	Primulas, dbl., 12 sp.	1 0	– 1 6
Chrysanthemums, dozen bunches ...	2 0	– 4 0	Roses, Tea, per doz.	2 0	– 6 0
Daffodils, dbl. 12 bun.	4 0	– 9 0	— coloured, dozen.	2 0	– 4 0
— single, 12 bun.	6 0	–12 0	— red, per dozen	6 0	– 9 0
— French, 12 bun.	2 6	– 4 0	— Safrano, dozen.	2 0	– 4 0
Eucharis, per dozen	3 0	– 6 0	Safrano (Fr.), doz.	1 0	– 3 0
Gardenias, 12 blooms	15 0	–30 0	Snowdrops, 12 bun.	1 0	– 3 0
Heliotropes, 12 spr.	0 6	– 1 0	Tuberoses, 12 blms.	2 0	– 4 0
Hyacinths, Roman, 12 sprays ...	... 1 0	– 1 6	Tulips, 12 blooms	0 8	– 1 0
Lilac, white Fr., bun.	4 0	– 6 0	Violets, 12 bunches	1 0	– 1 6
— lilac-coloured, p. bunch ...	... 3 0	– 5 0	— dark, Fr., bunch	1 0	– 2 0
Lily-of-Val., 12 spr.	0 6	– 1 0	— Parme, Fr., bun.	2 6	– 3 6
			Wallflowers, 12 bun.	4 0	– 6 0
			— French, 12 bun.	1 0	– 2 0

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2 0	– 4 0	Lemons, per case	...12 0	–21 0
— Canada and Nova Scotia, per barrel	7 0	– 17 0	Pine-apples, Eng., lb.	1 6	– 2 0
Cobs, 100 lb.	...100 0	–110 0	— St. Michael, each	2 0	– 8 0
Grapes, per lb.	1 6	– 1 0	Strawberries, per oz.	1 0	– ...

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100 ...	...12 0	– ...	Mustard and Cress, punnet ...	... 0	4 – ...
— French, bundle	18 0	– ...	Onions, per bunch	... 0	5 – ...
Beans, Jersey and French, per lb.	... 3 6	– ...	Parsley, per lb.	... 1	0 – ...
Beet, red, per dozen	1 0	– 2 0	Peas, French, per lb.	1 0	– ...
Carrots, per bunch	... 0 6	– ...	Potatos, per cwt.	... 4	0 – 5 0
Cauliflowers, each	... 0 3	– ...	— kidney, per cwt.	4 0	– 5 0
Celery, per bundle	... 1 6	– 2 0	— new French, lb.	0 6	– ...
Cucumbers, each	... 1 0	– ...	Rhubarb, bundle	... 0	6 – ...
Endive, per dozen	... 3 0	– ...	Seakale, punnet	... 2	6 – ...
Green Mint, bunch	... 1 0	– ...	Shallots, per lb.	... 0	6 – ...
Herbs, per bunch	... 0 6	– ...	Spinach, per bushel	... 5	0 – ...
Leeks, per bunch	... 0 4	– ...	Tomatos, per lb.	... 2	0 – ...
Lettuce, per dozen	... 1 6	– ...	Turnips, per bunch, new ...	... 0	5 – ...
Mushrooms, punnet	1 6	– ...			

Potatos.—Beauty of Hebron, 80s.; Imperators, 70s.; Magnum Bonums, 80s.; and Dunbar Regents, 110s. per ton.

SEEDS.

London: *Feb.* 28.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report to-day's market quiet. Numerous inquiries for samples and prices come to hand from the country; but the majority of buyers still appear determined to postpone their operations as long as possible. Red Clover seed and Trefoil hold their own, but Alsike and white can be obtained on somewhat easier terms. This is also true of both Italian and perennial Rye-grasses. Tares are in good request. For bird seeds the sale is slow. In Scarlet Runner Beans the tendency is still strongly upwards. Peas and Haricots are unchanged.

FRUIT AND VEGETABLES.

Spitalfields: *Feb.* 27.—The supplies more than equal to the demand, trade being very slow. Prices as under:—Savoys, 2s. to 5s. per tally; Greens, 6s. to 9s. do.; Broccoli, 6d. to 1s. 3d. per dozen; Brussels Sprouts, 9d. to 1s. 3d. per half-sieve; Turnip-tops, 2s. to 2s. 3d. per sack; Spinach, 1s. 9d. to 2s. 6d. per bushel; Seakale, 1s. 3d. to 1s. 6d. per punnet; Parsnips, 6d. to 9d. per score of 22; Beetroots, 6d. to 10d. per dozen; Turnips, 2s. to 2s. 6d. per dozen bunches; Carrots, 1s. 6d. to 2s 6d. do.; Radishes, 4d. to 9d. do.; Parsley, 7s. to 10s. do.; Rhubarb, 1s. 9d. to 2s. 3d. per dozen bundles; Horseradish, 1s. to 1s. 6d. per bundle; Celery, 10s. to 14s. per dozen bundles; English Apples, 3s. 6d. to 7s. per bushel; do. 1s. 3d. to 3s. per half-bushel; American do., 9s. 6d. to 15s. per barrel; English Onions, 6s. 6d. to 7s. per cwt.; Spanish do., 7s. to 8s. per case; Bordeaux do., 5s. to 5s. 6d. do.; Dutch do., 3s. 6d. to 4s. per bag; Belgiando., 4s. to 4s. 6d. do.; Endive, 2s. per doz.; Carrots, 20s. to 22s. per ton; Mangels, 16s. to 18s do.

Stratford: *Feb.* 26.—Both trade and supply have been good during the past week. Cabbages, 2s. to 3s. per tally; Savoys, 2s. to 3s. do.; Greens, 1s. 3d. to 2s. per dozen bunches; Turnips, 2s. to 3s. do.; 34s. to 40s. per ton; household Carrots, 25s. to 30s. do.; Parsnips, 9d. to 1s. 3d. per score; Mangels, 15s. to 18s. per ton; Swedes, 15s. to 20s. do.; Onions, German, 4s. to 4s. 6d. per bag; do., English, 100s. to 110s. per ton; Apples, English, 2s. 6d. to 6s. per bushel; do., American, 11s. to 16s. per barrel; Watercress, 6d. per dozen; Celery, 6d. to 1s. per roll; Brussels Sprouts, 9d. to 1s. 6d. per half sieve; Carrots, 2s. to 2s. 6d. per dozen bunches; Cress, 2s. per dozen baskets.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending February 25:—Wheat, 29s. 5d.; Barley, 26s. 5d.; Oats, 16s. 1d. For the corresponding week in 1888:—Wheat, 30s. 2d.; Barley, 29s. 8d.; Oats, 16s.

POTATOS.

Borough and Spitalfields: *Feb.* 26.—Market dull, and although supplies are not heavy prices, except for the best qualities, have a drooping tendency. Regents, Scotch, 90s. to 120s.; English, 65s. to 100s.; Hebrons, 90s. to 100s.; Magnum Bonums, 60s. to 100s.; Scotch, do., 90s. to 120s.; other varieties, 60s. to 90s. per ton.

Spitalfields: *Feb.* 27.—Quotations:—Champions, 55*s.* to 60*s.*; Regents, 75*s.* to 110*s.*; Imperators, 75*s.* to 85*s.*; Hebrons, 50*s.* to 70*s.*; Magnums, 65*s.* to 90*s.*; Scotch Magnums, 90*s.* to 110*s.* per ton.

Stratford: *Feb.* 26.—Quotations:—Scotch Magnums, 90*s.* to 120*s.*; do., Regents, 85*s.* to 110*s.*; English Regents, 70*s.* to 90*s.*; do. Magnums, 60*s.* to 90*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime old, 126*s.* to 144*s.*; do., best second, 85*s.* to 120*s.*; do., inferior, 36*s.* to 70*s.*; prime old Hay, 106*s.* to 126*s.*; best new, do., 90*s.* to 105*s.*; inferior, 50*s.* to 70*s.*; old, straw, 42*s.* to 48*s.*; new, 28*s.* to 42*s* per load.

ENQUIRIES.

"He that questioneth much shall learn much."—Bacon.

Removal of Nursery Stock.—Will some reader kindly give me authentic particulars or reference to any statute concerning to the time an out-going nurseryman (in the absence of any express agreement) can take in the removal of his stock, without disturbance from the landlord?

Spent Hops.—Will some correspondent who has used these, kindly state his method of using them, and his experience as to their use? *King Street.*

Tested Thermometers.—Could any one inform us if Kew or Greenwich tested thermometers are to be obtained at a moderate cost, and if so, where, as we find they are too expensive to use generally when purchased here? *P. & Sons.*

NOTICES TO CORRESPONDENTS.

Intelligent Readers, *do* please Note *that letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the* Publisher, and not to the Editor, but that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

A B C Manure: *D. White.* This so-called manure is obtained from town sewage by a system of deposit-tanks, and treatment of the sewage with certain chemicals. The system is, we believe, in use at Aylesbury, and a letter addressed to the A B C Sewage Company there would doubtless be attended to.

Amaryllis: *G. N.* Some of the hybrids and species do not entirely lose their leaves in the winter, but that does not greatly matter. The bulbs may be kept dry, and in their pots, from October until the time arrives to surface them, or repot them in January, February, and March. The bulbs require a long period to mature, and late started bulbs ripen off late, and should not be hurried in the process, although something may be done by full exposure to the sun.

Apple Shoots: *Kent Cob.* These, though young, are scarred by American blight, of which insect several were present. The insects are probably to be found in greater numbers under the bark of the stem and main branches, and on snags just healing over, where they get under the edge of new-forming bark. Many remedies have been tried, and the more effectual are applicable in the winter time. Whale oil, machine oil, or any cheap animal oil, applied with a brush—the oil must not be boiled—will do. On the rough bark of old trees coal-tar and clay may be used, but never on the young bark. Lime-wash made thick, with a little flowers of sulphur in it, and some size to make it stick, is also useful. The idea is to smother the insects without injury to the tree. Oils kill them by their smothering action. Infested trees will be found to have the aphis or blight on the roots as well as the top. The roots may be cleared of earth for a yard round the stem, and be drenched with strong soapsuds, seeing that it reaches every cranny. Fresh soil should replace that taken away, and round the stem above ground should be placed loosely a band of tarred hay-rope, or the like; it will hinder the passage downwards and upwards of some of the insects. The females are wingless, not so the males; so that, if a female can be kept from the trees, the attacking party would not increase much by accessions of males only. Keep the ground clean, and do not let trees touch each other overhead. The blight always shows itself badly in neglected orchards. Spraying with petroleum muslin, as frequently described in these pages, should be tried.

Azalea mollis: *Exors.* Pretty, large trusses of a useful colour, and sweetly scented; worth propagating.

Cinerarias: *G. H.* Only of middling quality as regarded the single-flowered varieties, whilst the blooms of double varieties were as good as we have seen them.

Corrections.—Mr. Bennett, in his previous week's Calendar ("Fruits under Glass," p. 239), was made to say that the late Mr. Barnes engined his Pine plants throughout the "summer;" as a matter of fact, he did so from March onwards. But it must not be inferred from that that the practice in Devonshire is suitable for the Pine-apple in the Midlands, or further north, and Mr. Bennett would advise dewing over with a syringe instead—at this period of the year, at least.—In "New Roses," p. 235, Marchioness of Lorne was stated in error by *Wild Rose* to have been sent out by Messrs. Paul & Sons, instead of by Messrs. W. Paul & Son.

Fungus in Drawing-room: *G. S.* This is an Agaric grown under very peculiar and abnormal conditions, by which it has been so modified that it is difficult to determine the species. In all probability it is Agaricus polycephalus.

Gardeners' Orphan Fund: *Curious.* The reports are furnished to us as official, if they are not, the matter should come before the committee.

Lemons: *T. Joyce.* Plants of Lemons grow very well when fan-trained, and would probably accommodate themselves to a modification of the single cordon fashion of training. The caterpillars may be kept at bay by a band of rag or paper, smeared with cartgrease, fastened round the stems; or by means of two semicircular earthenware or tin troughs, encircling the stems a few inches off, and kept filled with water.

Names of Fruit: *F. B. S.* Not known.—*D. P.* Not known.

Names of Plants: *E. L.* 1, Ceanothus azureus; 2, Lonicera; 3, Photinia serrulata; 4, Garrya elliptica (the labels 3 and 4 were displaced, so we are not sure which was intended by 3 and which by 4); 5, not recognized; 6, Jasminum nudiflorum; 7, Cratægus Pyracantha; 8, Berberis nepalensis; 9, Ceanothus; 10, Cryptomeria japonica var. Lobbi; 11, Thuia (Biota) orientalis.—*J. R., Rugby.* Zygopetalum Mackayi.—*B. C.* Insufficient specimens: send others, packed in damp moss, in a stronger box.—*W. W.* Ruscus racemosus.—*J. C.* Acacia lineata.—*L. Cummings.* Nephrodium (Lastrea) seligerum, Baker; native of Tropical Asia. *J. G. B.*—*B. S. O.* Ligustrum sinense.—*N. B.* 1, Next week; 2. Cœlogyne flaccida; 3, Odontoglossum Insleayi; 4, O. constrictum. —*L. & B.* Corynocarpus lævigatus.—*W. M.* Cœlogyne cristata.—*W. H. C.* 1, Probably Lælia anceps; 2, Probably Epidendrum fragrans. The appearance of the Palm is, no doubt, owing to too much dry heat.—*Subscriber.* 1, Phaius grandifolius; 2, Cattleya Trianæ, badly developed; 3, Dendrobium Wardianum, small form. The black spots are spores of a fungus growing in some other part of the house, and which are forcibly ejected when ripe. The do no harm.—*H. J.* 1, Thuia gigantea; 2, Cryptomeria elegans; 3, Abies amabilis; 4, Cedrus atlantica, probably; 5, Cryptomeria japonica.

Plants for a narrow Border: *New Subscriber.* If you must plant the inevitable Calceolarias in quantity, set them out in April in groups of a dozen or so, and not in a line. The other plants for summer display may consist of dwarf double-flowered Dahlias—no singles; Gladiolus in variety, not forgetting G. Colvillei; Cannas in variety; Ricinus Gibsoni, a few only; Solanum marginatum, and S. robustum, a few only as starers; Clarkia integripetala; Mignonette; Ten-week Stock; Candelabra; Larkspurs; Calendula Meteor; African an French Marigolds—these are fine things when planted in good ground, and grown thinly; the taller descriptions of German Asters; tall-growing Tropæolums; Sweet Peas and Ipomæas in variety. These and other climbers may be sown or planted a few together, and fastened as they grow to neat, painted sticks. There are several other annuals of a dwarfer habit than the foregoing, and also Grasses, which a good seedsman would indicate as being of use for the purpose.

Potato: *R. D.* Ashleaf, probably that known as the Egyptian. It is as good as the common variety, but hardly so early in coming into use.

Slugs: *G. N.* They may be trapped with pieces of tile and slate raised just high enough from the soil to allow them to crawl underneath. These pieces should be examined daily, and the creatures collected. Bran laid in small heaps may be placed about in the houses. This substance has great attractions for slugs and snails. Hunt for them at night amongst the Petunia and Lobelia plants. The black slugs are the more destructive, the gardener being apt to forget their presence because they are not so noticeable as their whitish-coloured brethren.

Strawberry Plants: *Gardener.* The materials are not sufficient for the purpose of investigation. Send one or two affected plants, with soil, &c., just as they grew, in pots.

Woodlice: *A. M.* Set traps for them. Hay stuffed into small pots is sufficient for the purpose. Pour boiling water repeatedly between the sides of the bed and the wall. Perhaps a little carbolic acid would drive them away if strewn in their haunts.

Young Gardener in North America: *D. T.* Go to Boston, or New York; or, if you like Canada, to Montreal, Ottawa, or Quebec. If you have a fair knowledge of your business, and are healthy and steady, you will, doubtless, ultimately succeed in life as a gardener. Do not be over nice, but take to any kind of work or a time, and until you have found the opportunity to look about you. Keep away from the temptations of the towns. In market gardens, of which there are many near the large centres of population, there is a large demand for labour in the spring—for much work has to be done in a short time.

CATALOGUES RECEIVED.

J. Forbes, Hawick, N.B.—Florists' Flowers.
D. Landreth & Sons, Philadelphia, Pa., U.S.A.—Vegetable and Flower Seeds.
E. P. Dixon, Hull—Farm Seeds.
B. L. Coleman, Sandwich, Kent—Seeds.
T. S. Ware, Hale Farm Nurseries, Tottenham—Catalogues of Hardy Perennials, &c.; Chrysanthemums; Hardy Florists' Flowers; and Climbers, &c.

Communications Received.—J. A.—W. B. H.—C. N.—J. R.—H. E.—M. C. C.—H. Correvon, Geneva.—A. P.—F. Sweeny.—A. Bishop.—G. Howes.—W. R.—H. H. W.—B. A.—J. J. W. A. D.—J. D.—Thos. Findlay (next week).—G. Bunyard.—W. S.—W. Sutherland.—A. F. B.—P. E. N.—R. R.—Wilh. Hans.—W. Madders.—J. Forbes.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquiries in the current week.*

The Swiss Stone Pine—Pinus Cembra.—It is a mistake to plant this Pine in soil that overlies the chalk or is impregnated with lime. In the gardens of which I have charge the tree has been planted in different parts, and in a variety of soils, some heavy some lighter, but all more or less containing lime; although the chalk beds are not to be found until a depth of at least 6 feet is reached. In all instances the plants present the same appearance, pale yellow, sickly, look in the foliage, and do not make progress at all. In such a case as mine the removal of all the soil about the roots replacing it with leaf-soil, sand, and vegetable refuse, is the mode to adopt to renew the vigour of the trees. Soil varies so much in its suitability for growing Conifers, and this fact, not always being well known, leads persons to plant them in districts in which they will not prosper; whilst the Austrian Pine and Abies cephalonica and A. pinsapo flourish in a soil similar to ours, the P. cembra will barely exist. *M.*

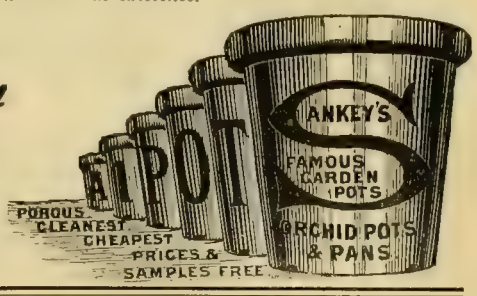
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PLANTING SEASON.—The following are a few articles we can supply in large quantities:—

	Per 100.	Per 1000.
ASH, common, stout, 2 to 3 feet ...	3s. 0d.	22s. 0d.
ALDER, common, stout, 2 to 3 feet ...	3 0	20 0
BLACKTHORN, 2 feet	1 6	12 6
Notwithstanding the strong recommendation of Prunus myrobella, Blackthorn still makes the best game covert.		
BROOM, white, 3 to 4 feet	12 0	
PINUS AUSTRIACA, fine, 1½ to 2 feet	12 0	
GORSE, common, 2-year	1 0	7 6
PRIVET, evergreen, fine, 2 to 3 feet ...	3 0	25 0
SYCAMORE, common, 2 to 3 feet ...	3 0	25 0
BOX, broad leaf, bushy, 1 to 1½ foot ...	17 0	
LAURELS, common, 1½ to 2 feet ...	10 0	

CATALOGUES, Wholesale and Retail, on application.
THOMAS PERKINS AND SONS, 34, The Drapery, Northampton.

PICEA CONCOLOR.
PICEA CONCOLOR VIOLACEA.
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Perfect Specimens of PICEA CONCOLOR, the foliage of which is pea-green, 3 to 4 feet high, 10s. 6d. each, 90s. per dozen; ditto, 4 to 5 feet, 15s. each, 150s. per dozen.
Perfect Specimens of P. CONCOLOR VIOLACEA, the foliage of which is of a beautiful silvery or glaucose-blue shade, 3 to 4 feet high, 10s. 6d. each; ditto, 4 to 5 feet, 15s. to 31s. 6d. each.
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1 Cwt., and Oil Mixture, Free to all Stations.
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Prices, Patterns, and Testimonials, Post-free.
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GERMANIA, 2s. 6d. each; 27s. dozen (First-class Certificate R.H.S.); and GOLDEN STAR OF HILDERSHEIM, 1s. 6d. each 15s. dozen. Both these are splendid.

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ONION SEED.—Genuine "Home Grown Seed." The past season's crop having been a failure, F. GEE is happy to say he has fine stocks of SUPERIOR BEDFORDSHIRE GROWN yearling Seed, "of his own growing," which he can highly recommend, and may be relied upon, whereas foreign Seed, which is being sold by many at a much cheaper rate, cannot be depended upon. The following kinds can now be supplied at specially-reduced prices, for Cash, as under:—
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WHITE SPANISH and NUNEHAM PARK, very fine Stocks, 7s. 6d. per lb.
MANGEL SEED (Crop 1888); fine sample for the season. Gee's Bedfordshire Prize Yellow Globe, the heaviest cropper and finest quality ever sent out, 30s. per cwt.; New, 8s. 8d.; Bags, 8d. each.
Carriage or post free.
Special Terms for large quantities on application.

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POTATOS for SEED.
MYATT'S PROLIFIC EARLY ASHLEAF KIDNEY, splendid stuff; a large quantity to offer at 70s. per ton, on rails; 5s. per cwt. do. Also
BEAUTY OF HEBRON, at 80s. per ton; 5s. per cwt.
WHITE ELEPHANT, at 70s. per ton; 4s. 6d. per cwt.
EARLY ROSE, very fine, at 70s. per ton; 4s. 6d. per cwt.
SCHOOLMASTER (Turner's True), at 90s. per ton; 5s. per cwt.
SUTTON'S EARLY REGENT (True), at 90s. per ton; 5s. per cwt., on rails, for cash.
Sacks to hold 1 cwt., 6d. each; do., 2 cwt., striped, at 9d. each; do., 2 cwt. 4 lb. sacks, at 1s. each.
Many other kinds can be supplied. Special prices to very large buyers on application.

QUICKS or WHITE THORNS, about 2,000,000 to offer. Splendid strong fibrous rooted stuff can be supplied as follows, for cash on rails:—2-yr.-old, 7s. per 1000; 3-yr.-old, grand stuff, principally 2 to 3 feet, extra strong, wonderfully cheap, 10s. per 1000; 4 and 5-yr.-old, transplanted, 15s. and 20s. per 1000; picked for gap stopping, 30s. per 1000.
PRIVET, 15s., 20s., 30s., and 40s. per 1000.
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ARAUCARIA IMBRICATA, 2 to 3½ feet.
CEDRUS DEODARA, 7 to 12 feet.
CUPRESSUS LAWSONIANA ERECTA VIRIDIS, 2 to 4 feet.
PICEA NOBILIS, 3 to 8 feet.
,, LASIOCARPA, 4 to 10 feet.
RETINOSPORAS, in variety.
THUIA LOBBII, 3 to 5 feet.
THUIOPSIS DOLABRATA, 2 to 4 feet.
YEWS, Irish, 3 to 9 feet.
,, variegated, in great variety of form and colour.
CHESTNUTS, MAPLES, SYCAMORE, ELMS, LIMES, ALDER, BIRCH, MOUNTAIN ASH, POPLARS, &c.
AUCUBAS, BOX, YEWS, HOLLIES (green and variegated), LAURELS (in variety), Portugal LAURELS, &c.
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RHODODENDRONS, best named varieties.
Also a general Stock of other ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, &c.
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SHARPE'S QUEEN.
2s. 6d. per Pint, 1s. 6d. per Half-pint.
Sealed Packet, Post-free.
THE HEAVIEST CROPPING VARIETY.
THE FINEST POD.
THE FINEST IN COLOUR.
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THE FINEST IN EVERY WAY.
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TURNIP, PURPLE-TOP SCOTCH,
,, WHITE GLOBE,
,, DEVONSHIRE GREYSTONE,
MANGEL, LONG RED,
,, YELLOW INTERMEDIATE,
,, YELLOW GLOBE.
Having Surplus Stocks of the above, we shall be pleased to quote very low prices to large buyers.
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To Grow Fine Vegetables and Flowers, Gardeners should Use
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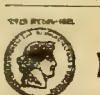
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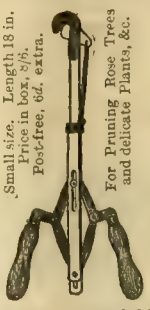
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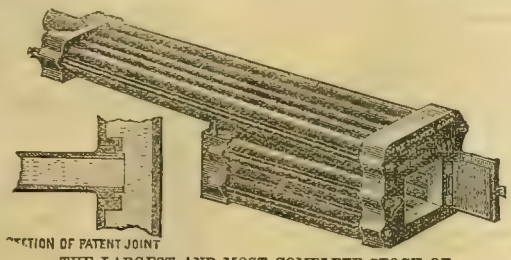
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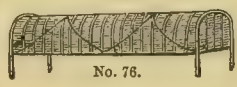
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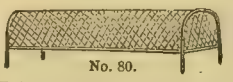
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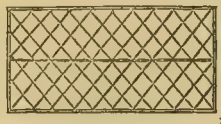
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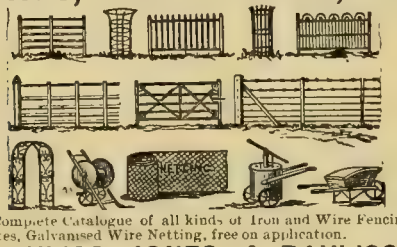
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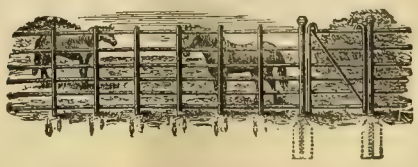
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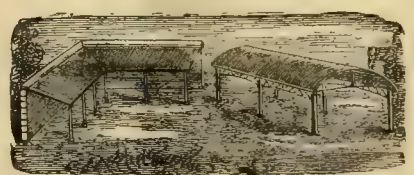
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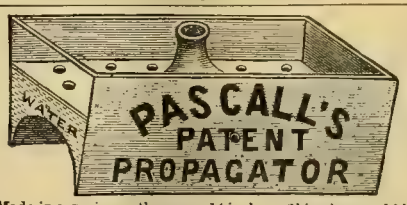


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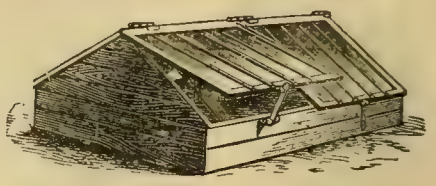
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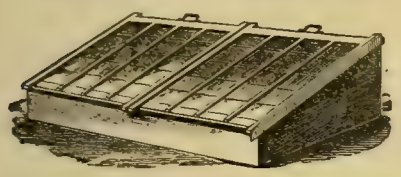
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GARDENER (Head Working).—Age 30; thirteen years' experience in all branches of the profession. Highest references as to character and ability.—G. H., 3, Oaklea Passage, Kingston-on-Thames.

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GARDENER (Under), where three or more are kept.—Age 20; two years' good character. Bothy preferred. Strong and willing.—C. H., Swallowfield, Reading.

GARDENER (Under).—Age 24; steady. Good character.—T. BRINKLOW, Horn Hill, Chalfont St. Peter's, Bucks.

GARDENER (Under).—Age 18; used to Glass and Kitchen Garden. Good references. Abstainer. —A. C., 52, Bathurst Mews, Paddingt n, W.

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GARDENER (Under), Indoors or Out.—Age 22; seven years' experience. Two years' good character from last place.—J. KEEN, Maywood, Kenilworth Road, Leamington.

GARDENER (Under), Inside or Out.—Bothy preferred; five years in present situation. Good character.—G. C., Rose Cottage, Cross Street, Farnborough, Hants.

To Market Gardeners.

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JOURNEYMAN, in the Houses.—Age 30; well-up in Plant Growing, &c. Good references.—T. T., 52, Castle Street, Coventry.

JOURNEYMAN, in the Houses.—Can be recommended by J. EVANS, Gardener to Lady Ashburton, Melchet Court, Romsey, Hants.

JOURNEYMAN, in the Houses.—Age 20; three and a half years' experience. Good character.—A. BADDILEY, Sprotbro, Doncaster.

JOURNEYMAN.—Age 17; strong and willing. Eighteen months in present place. Can be well recommended.—J. EDWARDS, Gardens, Rhiewport, Berriew, R.S.O.

JOURNEYMAN; age 19.—Mr. Biggs, Garnstone, Weobley, Herefordshire, will be pleased to recommend Alfred Smith as above, who has been with him two years.

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JOURNEYMAN, in the Houses; age 23.—H. Porter, Gardener at Studley Castle, near Redditch, can with confidence recommend a young man as above.

JOURNEYMAN, Inside, or Inside and Out.—Age 21; highly recommended by present Gardener. Three years' excellent character. Abstainer.—WM. COLEMAN, The Priory, St. Helen's, Ryde.

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JOURNEYMAN (Inside and Out), where there is a Kitchen Garden.—Age 22; good reference. Nine years' experience. Bothy preferred.—R. BARFOOT, 1, Lily Terrace, Warwick Road, Kensington, W.

JOURNEYMAN, in the Houses.—Age 20; three years Outside, and three years under Glass. Highly recommended. Total abstainer.—W. PHILLIPS, Bicton, Devon.

JOURNEYMAN, Inside and Out.—Age 22; eight years in present place. Good character.—HEAD GARDENER, Kingscote Park, Wotten-under-Edge, Gloucestershire.

JOURNEYMAN, in the Houses.—Age 22; seven years' experience. Good character from present and previous employers.—H. N., The Gardens, Lockerbey Hall, Romsey, Hants.

JOURNEYMAN, in the Houses.—Age 21; abstainer. Five years' character from previous, three from present employer. Knowledge of Vines, Cucumbers, Melons, &c.—J. SHERLOCK, Adhurst Gardens, Petersfield.

JOURNEYMAN, in the Houses.—Age 21; good knowledge of Orchids, Stove and Greenhouse Plants. Eight years' experience.—J. HYGATE, 1, Southsea Terrace, Southsea Road, Kingston-on-Thames.

JOURNEYMAN, in the Houses.—Age 20; seven years' experience; three in present place. Strong and active. Well recommended.—C. LONGMAN, Byam's Gardens, Marchwood, Southampton.

JOURNEYMAN, Inside, in a good establishment.—Age 22; six years' experience.—Mr. Miller, Romley Lodge, Esher, Surrey, is pleased to recommend a really sober, honest, and industrious young man as above. Bothy preferred.

JOURNEYMAN, in the Houses.—J. Walker, Waltham Hall, Grimsby, will be pleased to recommend H. Withy as above—two years here and five years with Mr. Iggulden, Marston, Frome, who will strongly recommend Withy as a persevering industrious young man.

JOURNEYMAN, in Houses, or good Second.—Age 20; four years' good character. Bothy preferred.—HARRINGTON, Corbet's Ley, Romford, Essex.

IMPROVER, or JOURNEYMAN, in a Gentleman's establishment, under a good Gardener.—Age 21; six years' good character. Bothy preferred.—W. DAVIS, The Gardens, Dinham House, Ludlow.

IMPROVER, Inside; age 18.—Mr. Street, Gardener, Cannon Hill, Madenhead, will be pleased to recommend P. Flexen as above. Three years Inside and Out.

IMPROVER, under a good Gardener.—Age 18; one year's experience. Good character. Small Premium offered.—P. PILCHER, Littleton Park Farm, Staines.

IMPROVER, Indoors and Out.—Age 18; three years' good character.—E. A., Glebe Farm, Hanworth, Middlesex.

IMPROVER, Indoors and Out.—Three years' experience. Good character.—W. KENDALL, Gardener, Grinkle Park, Loftus-in-Cleveland, Yorkshire.

IMPROVER, in a Gentleman's Garden.—Age 19; good character from present and previous employers. Five years' experience.—SCARBOROUGH, Harrington Hall Gardens, Spilsby.

IMPROVER; age 18.—H. Parrish, Head Gardener, Frampton Gardens, Dorchester, can recommend a young man as above Indoors. Four years' experience. Bothy preferred. Total abstainer.

IMPROVER; age 17.—James Bradley, The Gardens, Prescot House, Stourbridge, wishes to recommend a respectable educated youth. Has had three years with Orchids, &c. Is a Gardeners' son. Small premium given. Address as above.

ASSISTANT, Herbaceous Department preferred.—Good references from Mr. T. S. Ware, of Tottenham, where he has just terminated a term of four years' Apprenticeship.—C. H. REA., 16, Cunningham Road, Tottenham, London.

TO GROWERS.—W. T. Clinch can confidently recommend a young man (age 26), well versed in Growing for Market Tea Roses, Ferns, Choice Cut and Pot Stuff, Tomatos, Grapes, Cucumbers. Please state wages given.—Rowe's Farm, Hayes, Kent.

TO HEAD GARDENERS.—Wanted, by a strong youth (age 17), a situation under a good Head Gardener. Five years' in House and Garden. Highly recommended. Good character. Premium given. Bothy preferred. —For reference apply, THE GARDENER, New Milverton Vicarage, Leamington.

TO MARKET NURSERYMEN.—Situation wanted as above (age 19); used to Soft-wooded Plants. Three and a half years' reference from present employer. State wages.—KNIGHT, Shedfield Cottage, Belmont Street, S.E.

TO NURSERYMEN.—Wanted, a situation under Propagator in a good Nursery. Age 23. First-class testimonials.—K., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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TO MARKET NURSERYMEN.—Young man seeks situation in a Market Nursery. Quick at Potting and Tying, &c.—J. BROWN, 32, Canton Road, Enfield.

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ROYAL BOTANIC SOCIETY, Gardens, Regent's Park, N.W.
EXHIBITION of SPRING FLOWERS, WEDNESDAY, March 20. Gates open at 2 o'Clock. The Band will play from 2.30 to 5.30. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 2s. 6d., at any time.

CRYSTAL PALACE.
ANNUAL SPRING EXHIBITION of PLANTS and FLOWERS,
SATURDAY, MARCH 23.
Entries close March 16. Schedules of Prizes for this and all the Exhibitions of Plants, Flowers, Fruit, &c., to be held during 1889, sent post-free, on application to
Mr. W. G. HEAD, Superintendent, Gardens Department, Crystal Palace, S.E.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.
FLORAL MEETINGS at the Town Hall, Manchester, on TUESDAYS, March 19, and April 30.
GRAND NATIONAL HORTICULTURAL EXHIBITION of 1889 opens at the Gardens on June 7. For particulars, apply to the undersigned.
BRUCE FINDLAY, Royal Botanic Gardens, Manchester.

PRESTON and FULWOOD HORTICULTURAL SOCIETY.
The ELEVENTH GREAT SPRING FLOWER SHOW and FLORAL FÊTE will be held in the Large Public Hall, Preston, on WEDNESDAY and THURSDAY, March 20 and 21 next, when over One Hundred Pounds will be offered in Prizes. Schedules and all other information may be had from JOHN ATHERTON, Hon. Sec.
Fern Bank, Cadley, Preston.
N.B.—All entries must be sent on or before March 11.

BATH BULB SHOW, MARCH 20 and 21.
Entries close March 15. For Prize Schedules, apply to BENJAMIN PEARSON, Secretary, 14, Milsom Street, Bath.

GLASGOW and WEST of SCOTLAND HORTICULTURAL SOCIETY.
The SPRING FLOWER SHOW will be held on WEDNESDAY, March 28, 1889; and the AUTUMN FLOWER SHOW on WEDNESDAY, September 4, 1889, within the City Hall, Glasgow.
Prize Schedules and Tickets of Admission to be had from the Treasurer, Mr. CHARLES MACDONALD WILLIAMSON, 194, West George Street, Glasgow; any of the Directors, or at my Office here. Members' tickets, 5s. each.
FRANC GIBB DOUGALL, Secretary.
167, Canning Street, Glasgow.

J. W. BARNHAM (late of Squelch & Barnham) RECEIVES ON COMMISSION, GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found.
Long Market, Covent Garden, W.C.

Surplus Cut Flowers.
HOOPER AND CO. (Limited) RECEIVE and DISPOSE of any quantity of above at best Market Prices. Boxes, &c., supplied.—Address, Commission Department, HOOPER AND CO. (Limited), Covent Garden, W.C.

PRICE AND CO. will be pleased to RECEIVE and DISPOSE of any quantity of Choice CUT FLOWERS at best Market Prices. 60, Castle Street, Long Acre, W.C., and Flower Market, Covent Garden, W.C. Reference: London and County Bank. TELEGRAPHIC ADDRESS—ADIANTUM, LONDON.

MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, London, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied.
Telegraph Address—"COMMISSION, SIDCUP."

NOTICE.—SQUELCH AND BARNHAM having dissolved Partnership, the Business will be carried on as heretofore by Henry Squelch, on the Premises lately occupied by the Firm. All debts due and payable will be received and discharged by Henry Squelch; all outstanding Empties belong to Henry Squelch.

HENRY SQUELCH (late Squelch & Barnham) RECEIVES CONSIGNMENTS of good Black Grapes, Muscats, Cucumbers, Tomatos, and Beans; also all kinds of choice Hothouse Flowers. H. Squelch's trade being especially for First-class Hothouse Produce, and he having a connection amongst the best Houses in London and Country, is able to command highest Market Prices. Account Sales furnished daily, and accounts settled weekly, or as desired.
Empties and Labels Supplied. Bankers' and other references.
North Row, Covent Garden Market, W.C.

MARECHAL NIELS—MARECHAL NIELS.—Highest market prices guaranteed for really good Blooms of the above.—HENRY RIDES, Fruit and Flower Salesman, Covent Garden, W.C.

To Gardeners.
WANTED, various small STOVE and GREENHOUSE PLANTS, in Mixture, by the 100, &c.; also named Show Pinks, Eucharis, Melon Seeds, Daphne indica, alba, and rubra; Gloxinia Bulbs, Greenhouse Pelargonium Cuttings, named Gold-laced Polyanthus, named Auriculas, Tree and other Pæonies, small Oleanders, Asparagus plumosus nanus, Plumbago rosea. Lowest Trade, cash with order to FLORIST, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Black Poplars.
WANTED, immediately 50 Trees, 10 feet high; must be untrimmed, and branches beginning not higher than 3 feet from root, good bushey Trees, and reasonable in price for prompt cash.
Address, W. J., Davies & Co., Advertising Agents, Finch Lane, London, E.C.

WANTED, IMMEDIATELY, 10,000 good RASPBERRY CANES, Fastolf or Carter's Prolific. Cheap for cash. Send sample with price to
LAWS AND SON, Nurseries, Beccles.

WANTED, JERUSALEM ARTICHOKES and SHALLOTS. Sample and price to
J. W. BARNHAM, Salesman, Covent Garden Market, W.C.

FOR SALE, 24 Volumes of the *GARDENERS' CHRONICLE*, from 1858 to 1881, bound half-calf, equal to new. What cash offers.
F. W. DEAKIN, Downing Street, S.W.

LILIUM AURATUM.—The GOLDEN-RAYED LILY of JAPAN can now be purchased in cases containing 50 fine Bulbs, at 25s. per case, sent free to any Railway Station in England and Wales on receipt of Postal Order for 23s. 9d.; Cases containing 100 fine Bulbs, price 40s. Fine and sound Bulbs, 4s., 6s., 9s., 12s., and 18s. per dozen.
CARTERS', Royal Seedsmen by Sealed Warrants, 237 and 238, HIGH HOLBORN, LONDON, W.C.

TO LARGE PLANTERS of THORN QUICKS.—1 to 1½ foot, 9s. per 1000, £40 per 100,000; 1½ to 2 feet, 11s. per 1000, £50 per 100,000; 2 to 2½ feet, 13s. per 1000; 2 to 3 feet, 15s. per 1000; 3 to 4 feet, 18s. per 1000.
GARLIES MITCHELL, Nurseryman, Stranraer.

SEEDS.—RICHARD SMITH & Co., Worcester, beg to draw attention to the Low Prices of individual articles (Peas especially), and the liberality of the Collections at Fixed Prices as set forth in their Illustrated SEED LIST, which will be sent Free on application. All Seeds, &c., are of the *best possible* quality.

CHOICE GERMAN FLOWER and VEGETABLE SEEDS.
CATALOGUES free on application.
FRED. ROEMER, Seed Grower, Quedlinburg, Germany.

PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey, and Flower Market, Covent Garden, W.C.

TREES and SHRUBS for the Sea Coast.
CATALOGUE free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ORCHIDS.—Clean, well-grown plants, at low prices. Specimen Orchids a specialty. Price LIST free.
JAMES CYPHER, Exotic Nurseries, Cheltenham.

MAIDENHAIR FERN.—Bunches always ready. Terms cash.
TUDGEY, Home Farm, Walton-on-Thames.

BEGONIA SEED.—Box's Jubilee varieties are the best both for quality and quantity; of Singles per packet, 6d. and 1s.; of Doubles, 10d. and 1s. 6d. Collections and larger packets, also tubers, as per list, post free with seeds.—JOHN R. BOX (for ten years J. Laing's sole partner), Seedsman and Begonia Grower, Croydon.

KELLY AND WALSH (Limited), Exporters of ORCHIDS, Singapore, Straits Settlements.
Orders executed from £5 upwards.
CATALOGUES free on application.

STACHYS TUBREIFERA, the new Tuberous-rooted Vegetable. Awarded First-class Certificate R. H. Society. Per 100 tubers, 1s. 6d. Free by Parcel-post.
DICKSONS (*Limited*), The Royal Seed Warehouse, CHESTER.

CHRYSANTHEMUM CULTURE.—Standen's Manure, admitted by growers to be unrivalled for this purpose; in tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each.
Sold by all Seedsmen.

SULPHIDE of POTASSIUM (Harris).—A certain cure for Mildew on Plants, Red Spider, Aphis, &c. Enough to make 32 gallons of solution, free for 1s. 3d. The only kind to use is "Harris's specially prepared Sulphide of Potassium." Sole Manufacturers:—
PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SEND FOR New Illustrated CATALOGUE of Conservatories, Greenhouses, Garden Frames, Propagators, post-free, for 6 stamps, deducted from first order.
CHARLES FRAZER, Palace Plain Works, Norwich.
Great Reduction in Prices.

SALES BY AUCTION.

Wednesday Next—(Sale No. 7886.)

Choice-named Standard and Dwarf ROSES from a well-known English grower; Pyramid, Dwarf-trained, and Standard FRUIT TREES to name; Evergreen, Hardy Ornamental SHRUBS and CONIFERS, CARNATIONS, PICOTEES, and other HARDY PLANTS; Home-grown LILIUMS, FREESIAS, GLADIOLI, LILY of the VALLEY Crowns, SPIRÆAS, TUBEROSES, LILIUM AURATUM from Japan, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, NEXT, March 13, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7887.)

5000 grand Bulbs of LILIUM AURATUM, 2250 L. KRAMERI, 300 L. A. MACRANTHUM, 60 L. SPECIOSUM ALBUM, just received from Japan, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 14.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7887.)

Instead of Wednesday, as previously announced.

SPECIAL SALE OF ORCHIDS IN FLOWER AND BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38 King Street, Covent Garden, W.C., on THURSDAY NEXT, March 14, at half-past 12 o'Clock precisely, a choice Collection of ORCHIDS in FLOWER and BUD, comprising Lycaste Skinneri alba, L. Skinneri, many grand specimens and varieties; fine Odontoglossums, including a magnificent variety of O. Prionopetalon; choice hybrid and other rare Cypripediums, Dendrobium Brymerianum, D. Dominianum, D. Ainsworthi, and D. Wardianum, &c.

Also fine plants of CYPRIPEDIUM INSIGNE HORSMANIANUM, CATTLEYA PORPHYROGLOSSA, ONCIDIUM ROBUSTISSIMA, and O. BOOTHIANUM, from Messrs. J. Horsman & Co.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7887.)

JUST RECEIVED DIRECT.

4000 EUCHARIS CANDIDA, in grand condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 14.

On view morning of Sale, and Catalogues had.

The Valuable Collection of Orchids formed by H. J. BUCHAN, Esq.

MR. J. C. STEVENS has received instructions from H. J. Buchan, Esq., of Wilton House, Southampton (in consequence of the land having been bought for building), to offer for SALE, without the least reserve, the FIRST WEEK IN APRIL, his celebrated COLLECTION of ORCHIDS, which comprises some of the finest varieties of Odontoglossums in the country, besides all the leading varieties of other things.

Further particulars in next Advertisement.

Early Sale, Isleworth,

To MARKET GARDENERS, FARMERS, &c.

MESSRS. MOSS AND JAMESON will SELL by AUCTION, on MONDAY, March 11, at 12 o'Clock precisely, on the Premises, known as Jackson's Market Gardens, Isleworth. Plant consisting of FORCING FRAMES, BARROWS, LADDERS, PLOUGHS, and other GARDENING IMPLEMENTS; also a few lots of HOUSEHOLD FURNITURE.

May be viewed on Saturday prior to Sale. Catalogues to be had on the Premises; and at the Auction and Estate Offices, 7, Chancery Lane, W.C.

Re **Tomkins, St. Albans.**

MR. W. DORANT will SELL by AUCTION, on WEDNESDAY, March 20, 1889, at 12 noon, upon the Premises, 20, George Street, St. Albans, Herts, the valuable large Stock-in-Trade of SEEDS (FLOWER and VEGETABLES), all in choicest varieties, ready for immediate sowing, also Bales of Raffia, Sacks, Bags, Cases of Flower Sticks, Labels, Tallies, Pockets, Weighing Machine, new Seed Winnower, Sieves, Measures, Barrows, Trade Fixtures, Mahogany Counters and Nests of Drawers, Show Cases, Shelves, Gas Fittings, Pulley Chains, Office Furniture, and other items, together with the valuable Lease of the above extensive Premises.

On view four days previous, and on morning of Sale. Catalogues obtained of the Trustee, F. C. GOODCHILD, Esq., 25, Old Jewry, E.C.; of A. EWEN, Esq., Official Receiver, Luton, Beds; or of W. DORANT, Auctioneer, Victoria Street, St. Albans.

Monday Next.

SPECIAL SALE of IMPORTED and ENGLISH-GROWN LILIES, comprising, 6500 LILIUM AURATUM, unusually fine Bulbs; about 9000 VARIOUS LILIES, including 800 Lilium speciosum rubrum, cruentum, and album, Krætzeri, L. auratum rubro-vittatum and virginalis; 1000 L. longiflorum for forcing, 200 L. platyphyllum, L. Brownii, and many others; and a selection of named Hybrid JAPANESE IRIS, perfectly hardy, and easily grown. They produce immense flowers, and have been awarded many First-class Certificates.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, March 11, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Tuesday Next.

Named CARNATIONS and PICOTEES, in pots; Standard and Dwarf ROSES, FRUIT TREES, EVERGREENS, CAMELLIAS, and AZALEAS, from an English Nursery.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, March 12, at half-past 12 o'Clock precisely.

On view morning of Sale, and catalogues had.

The celebrated Sunbury House Collection of ESTABLISHED ORCHIDS.

IMPORTANT UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, March 12 and 13, at half-past 12 o'Clock precisely each day, without reserve, the first portion of this valuable collection of ESTABLISHED ORCHIDS, by order of Major Lendy, who, in consequence of ill-health, is relinquishing their cultivation. The collection includes a large number of fine Cattleya Mendelii, Trianæ, gigas Sanderiana, and imperialis, aurea, Percivalliana, Skinneri, Skinneri alba, Lawrenceana, Mossiæ (one specimen with 30 leads), labiata (autumn flowering), and maxima, many very superior varieties being found amongst them; a considerable number of beautifully grown Odontoglossums, including several very strong pieces of Alexandræ, luteo-purpureum, hystrix, coronarium (with 10 leads), polyxanthum, blandum, madrense, hastilabium, and others; Lælia elegans prasiata, grand, good pieces of the white forms of Lælia anceps alba, splendid specimens of Lælia purpurata, L. purpurath Russelliana and Williamsii, some well grown pieces of Schomburghia Tibicinis, Maxillaria Sanderiana, Epidendrum bicornutum, E. favoris, and Wallisii in flower; several large Cypripediums, including Crossianum, insigne Maulei, Spicerianum, grande Veitchii, also good plants of nitens, Druryi Wallisii, vernixium, Leeanum superbum, selligerum majus, amandum, and others; a large number of Phalænopsis in great variety, Aërides, Dedrobes, Masdevallias, Vandas, Oncidiums, &c.

No plants will be sold privately prior to the Sale.

On view mornings of Sale, and Catalogues had.

Dulwich.

Close to the Station (L. C. & D. Railway).

UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION on the premises, Claremont, Alleyne Park, Dulwich, S.E., on THURSDAY, March 14, at 1 o'Clock, WITHOUT RESERVE, by order of L. Luders, Esq., who is leaving the residence, the well-grown STOVE and GREENHOUSE PLANTS, Fine Specimen CAMELLIAS, Specimen DECORATIVE PLANTS, ORCHIDS in variety, FERNS; Dark Brown COB, PHÆTON, DOGCART, &c.

On view between 10 and 5 o'Clock the day prior and morning of Sale; Catalogues had on the premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Thursday Next.—Sale by Sample.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, on THURSDAY NEXT, March 14, at half-past 12 o'Clock precisely, large quantities of NURSERY STOCK, by Sample, including quantities of Roses, Forest Trees, and Trees and Shrubs of all description; also 5000 LILIUM AURATUM from Japan.

On view morning of Sale, and Catalogues had of the Auctioneers, as above.

Friday Next.

By order of Messrs. F. Sander & Co., St. Albans.

CYPRIPEDIUM INSIGNE.

CŒLOGYNE OCULLATA MAXIMA.

SOPHRONITES GRANDIFLORA ROSEA.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT March 15, at half-past 12 o'Clock precisely, grand importations of CYPRIPEDIUM INSIGNE, CŒLOGYNE OCULLATA MAXIMA, SOPHRONITES GRANDIFLORA ROSEA. Also fine lots of the rare DENDROBIUM GIBSONII, the lovely D. HEDYOSMUM, D. FARMERII, D. JENKINSII, D. FREEMANII, D. PIERARDII, LÆLIA PERRINII. Fine masses of ONCIDIUM CRISPUM in splendid condition; the lovely O. CONCOLOR, O. CURTUM, O. DASYTILE. Fine masses of PLEIONE MACULATA and P. WALLICHIANA. A quantity of VANDA TERIS in good condition; VANDA CŒRULEA in fine order. Several very fine masses of ZYGOHATALUM MACKAYII in splendid condition, and many other rare and beautiful ORCHIDS. Also an importation of CYRTOPODIUM GODSEFFIANUM (provisionally named) in magnificent condition, grand masses, Letter from Collector just to hand, who describes it as a "distinct and glorious species." All are offered.

On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA TRIANÆ.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 15, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a quantity of fine plants of CATTLEYA TRIANÆ, just to hand by the Royal Mail Steamer "Orinoco," in the best possible condition. Collected in localities whence have come very fine varieties in previous importations.

On view morning of Sale and Catalogues had.

Friday Next.

ESTABLISHED AND OTHER ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on FRIDAY NEXT, March 15, a quantity of well-grown ESTABLISHED ORCHIDS; also hardy CYPRIPEDIUS, in variety.

On view morning of Sale, and Catalogues had.

Special Sale.—Tuesday, March 26.

ORCHIDS in FLOWER.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they WILL BE GLAD TO RECEIVE ENTRIES IN DUE COURSE.

Preliminary Notice.

By order of the Executors of the late Mr. J. H. Bath, of Manor Farm, North Cray.

8000 ESTABLISHED ORCHIDS.

For Sale, without reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., at an early date, the whole of this extensive collection of ORCHIDS, comprising 5000 Odontoglossum Alexandræ, Pescatorei, and triumphans, mostly unflowered; 3000 Cattleyas, Cypripediums, Dendrobium, &c.

Further particulars will appear.

IMMEDIATE DISPOSAL.—First-class FRUIT, SEED, and FLORIST BUSINESS, in thriving South of England town. Shop in principal thoroughfare. Greenhouses at rear and Stable at hand. Splendid business doing. Owner going abroad or leaving town.—T. J., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

NURSERY PREMISES and BUSINESS.—Most compact and capital Dwelling Accommodation, on a Main Road, 5 Miles from Marble Arch. Lease of 87 years, at a Ground Rent. To be Disposed of. Price £900, which includes all Stock and Utensils. Portion can remain on Mortgage.

HERBERT DRAKE, Auctioneer, 343, Harrow Road, Paddington, W.

TO BE LET, COASTER'S NURSERY, near Midhurst, an Old-established Business, principally in Forest Trees, has been successfully carried on here for many years by the late George Chorley. Capital opening for a business man. Nursery, 19½ Acres; also 4 Acres of Pasture. Rent, £75.

For terms of Letting, apply to ALBERY AND LUCAS, Midhurst.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received fine importations of the following, and many other ORCHIDS:—

ODONTOGLOSSM ALEXANDRÆ (Pacho type).
LÆLIA ANCEPS (White), distinct-looking type.
" " MORADA.
CATTLEYA GUTTATA LEOPOLDI.
MILTONIA MORELLIANA.
DENDROBIUMS and other ORCHIDS, in quantity, from East Indies.

Full particulars, Post-free, on application to

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

Special Trade Offer for Cash.

F. GEE begs to offer the following at greatly reduced prices:—

ONION SEED.—Genuine "Home Grown Seed." The past season's crop having been a failure, F. GEE is happy to say he has fine stocks of SUPERIOR BEDFORDSHIRE GROWN yearling Seed, "of his own growing," which he can highly recommend, and may be relied upon, whereas foreign Seed, which is being sold by many at a much cheaper rate, cannot be depended upon. The following kinds can now be supplied at specially-reduced prices, for Cash, as under:—

GEE'S IMPROVED BEDFORDSHIRE CHAMPION, very select Stock, fine, large, globular Onion, has grown 16 to 20 tons per acre, 5s. per pound.
WHITE SPANISH and NUNEHAM PARK, very fine Stocks, 7s. 6d. per lb.
MANGEL SEED (Crop 1888); fine sample for the season. Gee's Bedfordshire Prize Yellow Globe, the heaviest cropper and finest quality ever sent out, 30s. per cwt.; New, 8s. 8d.; Bags, 6d. each.
Carriage or post free.
Special Terms for large quantities on application.

Special Reduced Prices.

POTATOS for SEED.
MYATT'S PROLIFIC EARLY ASHLEAF KIDNEY, splendid stuff; a large quantity to offer at 70s. per ton, on rails; 5s. per cwt. do. Also
BEAUTY OF HEBRON, at 80s. per ton; 5s. per cwt.
WHITE ELEPHANT, at 70s. per ton; 4s. 6d. per cwt.
EARLY ROSE, very fine, at 70s. per ton; 4s. 6d. per cwt.
SCHOOLMASTER (Turner's True), at 90s. per ton; 5s. per cwt.
SUTTON'S EARLY REGENT (True), at 90s. per ton; 5s. per cwt., on rails, for cash.
Sacks to hold 1 cwt., 6d. each; do., 2 cwt., striped, at 9d. each; do., 2 cwt. 4 lb. sacks, at 1s. each.
Many other kinds can be supplied. Special prices to very large buyers on application.

QUICKS or WHITE THORNS, about 2,000,000 to offer. Splendid strong fibrous rooted stuff can be supplied as follows, for cash on rails:—2-yr.-old, 7s. per 1000; 3-yr.-old, grand stuff, principally 2 to 3 feet, extra strong, wonderfully cheap, 10s. per 1000; 4 and 5-yr.-old, transplanted, 15s. and 20s. per 1000; picked for gap stopping, 30s. per 1000.
PRIVET, 15s., 20s., 30s., and 40s. per 1000.
BEECH, extra strong, principally 3 feet, 40s. per 1000; 5s. per 100. Catalogues on application.
Cheques and Post-office Orders made payable to
FREDK. GEE, Nurseryman, &c., Riverford House, Biggleswade, Bedfordshire.

LILIUM AURATUM.—Special Offer. Extra fine hard heavy flowering bulbs, measuring 8 to 9 inches round 12, 3s. 6d.; 50, 11s. 6d.; 100, 21s. (worth 1s. each); larger, 10½ inch road, 6, 4s.; 12, 6s. 6d. All carriage paid. Packed in cocoa fibre. No sleepy soft bulbs sent out. Better condition impossible. Imported direct from Japan by W. H. HUDSON (G.C.), West Green Road, Tottenham, London.

SPECIAL TRADE OFFER.—Gladiolus Colvillei alba, "The Bride," 100, 5s. 6d.; Colvillea rubra, 100, 2s. 6d.; Ramosus Hybrids, very fine, 50, 4s. 6d.; 100, 7s.; Anemone "The Bride," pure white, grand roots, 50, 3s.; 100, 5s.; Single Mixed Anemones, 100, 2s. All finest quality only, and carriage paid for cash with order.
W. H. HUDSON (G.C.), Tottenham, London.

SEED POTATOS.—Myatt's and Rivers Kidneys, fine quality, £4 10s. per ton.
GARLIES MITCHELL, Nurseryman, Stranraer.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL,

AT

The "ALBION," Aldergate Street,

JUNE 13, 1889,

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Donations and Collections already promised or sent towards the Jubilee Collection of 1889:—

	£	s.	d.
LEOPOLD DE ROTHSCHILD, Esq.	105	0	0
Baron HENRY SCHRODER, Vice-President ...	105	0	0
Lord REVELSTOKE	52	10	0
JAMES McINTOSH, Esq., Vice-President	52	10	0
N. N. SHERWOOD, Esq. (Hurst & Son), Trustee ...	52	10	0
H. B. MILDMAY, Esq., Berkeley Square	52	10	0
HERBERT J. ADAMS, Esq., Vice-President ...	26	5	0
HARRY J. VEITCH, Esq., Treasurer	26	5	0
C. CZARNIKOW, Esq., Effingham Hall, Dorking ...	21	0	0
A. A. SILLEM, Esq., Sydenham	10	10	0
F. J. TIARCK, Esq., Chislehurst	10	10	0
JOHN LEE, Esq., Kensington (Trustee)	10	10	0
THAMES BANK IRON CO., Upper Ground Street	10	10	0
J. H. VEITCH, Esq., Chelsea	10	10	0
ARTHUR J. VEITCH, Esq., Chelsea	10	10	0
THOMAS MANNING, Esq., Chelsea	10	10	0
Mrs. H. J. VEITCH, Redcliff Gardens, S.W. ...	10	10	0
B. S. WILLIAMS, Esq., Upper Holloway, N. ...	10	10	0
C. W. BUCK, Covent Garden	5	5	0
E. R. CUTLER, Secretary	10	10	0
Messrs. JOHN LAING AND SON, Forest Hill ...	5	5	0
Messrs. WEBBER AND CO., Covent Garden ...	5	5	0
A. PLUMMER, Seedsman, Staines	4	4	0
R. H. ROBINSON, The Gardens, Heversham, Milnthorp	7	7	0
JOHN CROOK, Gardener, Farnborough	8	5	0
EDWARD MITCHELL, Gr., Bolton Lodge, Leeds ...	10	10	0
W. R. HODGES, Gardener, Copley Dene, Highgate	10	10	0
E. GILBERT, The Gardens, Old Charlton, Kent ...	1	15	0
Mrs. VINCENT NICHOLL, Red Hill	2	2	0
W. J. BROWN, Esq.	1	1	0
Miss CATTLEY, Clayden, Edenbridge, Kent ...	2	2	0
ROBT. HOGG, Esq., LL.D., Vice-President ...	10	10	0
RD. CHRIMES, Esq., Moorgate Grange, Rotherham	21	0	0
Messrs. NUTTING AND SON, Southwark Street ...	10	10	0
WM. COLLINS, Gr., Chios House, Clapham Park ...	10	10	0
Messrs. WATKINS AND SIMPSON, Exeter Street ...	5	5	0
H. E. TELLMAN, Esq., Covent Garden	3	3	0
W. WILDSMITH, Heckfield Gardens	1	1	0
DICKSONS (Limited), Chester	10	10	0
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1 ,,	Brussels Sprouts	1 packet	Melon
3 ,,	Broccoli	3 ounces	Onion
3 ,,	Cabbage	1 packet	Parsley
1 ,,	Savoy	2 ounces	Parsnip
3 ounces	Carrot	4 ,,	Radish
2 packets	Cauliflower	3 ,,	Spinach
2 ,,	Celery	3 ,,	Turnip
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FOR
Next Week, March 16,
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AT
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THE

Gardeners' Chronicle.

SATURDAY, MARCH 9, 1889.

MODERN FRUIT-CULTURE.*

IN coming here to say a few words on fruit culture this evening, I feel that I have before me a very critical audience, and that there are gentlemen present who are as well, if not better, informed than myself to teach the business of profitable fruit-culture, as they have both ventured and been successful in a degree, and I am looked upon more as a grower of trees than as a practical fruit grower. I may say that the subjects are very closely allied in my opinion; and that one could hardly fail to pick up many valuable hints in the course of some years of observation, combined with the propagation of such a variety of sorts and species as have come under my notice.

The first drawback to the successful culture of fruit in this country is undoubtedly the want of quality in our produce, either in size, colour, or condition; this is not so much due to the fault of the cultivator as to the want of propitious seasons, and to a general absence of combined sunshine, or an equality of temperature and the want of rain at the right time, causing the fruit to be deficient in either colour, size, or quality. The excessive rainfall of 1887 completely spoiled the Apple crop where any remained after the terrible visitation of caterpillars; the fruit was ill-formed, spotted with incipient mildew, and without a taking appearance, even standard sorts, such as the Blenheim Orange Apple, being small, green, and not fully matured. These abnormal seasons we cannot prevent, and it is to a different system of culture that we must, I think, look to gain all possible benefit from the little sunshine we do have, and to store its effects up as much as possible.

In my remarks I propose to deal with the growth of Pears and Apples on what I venture to call the modern system, which in a few words consists of growing trees on surface-rooting stocks, which, I believe, have not yet been fully

* A Paper read at the Rochester Farmers' Club, by Mr. George Bunyard, Maidstone.

or largely tried in this country. In order to make this matter more apparent to you, I have taken up a few Pear, Quince, Apple, and Paradise stocks to illustrate my remarks. You will notice that the Pear stock (fig. 50) produces few but strong forked roots with a minimum of fibres, and its appearance justifies our practice in using it for orchard trees, as the strong roots act as anchors to secure the tree in its position, and to enable it to bear the weight of its crop.

If from this we pass to the Quince stock (fig. 51) we find the conditions reversed, and the fibres outnumber the anchor roots and are predominant, while again if we take the transplanted Quince stock (fig. 52) we find the fibres still more developed. We then pass to the Crab-Apple stock (fig. 53). Here we see the same process as in the free Pear stock (anchor roots with a few fibres). It is this which is used for the Apple trees prepared for orchards, and it is eminently suitable for the purpose. We then pass to Paradise Apple (fig. 54); here we get again the same surface root and fibres that the Quince stock presents; and it is the lesson which these fibres teach which I want to ask you to-night to consider. Now, I maintain that it stands to reason and common sense that surface roots must receive the benefit of the rains, sun, and air more than the anchor-roots, which are, by reason of their position, more removed from such benign influence; and the teaching of fact in this case follows out the leading of logic (it is not always so), and we find by experience that Pears grafted upon the Quince stock and Apples upon the Paradise stock can do, and will produce handsome, clean, well-coloured, and full-flavoured fruit even in such adverse summers as those through which we have lately passed; while in more propitious seasons the quality is super-excellent, and still further proves our theory.

Hitherto this culture has only been carried out in gardening work, and I fully believe that the Agriculture of the future must—and will to a great extent—find its profit in gardening methods, if we are to keep the hardy fruit trade in British hands. The practice of winter manuring has done much to increase our crop and induce quality, and I would go further and give also a top-dressing in May or June of long dung fresh from the stable, or of London dung or moss manure. This latter is, I think, the best for our purpose; it is easily carried on to the land in baskets, and as it contains a large proportion of urine and ammonia, it is quick in action and effective for its purpose.

The same remarks will apply to all orchards, but it is manifest that fruit trees on these surface-rooting stocks should sooner respond to the fillip. Liquid manure is most valuable, and can be applied at any time, but to the greatest advantage in May or June.

In the dry summers of 1885—86, after the rains fell, the growth of fruit on small trees in our nursery was unusually rapid, and could be seen from week to week, while at the latter part of the season the colour came into the fruit in a most beautiful form. Some present may have seen the trees in the Allington Nursery, and we were well rewarded by taking the leading prizes at the large Exhibition at the Crystal Palace and elsewhere, even beating the owners of walled gardens with every convenience of culture.

I need scarcely say that if the same care and attention to mulching be carried out on existing orchards, a marked improvement would soon be manifested, and it would have the effect of bringing up the surface roots, which would be more amenable to treatment, and within the influence and warmth of the sun. I am of opinion that it is in the direction of more careful cultivation, combined with vigorous pruning of the branches, and also attention to the thinning of the fruit that we must look for a general improvement in our orchard plantations.

Root pruning, as carried out in gardens, is not practicable on a large scale, but it is quite certain that the roots of fruit trees will come up and be kept up by seasonable mulchings, and I venture to ask growers if they do not think the digging of plantations with such a large fork is injurious to the roots, and must tend to weaken the trees and cause the formation of coarse anchor-roots?

From my own observation I feel sure that plantations of dwarf trees alone or dwarfs with standards at 30 feet apart will be the orchards of the future. I have not included Plums in this paper, as from the nature of their roots they do equally well on free stocks as far as the production of fruit on a large scale is concerned. We have dwarfing and surface-rooting stocks for Plums, and also for Cherries, but as these are of no use for market culture I have not touched upon them.

Before embarking largely in this modern culture a trial orchard can be started with, say ten trees each of twenty sorts. The beneficial effects of heavy manuring are frequently seen in our Strawberries, Gooseberries, and Raspberries in the garden, and I think much more of this must be done, as well as the utilisation of that porter-like liquid which is so often wasted in the farmyards; and such a wet bed can hardly be good for the cattle. An orchard of Apples and Pears would take the same number. In the style I recommend it would require seventy-five standard trees on free stocks at 24 feet apart, and this would allow for three trees on the Paradise or surface rooting stocks between each standard, and require 1135 dwarfs to the acre. This would be a large outlay at the first, but it must be borne in mind that the return would be very quick, compared with standard trees only, and the crop would always be greater than even an old orchard would produce. I should only advocate free cropping sorts for the dwarfs. Much expense is saved in picking, by no ladders being required; and the land must be good for fruit growing, or it had better be left alone. In from six to eight years' time the trees immediately beneath the standards could be removed in October or November to other suitable land, and with care these trees would produce a crop the first or second year, and furnish another plantation at 12 feet apart, leaving the original plantation at 12 feet apart. I calculate the dwarfs would commence to crop the third year, and the standards the fifth or sixth; and at ten years' end the outlay would be wiped out by the fruit sold. Among the newer and little known Apples, Lord Grosvenor, Potts' Seedling, Golden Spire, Grenadier, and Lane's Prince Albert should orm a large proportion for the dwarfs; while on suitable land Cox's Orange should be planted largely for dessert, with Worcester Pearmain, Duchess of Oldenburg, and Lady Sudeley. Peasgood's Nonsuch is a very fine fruit, and attains great beauty both on dwarfs and standards; Councillor, or New Hawthornden, is largely planted by our market growers, and the older kinds such as Wellington, Lord Suffield (on suitable soil), should not be overlooked. The packing and sorting of the fruit is a matter that the grower must give his personal attention to.



Fig. 50.—Wild Pear stock.



Fig. 51.—Quince stock.

In conclusion allow me to say that this paper is not intended to be a complete article, but only as a suggestive medium for you as a club to consider, and I shall be happy to answer any questions after the discussion.

(I am frequently asked what is the Paradise stock? It is a species or variety of the Apple which has been introduced from abroad, and differs from the Crab in having surface-roots. The Doucin is a form of Paradise stock—some authorities say that the Apple is not a European fruit at all, but was introduced by the Romans and spread wherever their legions went, while some attribute the Paradise Apple to Armenia). [We may supplement Mr. Bunyard's paper by referring to articles in this journal relating to the history of the Apple, and of the Doucin and Paradise stocks respectively, contributed by such eminent authorities as the late Professors Decaisne and Karl Koch, while the Editor is responsible for the accounts of the stocks met with in some English nurseries, and particularly of those

grown by Mr. Barron, for comparison, in the garden of the Royal Horticultural Society at Chiswick. The most important articles appeared on the following dates:—April 24, 1869; June 28, 1873; and April 25, 1874. Ed.]

New or Noteworthy Plants.

Dendrobium chrysodiscus × and D. melanodiscus×.

These are two very beautiful hybrids, of which specimens have been kindly sent by Messrs. Veitch; and they are not less interesting than beautiful. In the first place, though so remarkably different, both are derived from the same two parents, but one is the reversed cross of the other. Both were raised in Sir Trevor Lawrence's collection, D. chrysodiscus× from A. Ainsworthii× ♀, and D. Findlayanum ♂; and D. melanodiscus× from the reversed cross. In the second place, D. Ainsworthii× is itself a hybrid, derived from D. aureum ♀ and D. nobile ♂ (D. splendissimum× being a later production from the same cross, and D. Leechianum×, a still later one, from the reversed cross). The fact that this hybrid should be equally fertile, whether used as the seed or pollen parent, has an interesting bearing on the question of the sterility or otherwise of hybrids. Kölreuter would have cut the Gordian knot, and made D. nobile and D. aureum varieties of the same species; as he did in several instances where two forms, considered by most authors as distinct species, proved fertile when crossed together.

But a glance at Messrs. Veitch's interesting work reveals the fact that D. japonicum, Findlayanum and Linawianum would have to follow suit, because they are fertile when crossed with D. nobile or D. aureum. But these three, being admitted into the charmed circle, nothing could keep Falconeri and Wardianum out, for we have a hybrid from D. Falconeri and japonicum, and another from D. Wardianum and Linawianum. Finally, D. lituiflorum becomes involved by a hybrid between it and D. Wardianum. How many more may be involved in the future, time only can tell; but sufficient evidence is already forthcoming to show that such a method of procedure is altogether out of the question. Returning, however, to our hybrids we note that they contain blood of three different species; and that by reversing the parentage the results are so different that no one would ever be likely to guess their real origin. D. melanodiscus× is a seedling from D. Findlayanum, but strange to say it differs but little from the pollen parent, either in form or colour. D. chrysodiscus× is a seedling from D. Ainsworthii×, but in colour it also departs altogether from the character of the mother plant, and one would be more inclined to fix upon D. Findlayanum and D. aureum as its parents, if there were no other evidence to go upon. And singularly enough, four plants from the same seed-pod are all different. One has been called var. oculatum, and has a large maroon blotch on the yellow disc. Another has the large yellow disc totally absent, and the maroon blotch reduced to a few very short light purple radiating lines. The two remaining ones are about intermediate in character, though not both alike. Hybrids are usually more or less intermediate in character between their parents—sometimes rather less than more, and certainly such cases as the above are extremely curious and interesting. *R. A. Rolfe.*



Fig. 52.—Roots of the quince stock after removal.



Fig. 53.—Roots of the crab stock.



Fig. 54.—Roots of the paradise stock.

Bulbophyllum suavissimum, *Rolfe, n. sp.*

A very sweet-scented Bulbophyllum has been sent to Kew by Charles Bill, Esq., of Farley Hall, Cheadle, Stoke-upon-Trent, for which no name can be found; and which I therefore propose to designate as above, on account of the powerful almond-like fragrance of its flowers. The sender remarks that it was imported from Upper Burmah, and that it is a kind held in great veneration by the Burmese. It is closely allied to B. auricomum, Lindl., which, however, has more acuminate segments, ciliate petals, and other differences.

A specimen from Bhamo, Upper Burmah, which has been confounded with B. auricomum in the herbarium, apparently belongs to the same species. The following are its characters:—Pseudo-bulbs ovoid-oblong, about an inch long; about half an inch apart on a slender creeping rhizome, two-leaved. Leaves linear-oblong, obtuse, about 4 inches long, by five-eighths of an inch broad. Racemes many-flowered, secund, arching, about 5 inches long, on a slender peduncle of similar length. Bracts minute, pedicels (including ovary) two lines long, flowers primrose-yellow, with canary-yellow lip. Sepals lanceolate-linear, sub-obtuse, three lines long. Petals proportionately broader, one line long. Lip recurved, linear, obtuse, fleshy, with a shallow grove down centre, two lines long. Column very short, with a pair of prominent obtriangular fleshy wings on either side of the stigma, their apex abruptly and obliquely apiculate, or sometimes tridenticulate, with the central tooth longer and the outer one broader than the rest. The four pollen-masses seem usually adherent in two. It is a neat little plant, and, though not showy, of very graceful appearance, and very sweetly scented. *R. A. Rolfe.*

The Oxford Carnation and Picotee Union.—The annual exhibition of this body will take place as usual at Mr. Dodwell's garden, Stanley Road, Oxford, on Tuesday, August 6.

CYCADS AND THEIR CULTURE.

An interesting and ornamental group of plants, varying considerably in habit, some being tall and arboreal, while others are dwarf, but all agree more or less in having graceful and mostly arching, feathery leaves of various shades of green, which spring in a whorl from the crown of the root or the stem. Some species, however, are not so regular in their growth, but keep on producing a few leaves at a time, such as may often be seen in the Macrozamia Fraseri; but a whorl all produced simultaneously from the crown-bud is the general mode of growth, and Cycads usually present the handsomest appearance when the leaves are young, at which time some species have the rachis coated with a woolly substance, in some cases whitish, in others of a brown colour. As decorative plants for large houses they are as effective as Tree Ferns and Palms, but do not require so much water, at least when resting. Although so full of use to the gardener, Cycads do not appear to be generally grown, one reason being the high price charged for them by the nurserymen, and another is that they do not admit of being rapidly grown to a large size in this country. Those wishing to go into their cultivation can obtain imported seeds, but many years elapse before the plants are of much decorative value, and probably would require fifty years to become so. Therefore, it is a more sensible plan to buy imported stems or import them, which can be done with very little risk of loss. It would seem that the importers do not meet with much encouragement, judging from the prices realised at auction sales, where it is not uncommon to see choice collections of suitable sized stems sold for a few shillings.

The stems when bought are both rootless and leafless. The chief agencies to induce a resuscitation are a moderate amount of moisture and warmth; some growers prefer to repot them on arrival, while others wait until the stems show signs of recommencing growth at the root or the crown. The great point is to keep the stems moistened but without allowing them to be kept wet constantly—a condition of things which would cause decay. Should decay show itself it can be arrested by putting the stem into a drier house, and thereby only causing considerable delay, which, if it occur when the leaves are pushing, will probably much injure them, and the reserves of food in the stems being exhausted, it becomes difficult for them to make a second start, a good plan to stop decay is by using dry Portland cement or plaster of Paris. When the plan is that of at once potting the stem, the pots should not be much larger than the base of the stem, and should not be deep, and the soil only sufficient to fill in any spaces between the stem and pot-side. Good drainage is very necessary at all times, if the plants are to be kept healthy. At this first potting the compost may contain more sand than subsequently, and good turfy loam. Any soil that soon sours, such as many kinds of peat, should not be employed, as repotting would frequently be needed, and this is work attended with difficulty, and the chance of injuring the roots. In the case of the loam being heavy, a small quantity of well decayed leaf-mould may be added to lighten it, and if the drainage keeps good, and the soil used is of the kind indicated, it will be found that Cycads will not often require to be repotted.

Unless a plant has attained large dimensions, be careful not to overpot it, and to ram the soil firmly about the roots; and as roots of Cycads grow upwards as well as downwards, rather more than the usual space should be left for watering, for when this matter is overlooked, the pots soon become so full of roots that there is not room enough left to hold sufficient water to moisten the roots. Touching the watering of these plants, a considerable amount of discretion is required; when they are pushing forth new leaves a large quantity of water is required by them, or crippled fronds will result; but when the growth is matured, the plants should be allowed to get drier at the roots before affording water, and the lower the temperature of the house they stand in the drier they may be allowed to get between each watering, but when water is applied it should be enough to wet the ball throughout. In summer heavy syringings with the garden engine in the case of old plants, will cleanse the leaves, and if much force is applied it will go a long way toward keeping them free from insects, scale of all kinds being their special enemies.

Should they require cleaning by hand, the pinnæ should not be scratched, for if the skin be injured the part in a short time dies back. Where the insect is scale of a very adherent species it is a good practice to paint the plants over with a thick lather of soft soap, and leave it on for twelve hours, by which time it will have so loosened the scale that it may be sponged off without injuring the leaves.

Unless when fresh leaves are sprouting, shading need not be employed, but if the sun come out suddenly at that period and much ventilation be required in the house, the fronds are apt to flag, and this rarely occurs without leaving its mark. Otherwise a sunny position, with a brisk, buoyant atmosphere, are the conditions best suited to their requirements.

The distinctions on which the various genera of Cycads are founded is of botanical rather than horticultural interest, and need not be fully entered upon here. In most cases it is based on the fructification, which is of great interest. In some of the genera the terminal bud ends in a cone, yet when that has passed away the stem grows on again as if its growth had not been arrested. A slight division of the genera may be made by means of the venation, thus, the nerves in Zamia are slender, parallel, and equal, whereas in Cycas they are in the form of a prominent ridge or midrib on the pinnæ, or in Stangeria they are parallel and branched, pinnate from the midrib; in Bowenia the pinnæ are bipinnate, a character which clearly separates it from all others; and in Encephalartos the pinnæ are deeply toothed, indeed, spiny, very much so in E. horridus. Dion seems to be about half-way between Cycas and Macrozamia, but there are exceptions in this crude classification. Encephalartos villosus is a hardy and handsome species, its long arching leaves rise gracefully in the form of a crown from the densely woolly crown of the stems. The young leaves are also covered with the same substance, giving them a silvery appearance; E. Altensteinii and caffra are large coarse growing plants well suited for large conservatories or temperate winter gardens. The stems of these, when about 6 or 8 feet high, have a noble effect; E. Lehmanni var. glauca is a dwarf and beautiful species, the glaucous bloom on the leaves approaches nearly to blue, a short-leaved and short-stemmed species, old plants not exceeding a height of 3 or 4 feet. Much in the same way as regards colour and height is E. horridus, but the foliage is more abundant and spiny. In the variety trispinosus the spines make it an object of dread—otherwise it is a beautiful plant. The genus is South African, and although there are many more species, those mentioned are amongst the best. Another class peculiar to the same region, and consisting of one species, is Stangeria paradoxa, a dwarf plant, with a curious bulb-like stem, which is sometimes called Hottentot's Head. The leaves are petiolate-pinnate and light green; the pinnæ are deeply crenulate, with the prominent venation already mentioned. The plants will do well in a sunny greenhouse whilst making growth, provided the temperature is kept at about 60°.

The genus Cycas is distributed over Asia, Australia, and the islands of the Indian Ocean, and perhaps the best known member is Cycas revoluta, a Chinese species, well adapted for greenhouse culture, which likes plenty of water at all seasons, and a little liquid manure occasionally during the growing period.

Cycas circinalis, a handsome species from the East Indies, is more robust than revoluta, and the leaves and pinnæ are both longer and more erect; the old stems of this species are frequently branched. C. siamensis is perhaps a form of C. circinalis, but it has longer and broader pinnæ, a beautiful spreading habit, and is handsome and distinct. This species and circinalis grow best in the stove. C. Normanbyana and C. media are intermediate forms, and come from Australia; they have broad and narrow-pointed pinnæ, the base of the petiole being armed with sharp spines; these also like heat while making growth. In Macrozamia we have some magnificent plants, all of which are inmates of the intermediate-house. They are diverse in habit, and sometimes closely resembling Cycas, but they are easily distinguished from the latter by the midrib; the rachis is variable, sometimes flat, convex-channelled. In M. corallipes the stem is thick and dwarf, the leaves and pinnæ much revolute, with a peculiar prominence at the base of the pinnæ, hence the specific name; M. spiralis is a small growing handsome species, with light green, tapering leaves, and pinnæ, narrow and erect; M. cylindrica is similar to the last-named, but the prominence at the base of the pinnæ is white—both are light, graceful plants; M. plumosa is a very distinct species—the rachis being flattened and twisted spirally with long, narrow, pendulous, pinnæ, and small ovoid stems, easily accommodated in small pots. Of taller growing species M. Fraseri has ample foliage of a dark green colour, stem short and thick; the leaves of this species usually quite conceal the pot; M. Mackenii is another fine species, with an erect habit. These Macrozamias are nearly always growing more or less, and on that account more water is required by them than by most Cycads. To me this seems a fairly good distinction between Macrozamia and Catakidozamia. The latter make regular whorls or series of leaves which is not the case in Macrozamia. Catakidozamia MacLeayi is, probably, the most showy of the group—it is a large quick growing species, with long-stalked leaves, and broad, smooth, shining green, pinnæ which are produced from the edges of the deeply channelled rachis. It grows quickly from seeds, and has a nice symmetrical stem.

Of the New World species—Dion edule claims first mention; the stems are short and stout, with thick-set pinnæ, milky-green, and erect; D. (Cycas) pectinata has a splendid flat comb-like leaf, and is very distinct and desirable. Microcycas calocoma is, as the name implies, a diminutive and beautiful haired Cycas, not unlike C. Beddomei, and worth growing. In the Mexican genus, Ceratozamia, the long drooping leaves are generally in the way, except when the plants are used for standing in vases, or in some elevated position; their stems are short and much branched, bearing long broad articulated leaflets. C. Kusteriana, C. Miqueliana, and C. mexicana, are probably the most useful species. The genus Zamia is not a garden favourite, nevertheless, they are very distinct plants, and where room can be found a few should be included in the collection. Amongst the best are Z. furfuracea, Z. obliqua, and Z. Skinneri; the last-named has broad-leathery, shining, green leaflets, the rachis and stem being short. The Australian Bowenia spectabilis, easily distinguished by its bipinnate leaves, is a handsome and dwarf species. *F. R.*

THE CULTIVATION OF TOBACCO AND OTHER USEFUL PLANTS IN BRITISH BORNEO.

In a recently-issued report on the trade of Borneo, it is stated that the subject of Tobacco planting has received much attention. For some years past, it seems that the cultivation of what is known as "wrap" Tobacco—a kind which combines good quality with elasticity and extreme thinness, which recommend it for cigar wrappers—has been steadily increasing, and in many cases has become a very lucrative enterprise in Sumatra. The value attached to this Tobacco may be judged from the fact that while the price of the ordinary smoking kinds is about 5*d.* per lb. wholesale, new in bond, "wrap" Tobacco realises from 2*s.* 6*d.* to 3*s.* 6*d.* The profits from its cultivation are sometimes enormous. It is

said that two or three of the leading companies have been known to pay dividends of over 100 per cent., and one company paid 152 per cent. for the year 1886. On the other hand, the cultivation is attended by unusual risks, and by very heavy expenses. For a long time it was thought that the soil and climate of Sumatra were alone suited to the production of this Tobacco, but experiments—undertaken in the first place in Sandakan Bay, and subsequently on the island of Banguay and in Malludu Bay—have proved that similar Tobacco can be produced in British North Borneo. Samples that were submitted to the Tobacco Conference at the Colonial and Indian Exhibition in 1886 were very highly reported upon. Eager attention has, therefore, been directed to the subject in Borneo, and many persons chiefly Dutchmen, are exploring the country, and suitable land is being rapidly taken up. At the close of last year there were six Tobacco estates in operation; preparations are in progress for opening others, and the results of the present season are looked forward to with the greatest interest. Every Tobacco estate in full work employs some hundreds of coolies. So far most of the capital employed, and most of the Europeans engaged on the estates now in operation, as well as those in prospect, are Dutch. This is only to be expected, as hitherto the production of "wrap" Tobacco has been almost entirely a Dutch industry carried on in Dutch colonies. One of the companies, however, the Darve Bay Tobacco Company, is English, and it remains to be seen what success will attend its efforts.

During the past year some progress has been made in the cultivation of some other useful plants, notably Pepper, which made its first appearance in the export list. The cultivation of this remunerative crop is being rapidly extended in the Bundoo district. In Sandakan Bay the British North Borneo Trading and Planting Company is planting Manilla Hemp and Pine-apples, and is importing a self-feeding machine for the extraction of their fibres. India-rubber and rattans are also receiving attention as articles of export.

NOTES ON VEGETABLE CULTURE.

(*Continued from p. 267.*)

Seakale.—The methods of growing and forcing Seakale have undergone much change; for instance, no one thought some years ago of making root-sets from the thongs—as the smaller roots are called in garden parlance—or of lifting the heads and putting them into heat, the method in general use being to pile a large bed of fermenting material over the rows, entailing much labour in keeping up a regular heat, and in turning it about to cut the Kale in the pots. Instead of this laborious method we now dig up a number of roots, and pack them in closely together in some moist, warm, dark place; and secure a constant and regular supply by putting in more roots from time to time, till the season for Seakale is past. For a late supply, however, I find no way is equal to that of covering the rows in the open with about a foot in depth of clean straw, letting the Kale come away under it as it will, the heads being thus well blanched, large, and so tender that they require careful handling. In digging up the plants for forcing under cover, all the longer roots or thongs should be saved, and either cut up into 4 or 5-inch lengths at once and buried in sand, or kept in the same way whole as they are. If cut it is necessary to make the bottom end sloping, otherwise it is difficult when putting the pieces into boxes to start them to distinguish the upper end. To have fine crowns the ground must be trenched and heavily manured, as for Asparagus. In May, or earlier, the sets may be dibbled out in rows 2 feet apart and a foot or 15 inches apart in the row; or if the intention is for them to stand as a regular bed they may be planted in rows a yard asunder, and three sets placed at 9 inches apart in groups. In the spring when the crowns start to grow they should be looked over, also the plants that may have been cut from, and the sprouting shoots reduced in number, three or four on each being generally enough to leave. Being a seaside plant sprinklings of salt are beneficial if applied before leafage takes place.

Rhubarb.—This is one of the strongest growers, and the ground cannot be too rich or too deeply tilled for it. When the roots are taken up to be forced the land on which they stood, if it was well prepared previously, forms a capital place for almost any of the Cabbage tribe. To secure strong crowns it is best to take up the old plants and split them up into as many pieces as there are buds, or take one or more buds with roots attached from the outside of each one that is to be forced, and plant them as sets. Such sets as these are preferable to those taken from roots that have been forced, and in consequence are exhausted. Plants which will be covered where they grow should be planted in an out-of-the-way spot, where the litter used to force them will be no eyesore, and where it can be readily carted to or from the place. Rhubarb from seed makes strong stools in a few seasons, besides there being a chance of getting something fresh or superior to the variety from which seed was saved. *J. S.*

(*To be continued.*)

POT VINES.

There is now a growing demand for Grapes throughout the year in most establishments, and where there are houses devoted to permanent Vines and to pot Vines this object can be achieved easily; the supply from well ripened pot Vines can commence in April and continue through May into the early part of June. A mixed permanent vinery with such sorts as Black Hamburgh, Foster's Seedling, Buckland's Sweetwater, Madresfield Court, Royal Muscadine, St. Peter's, &c., may then continue the supply; all the varieties named can be fruited without being much forced. Then follows the mid-season supply, and after that the late houses, having autumn varieties of good keeping qualities, all of which should be ripened by the end of September. Those ripened after that time never keep well. Although Grapes may be kept in good condition on the Vines until the end of February, it is preferable to have a good Grape-room, so that all the bunches may be cut by the middle of December and stored in the room, where they may be kept in bottles nice and plump until the following May. I have kept Black Alicante, Lady Downe's, Trebbiano, and Mrs. Pince, until that date, the temperature of the room being kept at about 45°.

The forcing of my pot Vines is commenced early in December by placing them in a lean-to pit, plunged to the rim in good fermenting material at a temperature ranging from 85°—90°, with a top-heat of 55°, which is increased to 60°. When the buds are nicely started the plants are moved to a span-roofed forcing house, and stood on turves over hot-water pipes. The end of each cane is tied down until the bottom shoots are well advanced, as otherwise the top shoots take the lead, and the bottom ones are of weakly growth. After placing them in heat, water must be used very sparingly for some time, for if not the soil becomes sour and the roots decay; but the plants must not be allowed to get too dry. Considerable attention is required or failure will result. As the leaves develope the temperature should be increased, so that by the time the Vines come in flower the heat should be at 70°, when it should be reduced by 5°, to be again raised when the fruit is set. At this time I top-dress the pots with loam and bones mixed with a little horse-droppings, as the roots are most active at this time. They soon take to the new soil, and when it gets well filled with roots liquid manure should be frequently given. Careless watering, such as allowing the plants to flag one day, and then soddening them the next, will undo all previous labours and destroy the best of crops. The rules in ventilation, damping down, &c., are the same as for the permanent vineries.

I have tasted most varieties of Grapes in pots, and have come to the conclusion that Black Hamburgh and Foster's Seedling are the two best for early forcing (and in fact for all pot-work), giving much better returns—on an average, taking the house through, I crop about 8 lb. to a pot, sometimes 10 lb.

Excellent pot Vines are supplied by the trade, and I consider it quite as cheap to buy as to grow them, if all labour and expense be taken into account. Those who propagate their own should procure the eyes from Vines that were fruited early, and each eye should be put in singly in a small pot in December. Towards the end of January place the pots in a forcing-house, with a temperature of 55° at nights, plunging into fermenting material at about 85° or 90°. When the young Vines are up 3 or 4 inches, repot into 5-inch pots, and replace in bottom-heat. When the roots have reached the sides of the pots they should be lifted out of the bed. In about a fortnight they should be shifted into 8-inch pots, and should not be plunged after this stage. The next shift should be into the fruiting pots, the best size being 11 and 12 inches. The Vine luxuriates in rich porous loam with crushed bones added. When the Vines are in active growth they require plenty of tepid-water both to the roots and overhead. The temperature may be run up to 95° after the house is shut up in the afternoon. *A. Evans, Lythe Hill, Haslemere.*

ORCHID NOTES AND GLEANINGS.

AUSTRALIAN ORCHIDS.

The third part of the second volume of Mr. Fitzgerald's very valuable publication has just been published at Sydney. It is a publication to rejoice the heart of the botanist, and, although it will be less to the taste of the gardener, that arises from the fact that the Orchids of Australia, looked at from a gardener's point of view, are less interesting than those of some other countries. A new genus, Coronastylis of Fitzgerald is as extremely interesting as uniting the Apostasiæ with other Orchids, and thus furnishing one missing link, the discovery of which rejoices the heart of the botanist. The species of Diuris, with their linear leaves and butterfly-like yellow flowers, would be welcome introductions. Dendrobium undulatum is a tropical form from Queensland, with large spikes of brownish-yellow flowers. Thelymitra fasciculata is another Orchid, the regularity of whose flower titillates the botanist, but in this case the beauty of the flower is such that the florist also would rejoice. It is a tuberous terrestrial Orchid, with a long erect spike of nearly regular blue flowers. The flower-spike has a curious general resemblance to that of Eichornea. Other species figured are T. canaliculata, T. ixioides flexuosa and urnalis. Mr. Fitzgerald has laid botanists under a heavy obligation by the care and fidelity he shows in the delineation and description of a very remarkable set of plants.

Orchids at Studley House, Shepherd's Bush.

The rich collection of F. G. Tautz, Esq., reflects credit on his taste as a collector as greatly as it does on his grower, Mr. Cowley, for his cultural skill in counteracting the evil effects of the London atmosphere. Scarcely have the fogs departed than a visit here discloses houses well furnished with flowers of good quality. There were Dendrobium Wardianum, with half of their 3 feet long stems covered with bloom; Lycastes in profusion; Odontoglossums, scarlet Sophronitis, Cœlogyne cristata, the still rare C. c. alba, and Cattleya Trianæ. Baby Orchids seem to thrive here too, as witness the seedlings of the hybrid Cypripediums, which are to be seen springing up not only where they were sown, but also on the staging, and underneath it too. Among the rare things in bloom a glance disclosed a plant of Vanda Parishii Marriottiana, V. Amesiana, Lycaste Measuresiana, Dendrobium Wardianum album, D. macrophyllum Richardi (with many spikes), Saccolabium bellinum,

Odontoglossum Humeanum, O. blandum, O. crispum flavidum, O. Edwardi, &c. The Cypripediums, which are the pride of the collection, have in bloom among them :—C. villosum aureum, the true variety, with dorsal sepal almost entirely yellow; C. Dauthierii, C. Sallieri, C. gemminiferum, C. Boxalli atratum, C. Measuresianum, C. barbatum O'Brienii, C. callosum, and scores of rare species and varieties in bud.

Cypripedium Elliottianum.

This grand introduction of Messrs. F. Sander & Co. has flowered in the Duke of Marlborough's collection at Blenheim, and proves to be even better than was at first represented; the labellum is larger and of a curious and distinctive shape. On Thursday last the plant was offered for sale at Mr. Stevens' auction rooms, Covent Garden. *J. O'B.*

Cattleya Trianæ Tautzii.

This fine variety, which is now in flower in the Studley House collection, maintains its character as one of the richest coloured of the Trianæs. It appears to be nearest related to C. T. Osmani, the rich velvety-crimson colour on the front portion of the lip quite equaling that of Osmani, and its beauty is further enhanced by the clearly defined demarcation between the crimson and the pure white and yellow of the basal portion of the lip.

Oncidium tetrapetalum.

This elegant species is now in bloom with R. J. Measures, Esq., at Cambridge Lodge, Camberwell. Its spike (1 foot in length) bears a score or so of handsome flowers which may be likened to those of O. Phalænopsis. The labellum is pure white blotched with crimson at the base : sepals and petals whitish barred with brown. It belongs to the neat-growing section comprising O. pulchellum, O. triquetrum, and O. variegatum, all of which thrive well in the Cattleya-house, and grown in baskets with fitting peat. *J. O'B.*

BARNADESIA ROSEA.

This is a South American Composite, as peculiar as it is beautiful in appearance. It has spines at the base of the leaf, and the inflorescence is lengthened into long cylindrical heads, thickly beset with shining dark brown lanceolate scales, which surround the true flowers (see fig. 55). These latter are of a deep pinkish-violet colour, and are remarkable for being two-lipped; but in some instances we have seen the central florets with five distinct regular petals. It requires warm greenhouse treatment, with a light but rich soil, plenty of water when growing, but at other times very little. It is rarely seen out of botanical gardens, and used to be well done by Mr. Baxter at Oxford, though it well deserves the attention of those fond of flowers. For our specimen we have to thank Mr. Burbidge of the Trinity College Botanic Garden, Dublin, who has a plant of it 10 feet in height.

THE APIARY.

HEIGHT OF HIVES FROM THE GROUND.

This matter has exercised the minds of many, and there are many different opinions about it. Some people say hives ought to be close to the ground, and the alighting board made to reach to the ground, so that tired bees may, if necessary, fall down in front of the hives, and then crawl up into them afterwards. There may be a little in this as in most other things, but we do not fall in with the notion. In our own experience the case seems to be somewhat different. The best way appears to be to discover what a swarm would do in a state of Nature. If a swarm flew away and found an abode for itself it would not, as a rule, seek a home near the ground, but high up in the air. How often do we hear of a swarm seeking refuge in a church steeple, and there remaining for a number of years. It is within the memory of all how a swarm a year or two ago took refuge in a signal on a railway, and thus darkened the light, and for a few minutes detained the royal train. In a wood bees get up into high trees, and in some countries men who are good at climbing ascend them to get some honey down. There must be a reason for these things. Sir John Lubbock thinks that ants and bees are next in the order of intelligence to man himself. It seems that the bee desires to remove its stores far away from man and animals, hence it chooses a remote place. Of course, it would be very inconvenient to support hives on legs as high as lamp-posts, but we think that 18 inches, or even 2 feet, would not be too high. Hives ought to be dry, and we cannot see how they can be dry if they are quite close to the ground. We have frequently seen bees die when they are close to the ground when they are surrounded with stores; and, on the other hand, there has been much less mortality when the hives have been supported on some stout legs of a reasonable height. Even when a colony does not completely collapse, the reduction in numbers is greater when the hives stand low than when they stand high. Take care also that hives are not draughty. They always make their homes as snug as they can, and are very careful to plug up holes with propolis whenever they have a chance of doing so. Try them this way. Suppose their is a circular hole in the top of a hive for feeding or supering. Just lay a piece of glass over the hole. The bees will immediately ascend, and stick the glass so firmly down, that it will require a knife to remove it. *Bee.*

Tree Stems as Hives.

In the forest-covered parts of Eastern Europe, the country folks—who, by the way, are great beekeepers, and are satisfied with a return of 5 per cent. on their outlay annually—keep their bees in rather peculiar contrivances The one which is the most in use is a narrow shed—perhaps of 5 or 6 feet in width made of the rough outer slabs of hardwood trees, and which is made high enough for a tall man to pass comfortably along it. The front, which always faces south, consists of pieces of tree trunks, perhaps of 8 to 9 feet in length; these are placed in the soil to a depth of 2 feet in a closely fitting row. These butts of trees are hollowed out with a chisel, the aperture being about 2 feet in length, and the width varies with the diameter of the butt as a wall of wood must be left of at least 2 inches in thickness. A hole for the bees to enter, fitted with an alighting board, is made on the rounded side of the butt at the bottom. The excavation is furnished with a rabbet of about an inch in depth into which a thick slab of wood is fixed, and is fastened with two wooden buttons, or is hinged.

The writer has seen from fifteen to twenty of such hives in one shed. When the precaution is taken of filling up all crannies and openings between the tree stems and the shingle roof where it impinges on the side and end walls, and the tops of the butts, which are usually sawn off at the same angle as that of the roof, the bees do not enter the shed, it being then quite dark within. The entrance-door is sometimes at the end, but more generally it is in the back of the shed, and it is best in the latter place, as the bee-tender can enter in the daytime in summer without encountering any of the bees, whereas with numerous free standing hives that would be an extremely risky venture. The bee-keepers there find these hives extremely durable if the precaution be taken to employ only thoroughly dry butts for the purpose; Oak lasts, perhaps a life-time, and Alder which grows there to a very large size, almost as long. A kind of supering is adopted by dividing the inside space with a thin horizontal partition of wood put at any given height, according to the strength of the colony. A hole is left in this partition, which is covered until wanted with a piece of tile.

Where supers are used, the closing slab of wood, which is really the back and door of the hive, is made in two pieces, one for the main hive and one for the upper part or super. It is usual to put a bit of glass into these doors, so that the work going on inside may be watched, and a dab of clay is employed to shut out what little amount of light could enter.

The dimensions of the hives, supposing the tree stems to measure 8—9 feet, will present 7 feet or thereabouts as the height of the stems above ground; 2 feet the depth of the excavation intended to serve as hive, and 1 foot of solid timber at the top of the stem, which would put the entrance to the hive at 4 feet from the ground. At this height marauding mice cannot enter the hives in the winter, and the hive is secure against snow entering it, as it is also against severe cold. In Poland, Russia, and Servia, and perhaps Galicia and parts of Hungary, bears are still common, but these well known robbers of honey can do nothing with a stout tree stem standing 2 feet deep in the ground, and we doubt very much if a bear ever had the chance in his native country of bolting with a straw skep, as our artists always represent him as doing. Timber has too great a value in this country ever to be employed for beehives of this pattern, although there is much rough timber which could be so used, and we mention its use in the countries named on purpose to show the readers of the *Gardeners' Chronicle* that plenty of honey cheaply produced can be obtained with rough appliances. When swarms have to be hived in these wooden hives it is usual to sweep them with the hand gently into a bucket, and carry them in the evening to the hive.

In our country the adoption of the protecting shed would doubtless be attended with many advantages, and as our bears have been long since extinct and the winters mild in comparison with those of Russia and the other countries named, the fittings need not be quite of so substantial a kind. *F. M.*

NURSERY NOTES.

JAMES CARTER AND CO., FOREST HILL.

Primulas at this nursery have been very fine this season.. Large quantities of plants of uniform height, and bearing fine trusses of flower, filled the houses recently erected there. In one are several thousand plants in 48's, which made a truly pleasing display. The Holborn Blue is improving in its colour, and there is also the double form which is very pretty, and an advance on the single. The varieties named Blush, of compact habit, white, with a suffusion of pink; Carmine, robust, and of a rich bright carmine colour; Venus, pure white, with crimson frecklings; and the fine pure white Elaine are all well known, and still show themselves worthy of attention.

Of the others, Magenta must receive a first place on account of the peculiar colouring—the rich magenta-red ground, and which seems to have a varying shade of purple suffusing it irregularly, and a mass of bloom of this variety has a most lively and pleasing effect. One of the finest of the white flowers is to be seen in the Holborn White, which bears very large-sized blooms in good numbers; the corolla is snowy-white, flat, and prettily fringed. Very distinct, too, is Holborn Salmon, the colour of the flowers being well described in the name; moreover, as the variety is very free flowering, it is almost certain to secure admiration. Holborn Ruby has Fern-leaf foliage, with trusses of carmine-red flowers thrown well up above the leaves; there is a pretty spotting on this flower at the base of the corolla incisions. One other single variety is yet to be named—it is Pearl, which is also a Fern-leaved variety; the flowers in this case large and flat, white with just the faintest suspicion of a blue tinge overshadowing them—to which fact it probably owes its name.

Double varieties were not very numerous; one of the most noticeable was the double blue already mentioned; and in addition there were :—Snowflake, which is one of the best whites, making a good decorative plant; Princess of Wales, vigorous, and of a rosy-crimson colour, which is very pleasing; Carmine Empress is of stiff habit, compact, and

small in the leaf, and has flowers of a fine rich and bright carmine, and is one of the prettiest of the red double Primulas. Tinted Venus must not be forgotten, although its colouring (white, freckled with pale red and pale reddish-brown) will probably not commend it to all people, but it is, nevertheless, a distinct form, and serves well as a relief.

Orchids in Flower at Messrs. Backhouse's Nurseries, York.

There was a fine lot of Cattleya Trianæ in bloom recently in the Cattleya-house at the above-named nurseries, many of them were very fine varieties, broad in petal and sepal, and with the labellum richly coloured. Of other Cattleyas noticed were C. amethystoglossa, C. Enchantress, C. tricolor insignis, C. Backhousiana, C. eboracensis, C. aperta, and C. Nonpareil. In the same house were some very fine well sheathed lot of plants of Lælia purpurata, from which fine varieties are expected later on. As showing the strength of the plants I may mention, on measuring some of the leaves, I found them to be fully 18 inches in length. In the cool houses there were numbers of Odontoglossums in variety in flower, including fine varieties of O. crispum, O. maculatum, O. sceptrum, O. Edwardi, and O. nebulosum. There were also observed amongst Cypripediums—Lowii, Maulei, Sylhetense, Sallierii, calurum, gemminiferum in flower; and in the same house a fine plant of Cœlogyne cristata alba. *H. J. C.*



Fig. 55.—Barnardesia rosea: flowers rosy-lilac. (see p. 300.)

STEAM-HEATING, &c.

History has been said to repeat itself, and this may possibly be said to be the case as regards the heating of horticultural structures by steam. Many years ago steam heating was introduced as an improvement upon heating by the old fire flue, which it was expected to entirely supersede, but it never did so; while in the course of time hot water effectually superseded both the former systems of heating; but now, strange to say, steam heating is again, by some writers on the subject, recommended as an improvement upon hot water. In a large garden establishment many years ago I had some considerable experience in heating by steam—enough, at all events, to induce me to regard it as the most expensive as regards fuel, and demanding also an amount of labour and attention which would hardly be submitted to at the present time; and I would vastly prefer the old smoke flue with all its faults to any system of heating by steam that I have seen.

It is hard to say where the march of improvement in the matter of warming glass structures, as well as in other matters, may stop; but it is at the same time difficult to conceive any system of heating likely to supersede our most improved hot-water apparatus, with boilers so constructed as to require only a minimum amount of fuel as well as of attention. There still, however, exists a considerable diversity of opinion as to what is the best and most economical fuel to use for the purpose of heating the same, some giving preference to coke or anthracite coal, others preferring the ordinary furnace coal. For very small boilers either of the former may be preferable to ordinary coal, but for small greenhouses or conservatories attached to or in close proximity to dwelling-houses in towns I am inclined to consider gas as much to be preferred to the use of any kind of fuel.

Owing to the fact of stoking being but imperfectly understood by the persons most likely to be entrusted with the performance of this necessary duty, great waste or extravagance, as well as instances of total neglect, not infrequently occur, large fires being frequently used when little or no fire is required, which tends to the injury rather than to the benefit of the plants, &c., which such structures may contain; while, on the other hand, as fires cannot be lighted without some little trouble, it is consequently sometimes not done at all, even when most required, and the result is the injury if not the destruction of what the structure may contain. Fuel, of whatever kind, can hardly be used without creating something like a nuisance, in the form of dust and ashes, &c, which in proximity to a residence is, to say the least of it, objectionable, while the employment of gas for heating purposes necessitates nothing of this kind, and it can be lighted or extinguished instantaneously with little or no trouble. Of course, the necessary expense of gas will render its use for the purpose of heating large structures out of the question; and it is only for the warming of small or comparatively small structures that it can be reasonably recommended. And what is known as the "cross tube gas boiler" can be obtained at any ironmonger's establishment at what, I think, may be considered as a very moderate cost, or about 50*s.* for a boiler which will heat upwards of 40 feet of 4-inch pipe, or double that length of 2 inch pipe, while gas boilers of increased dimensions, which will efficiently heat a greater length of piping, may also be obtained at a proportionately increased price.

In all cases, however, where a gas boiler is used it is imperatively necessary that the same should be placed outside the structure it is intended to warm, and at the same time it must not be placed in the open air, where wind or rain might extinguish the gas flame, but it may be placed in any convenient outhouse or shed, or, as no litter results from the employment of such boiler, a small structure for its protection can be placed in any convenient spot without being in any degree unsightly. A thermometer for consultation should be placed in the open air, and where the structure to be warmed contains only ordinary greenhouse plants, it will seldom be necessary to light the gas until the external temperature falls under 40°. *P. G.*

Cultural Memoranda.

BROWALLIA ELATA.

Plants of this half-hardy annual raised from seed sown at any period during this month will make pretty furnishing stuff by the time September arrives. The seed may be sown in almost any kind of light compost, be lightly covered with fine sandy soil, and, after being carefully watered, placed in a mild heat. When the seedlings can be handled prick them out 2 inches apart in a pan into a mixture of three parts light sandy loam and one of leaf-mould; water the pan to settle the soil, return to the warm frame or pit, and shade from sunshine until the roots

of the plants have taken to the soil. The plants should be potted singly into 3-inch pots, or three may be put into larger pots, before they touch, afterwards shifting them into larger pots as more space for the roots is needed. The plant should not be allowed to get root-dry, or the leaves fall off. Red-spider is partial to the Browallia, and must be kept in check by syringing the plants daily before the flowering time. *H. W. W.*

RAISING ALPINES FROM SEED.

In reference to Mr. Jenkins' article on this subject Mr. Ewbank quotes from me. The system I supported, and that which I consider to be the only reliable one in our cold and dry climate, is one which is employed by Nature. When once ripe the seeds are, as is well known, scattered on the surface of the ground—on the Alps as well as in the plains below. I have often endeavoured to observe the course of procedure of these seeds in the mountains, and this is what I have found. As soon as they are ripe the seeds fall on the ground, and as that generally happens during the dry period of the year these seeds do not germinate, but remain dormant. The autumnal rains (September on the Alps) wash the seeds into the ground and bury them there, often to a very slight depth, but sufficiently. The rains are soon followed by snow, and the buried seeds are rarely able to germinate before winter; although germination does take place with some plants, as, for instance, Caryophyllaceous plants in general and all annuals. Gentiana tenella and G. nivalis also often germinate before the winter, while G. germanica only germinates after about eight to ten months, and passes through the winter as small plants, one year after the maturity of the seed. Biennials, and even certain plants which live for a longer time, as the Edelweiss, sometimes germinate in September in the lower regions, but such cases are rare. In the great majority of instances the seeds of alpines fall on to the ground, pass the winter in a dormant state, and germinate in the spring. But one important factor, which plays a part during the winter season, and which maintains the seed in a state of constant moisture and uniform temperature, must not be forgotten. This is the snow, which, however, is absent from some of the regions, and particularly from some places in England. The snow forms a nice soft covering for the seeds, which, under its protection, germinate in a surprising manner. As soon as the snow disappears the seeds commence to grow. Under the influence of continued heat and moisture the seedlings develope with an astonishing rapidity, and soon yield nice plants. Thus, after a long sleep under the snow, and sheltered from abrupt changes of temperature, the seed finds itself suddenly exposed to circumstances favourable to its germination, and, thanks to the length of the winter here, the seedlings are under the kindly influences of summer, as soon as the snow melts. This takes place generally from about May to June, and it is then owing to the long days, which immediately follow on the long winter, that the little plants are subjected from the earliest periods to those conditions of heat, light, and moisture, which are most favourable to their development. This is what passes in Nature. Under cultivation we must endeavour, as far as possible, to imitate the natural conditions. For this reason I sow the seeds late in the autumn, in order that their germination and development may not take place before the winter. Then I cover them with branches of Fir, so as to get as nearly as possible to the conditions of moisture, and to maintain a uniform temperature I cover the branches with snow. These are propitious conditions for the seeds, as they are covered in and put on a bed as thick as possible.

Then on clear nights the snow is watered, and the surface frozen into a sheet of ice. I have often remarked that seeds which have been covered by snow, if only for a few days, germinate and develope better than those which have been left uncovered.

I had two lots of seeds of the same species, and from the same head. One lot was placed on a cold bed protected by a light; the other on an open bed, covered with Fir-branches and snow. There was a marked difference between these two lots, for while the second lot grew remarkably well, those under the light yielded meagre results. They were, moreover, both sown on the same day and in the same soil. Now, as the English climate is damper than ours, and the winter much milder, it may be that the system advocated by Mr. Jenkins is preferable—of this I cannot judge. *H. Correvon, Jardin Alpin d'Acclimatation, Geneva.*

THE ROCK GARDEN.

PLANTS SUITABLE FOR ROCKWORK.

There are many plants well adapted to furnish rockwork, but the following, which I purpose to notice, will be found to be among those which are the best generally. First, I would notice Daphne cneorum, a great favourite with me — a plant which is admired by all who have seen it. It has lovely pink flowers, coming in trusses, which are produced in great freedom at the end of almost every shoot, and the perfume they exhale is delicious. It appears that some gardeners find a difficulty in growing or keeping this plant alive, but here at Woolverstone it grows with the utmost freedom in all situations, the most suitable place, however, appearing to be where there is partial shade, as those we have at the end of a span-house form dense masses of shoots that in early spring are always covered with flowers. The soil that these have is sharp and gritty, and lies a foot or 18 inches above the level, forming a bank about 2 feet wide, which has a retaining bank of rough stone hidden by the trailing branches of the Daphne. These stones also serve another purpose, for they retain moisture in dry weather, and thus encourage the roots to go beneath them, where they form quite a mass. We have the Daphne cneorum doing remarkably well in peat and in the ordinary loam of the borders; and here propagation is effected by layering any of the side branches, which in a year or so emit roots, and are then, if wanted, taken off at any time in the winter or spring.

A splendid companion plant to this Daphne is Phlox Nelsoni, which has a still more prostrate habit of growth, as it is only 6 inches or so in height. The plant bears numerous pure white blossoms, each of which is about the size of a sixpence. The Phlox appears also to like sharp soil, and the aid of lumps of stone, on to which it climbs, and its roots running underneath them, make it independent of any weather. I find the readiest way to increase this Phlox is to lay small pieces of stone on to the top of a shoot after a little sand has been thrown over the part, and under which roots soon form; but plants may also be raised from cuttings put on under a handlight kept shaded and close for a time.

For planting next to Phlox Nelsoni there is nothing, perhaps, so effective as Lithospermum prostratum, the intense blue of whose flowers outlive those of the Gentian.

A plant of it we have here has so spread itself out as to be nearly 4 feet across, and when in bloom it is a sight to behold, for although the individual flowers are small, each spray is full of them, and they continue to open for a long time in succession. This Lithospermum is a true rock plant, and trails in a most graceful manner. It will root if layered, or will strike from cuttings made from the half-ripened shoots, put in under bell-glasses, and placed in gentle heat to give them a start.

The perennial Iberis, I. gibraltarica, is another striking plant, and forms a good contrast to the last one mentioned, the spikes of bloom being clear white; they are borne in profusion. The plant grows with freedom almost anywhere and in any kind of soil, and the shoots will root readily under a handlight, or the plant may be divided by cutting it through, an operation which may be carried out at any time of the autumn or winter. Aubrietias, again, are never seen to greater advantage than when they are planted in elevated positions. They are amongst the first harbingers of spring, for no sooner do we get a little sunshine than flowers begin to open, and the plants to form cushions of beauty. Alyssum saxatile and argenteum are likewise splendid things for rockwork, with their masses of golden blossoms and silvery foliage. These plants and the Aubrietias do not seem to mind how hot and dry the site is, for although the first-named are shallow rooters, they shade and keep the soil about them moist with their close dense growth, and the Alyssums send down their roots to the depth of a foot or more, and thus are unable to defy dry weather.

The Geraniums must not be forgotten, as they, too, are just in their proper place on rockwork, most of them being prostrate and spreading in habit. The best are :—G. ibericum, G. platypetalum, G. armenum, G. Endresii, and G. sanguineum, all of which are strong growers. Among shrubs the finest is Berberis stenophylla, the habit of which is pendulous and trailing, and in spring the branches are loaded with floral beauty. Unfortunately this, like other Berberis, is rather difficult to transplant or move, and it is best, if possible, to get plants in pots, for if they have to be lifted from the open, the safest time is just when growth is commencing and the dry winds of March are over and gone. *J. S.*

[Other good rockwork Berberis are dulcis or buxifolia, a very dwarf species; and Darwini, which has numerous orange coloured flowers. Ed.]

PLANT PORTRAITS.

Aster Amellus; A. linarifolius, *Garden*, February 23.

Batemannia meleagris, *Orchidophile*, February.

Lilium Martagon atrosanguineum, *Bull. Soc. Tosc. de Orticultura*, February.

Oxera pulchella, *Illustration Horticole*, t. 76.

Persea gratissima—fruit, the Avocado Pear—*Illustration Horticole*, t. 75.

Rosa humilis var. triloba, *Garden and Forest*, February 13.—Petals 3-lobed at the apex.

Tulip Grand Duke of Russia, *Revue de l'Horticulture Belge*.

PLANTS AND THEIR CULTURE.

To Plant Flower and other Hanging Baskets.—It is now a good time to make up and renew plant baskets. These are very effective when suitable subjects are chosen to fill them, and the requisite numbers are in readiness for the work. The plants should be grown for the purpose in small pots, so that they may be easily transferred, and will not flag, but start into growth at once, and furnish the baskets in a short period of time. Baskets in a half-filled or starved condition are not very pleasing objects. Achimenes stand in the front rank as basket plants, and make beautiful objects when well grown, and especially if some of the baskets are filled with mixed colours. A. longiflora major, A. patens, A. longiflora alba, A. grandis, and A. Aurora Pink Perfection, A. Ambroise Verschaffelt, A. Mauve Queen, are among the many varieties most suitable for this purpose. The rhizomes or tubers should be grown in pans in sandy peat and leaf-mould before being placed in the baskets, which should be ready for them when they have shoots an inch or two in length. Achimenes require plenty of heat during the growing season, and not an over-abundance of moisture in the air; and as the plants increase in strength occasional waterings with weak liquid manure may be afforded them, putting the baskets in the coolest and driest parts of the house when in bloom.

Epiphyllum and truncatum in variety may also be used as basket fillers, and coming into flower at a period of the year when other subjects are at rest, assist to fill up the places occupied by the Achimenes. The plants are easily propagated, and should be liberally treated when growing, to induce them to make plenty of flowering shoots, which should be well ripened before winter arrives. These plants should now be placed in a warm-house in

their baskets, and grown on, removing them to a cooler and drier house to ripen their wood after their growths are made.

Other good basket plants are Hoya bella, and the different species of Æschynanthus. These become beautiful objects in a warm house, delighting in a moist atmosphere. They are grown with little trouble. Given plenty of rough fibrous peat in their compost, with a little sphagnum moss and pieces of charcoal, the plants grow with but little trouble. *G. Wythes, Sion House Gardens, Brentford.*

The Flower Garden.

Planting Beds.—The rules to observe in planting beds in unlimited mixtures are, that the various colours shall be distributed evenly all over the bed, and this can only be accomplished by the planting of one species or variety before any others are put out; next, incongruity of colouring must be avoided by selecting only such colours as will harmonise; and lastly, a distinctive tone of colour, that is, light, dark, or medium, should be aimed at in the arrangement of each bed, for by this means only is it possible to obtain a balance of colour over the entire garden. As regards the arrangement of sub-tropicals my opinion is that these all look best in mixtures, and when planted much more thinly than we are wont to see them. The whole of each plant should be visible, and if the ground be not sufficiently covered owing to such thin planting, then fill it in with low growing plants of any kind there may be to spare. A contrast as to colour is desirable in plants used as undergrowth, though this does not greatly matter, but edging plants should always contrast as to colour with the plants in the bed. I have left the most difficult part of my subject till last, namely, carpet pattern arrangements. The difficulty lies in my inability to describe intelligibly my own ideas and manner of arranging plants after the so-called carpet fashion, and therefore readers will have to be content to accept generalities for particulars. First, then, I never either approved of or practised carpet-bedding in the strict sense of the term. In all our dwarf foliage arrangements of bedding plants the prevailing characteristic has been first their undulated form, caused by using plants of varying height, and next the free use of suitable plants as standards throughout the entire arrangement: in fact, there has been no carpet work because there has been no flatness of surface. Now as to arrangement: simplicity of design is the first consideration, hence no pattern is more telling than one in which circles and ovals predominate. The designs decided on, the next move is their bold definition by the planting of wide bands of surfacing plants such as Herniaria glabra, Sedum glaucum, S. acre elegans, &c., according to colour desired. The central plants for small beds are then the next consideration, and the best we have yet found for such small beds are plants of the succulent order, such as variegated Agaves, variegated Sempervivum, Echeveria metallica, E. Peacockii, E. farinosa, and others. Small Yucca recurva, and Dracænas are also suitable. Alternantheras of various colours are suitable for the outer lines of these small beds, and inside round central plants, any of the smaller growing tricolor, or variegated Pelargonium, variegated Mesembryanthemum, Gold-feather, Leucophyton, and, if flowers be preferred, blue Lobelias are appropriate. Supposing that the outline plant be the green Herniaria glabra, the small angles formed by cutting out the larger figures may be planted with the white Antennaria tomentosa, Sedum acre elegans, or any other light foliaged plant, and if the outline plant be of a light colour then of course the angles must be filled with the darker plants—reversal of the position of the plants being really all that is required to insure variety of arrangement. *W. Wildsmith, Heckfield, Winchfield.*

The Hardy Fruit Garden.

Seasonable Memoranda.—The recent hard weather will have put a stop to any planting of fruit trees which may have remained to be done, and so long as frosty weather prevails this work must remain in abeyance; but advantage should be taken of a break to get all planting completed by the end of the month; and I would mention that, however well the ground may have been prepared for the trees, if, when planting the soil, is in a sticky condition, an additional shovelful of fine soil, moderately dry, should be scattered among the roots, if only that from the potting-shed be used; and it is better to defer treading the soil firmly about the roots till it is in a much drier condition. Those trees which were planted in the autumn against walls, and have been left untrained, may now be made properly secure, but before doing so a good treading of the soil above the roots may be given them. Be careful not to pinch the shoots with the fastenings, be these shreds, bast, or twine, but give ample space for the season's growth.

Orchards.—Young standards should be staked afresh, and those planted last autumn may now be finally fastened to their stakes, placing a soft pad of hay, moss, &c., between bark and stake to prevent injury to the former. For fastening orchard trees stout tarred twine or Willows twigs are the best materials. The labeling of all trees should not be overlooked, and where the system of hanging the labels with wire to the branches is carried out, the wire must not be allowed to cut into the bark. In these gardens lead labels are employed, the names being stamped thereon; the label is attached to a stout stake 18 inches long, driven into the ground a few inches away from the stem, so that no difficulty is experienced in finding the names in summer when the trees are in leaf. But in whatever way the labelling is done, there should be a list of all the trees, their names, and position, kept for purpose of reference. *H. Markham, Mereworth Castle, Kent.*

Fruits Under Glass.

The Work in the Forcing Pits.—Tomatos should now be growing freely and showing bloom; therefore maintain a growing temperature of 50° at night and 65°—70 with air by day, keeping all growths well thinned out, and tying in those retained. As a means to destroy the white-fly on Tomatos I find Calvert's carbolic soft-soap much more deadly in its effects than tobacco-paper. It should be used at the rate of 1 oz. dissolved in 1 gallon of warm water, and after it has dissolved the plant should be syringed with it. It will also destroy the eggs of the aphis without the slightest injury being done to the plants. Shut up with sun-heat in the afternoons, the plants being lightly dewed over with the syringe two or three times a week. Plants from seed sown in February may be potted off into 7-inch pots, two plants in a pot, placed near the glass in stove-heat, and shifting them into 10 or 12-inch pots when large enough. The stems may be trained round three or four stakes, about 3 feet high, stuck into the soil; the plants will then not take up much space, and may be stood at the ends of vineries or such-like places. Seeds should be sown this month for summer and autumn supply. Pot off into 60's as soon as they can be handled, place near the glass in a Cucumber-house, and when the pots are filled with roots pot off into 7-inch pots, gradually hardening off until planted out in June against a warm wall.

Figs.—The early-house may be afforded a night temperature of 65°, with a rise of 10° by day, shutting up with sun-heat, sprinkling the paths and walls with manure-water. Stop the young shoots when they are 6 inches in length, or say at the fifth or sixth leaf, cut out any superfluous shoots, and thin the fruit if it is found to be thickly placed. Examine the plants in pots with regularity, giving tepid manure-water occasionally when the pots are full of roots. If the Figs in the succession house are planted out, the inside border will require close attention in the matter of watering; and thin out the fruit where it is too abundant, remembering that a second crop has to be provided for. A night temperature of 60° may be maintained if the weather be not frosty, and one of 65° to 70° by day, giving air on the morning of mild days, shutting up at an early hour in the afternoon, syringing the trees, and damping the paths and borders.

Hints on Melon Growing.—These come on very slowly, in fact slower than I can remember them to have done before. The early plants have made but little progress; the occasions on which air could be given have been but few. The growth is weakly, although it is encouraged as much as possible in the daytime by a moist, genial temperature, and the plants are moistened at shutting-up time, when a temperature of 80° to 90° is obtained, the night temperature being 70°, a little higher or lower, according to the outside temperature. The heat of the bed is 85°. Generally speaking Melons should not be stopped at the points of the shoots till they have almost reached the top of the trellis, but yet it is desirable, in order to get a few small early fruits, to stop one or two of the plants when somewhat less advanced. Plants raised from seeds sown in January and February should be planted out to keep up the succession. Employ strong loam for the hills, make firm and press the soil well around the plants when planting them, but without disturbing the roots. Some of the plants from these sowings may be put into 10-inch and still larger pots, leaving space for top-dressing. Continue to sow a few seeds, singly, in 60's, for succession. In planting, or in any way working among those in frames, be very careful not to expose the plants on cold or windy days, as a very slight chill will cause irretrievable injury whilst they are in this tender state. Always keep a good heap of stable-dung and leaves constantly turned over, where hot-water pits or houses are not in use, so as to have the materials for making up new beds, and renewing the linings of others, as they lose heat. Keep the heaps covered up with some dry litter, to preserve the heat as much as possible, Give the plants a gentle dewing over with the syringe, and shut up for an hour, with sun-heat, putting on a little air to the frames when covering up for the night. *W. Bennett, Rangemore, Burton-on-Trent.* [In hot-water pits there is no danger from hot steam or ammonia, but even in those some amount of night ventilation has its advantages. Ed.]

The Kitchen Garden.

Asparagus.—This vegetable does not succeed on some soils, especially on damp heavy land. The best soil for Asparagus is a light deep loamy soil with a good proportion of sand. It, however, requires abundance of manure to secure heads of good size, also to ensure rapid growth, else it is lacking in succulence. Where the right soil exists it is most economically grown in brakes 2 feet between the rows and 12 inches between the plants; this allows of ample space for the full development of the shoots, which gain strength and sturdiness to resist the winds and rain, and thus the crowns get sufficiently matured. Damp is very injurious, but where the soil is of a light kind little danger is to be apprehended on that score. It will be found good practice to run a row of stakes down the rows and stretch a strong string or two, to which to tie the "grass"; this of course takes up a great deal of time, and some ordinary Pea sticks placed between the rows will answer the same purpose, only that they will not have such a neat appearance.

Where the ground is not suited to Asparagus much may be done towards securing good results, by planting on elevated beds, the alleys being filled up 2½ to 3 feet deep with stones, clinkers, or other porous materials, with a drain at the end for the escape of water. In some instances it is necessary to put in deep drains, and place beneath the beds a layer of drainage material, and to bring in fresh soil. Young plants are secured by sowing seed about the end of March or beginning of April; if sown earlier it may be injured by late spring frosts. The ground should be prepared in advance, by well trenching and mixing with the top spit a heavy dressing of well-rotted manure. The seed should be sown in drills about 9 inches apart, and if the plants come up too thickly they should be thinned, leaving the plants from 4 to 6 inches apart; the following spring the plants are ready for transplanting. This operation should be deferred until such time as the young growth has pushed about 1 inch, when the plants should be lifted. The best system of planting is to place the line on the spot where the plants are to be set, and with a spade take out a notch on each side of the line, regulating the depth to the length of the roots. On the top of this saddle-shaped ridge place the plants with one half of the roots on each side—the soil being returned and firmly pressed against the roots, care being taken not to injure the young shoots. After standing for two years it will be fit for lifting, forcing, or cutting. Old plantations should now receive attention, the covering, which has been on them for the winter, should be removed, a dressing of 3 inches of rich, rotted manure substituted for it, and a slight surfacing of soil placed on the top of all. Where suitable manure is not at command blood manure, or some other artificial, should be given, and a surfacing of soil placed on the top of it. *Wm. M. Baillie, Luton Hoo.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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W. RICHARDS, 41, Wellington Street, Strand, W.C.

GARDENERS' CHRONICLE OFFICE TELEGRAMS.

NOTICE to Correspondents, Advertisers, Subscribers and others. The Registered Address for Foreign and Inland Telegrams is "GARDCHRON, LONDON."

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY,	MAR. 11	Chambre Syndicale of Ghent.
TUESDAY,	MAR. 12	Royal Horticultural Society: Fruit, Floral, and Scientific Committees.

SALES.

MONDAY,	MAR. 11	Japanese and English-grown Lilies, Japanese Iris, &c., at Protheroe & Morris' Rooms.
TUESDAY,	MAR. 12	First Portion of the Sunbury House Collection of Orchids, at Protheroe & Morris' Rooms (two days) Roses, Conifers, Fruit Trees, &c., at the City Auction Rooms, by Protheroe & Morris.
WEDNESDAY,	MAR. 13	Roses, Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms.
THURSDAY,	MAR. 14	Orchids in Flower and Bud, at Stevens' Rooms. Nursery Stock from Sample, Lilium auratum, &c., at Protheroe & Morris' Rooms.
FRIDAY,	MAR. 15	Imported and Established Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	MAR. 16	Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—42°.2.

The Adulteration of Seeds Act.

SINCE January 1, 1870, when this Act, passed in the previous autumn, came into force, but little has been heard of it, and it might have been hoped that the necessity for its enactment had passed away. The crop of rogues is probably not smaller than before, but it was hoped, from the general silence, that the Act in question had sufficed to banish them from our fields and gardens, to find refuge in some other quarter less well protected from their incursions. Two circumstances, however, militate against this hope. Thus, in 1878, it was found necessary to introduce an amending Act, specifying with greater precision than before what "dyeing seeds" signifies within the meaning of the Act. We shall do well to repeat this:—"The term to 'dye seeds' means to apply to seeds any process of colouring, dyeing, or sulphur-smoking."

The passing of this second Act looks as if the practices it was intended to suppress were at that time still carried on, perhaps because the wording of the original Act left a loophole, by speaking of giving the doctored seed "the appearance of seed of *another kind*." It is clear that, as a general rule, no amount of turmeric or sulphur-smoking would do that, and, indeed, that is not ordinarily the object of the malefactors.

The other reason which forbids us to hope that the crop of rogues is extinct is the inadequate penalty inflicted for a first offence. According to the Act "anyone who kills or causes to be killed any seeds; or dyes or causes to be dyed any seeds; or sells or causes to be sold any killed or dyed seeds, shall be punished" for the first offence by a "penalty not exceeding five pounds." When the cost of obtaining a conviction is considered it will be admitted that while the Act is clear enough in its terms, and whilst not more than the usual number of coaches and six can be drawn through it, yet that the cost of setting it in motion is so great that not many private individuals will care to incur it. It is rather work for some such body as the Nursery and Seed Trade Association to take up. Be this as it may, the case recorded in a recent issue (p. 247) shows that the nefarious practices are still carried on to the detriment of the honest merchant and the loss of the consumer. It must be admitted that the farmer in his search for cheapness, and with his usual apathy and neglect of even the very simplest experimental trials, lays himself peculiarly open to the machinations of the rogues. There is no power of adequately protecting people who will take no pains to protect themselves.

The merchants, however, have their reputation at stake, and as they were the prime movers in securing the passing of the Act, so on them may fairly be laid the burden of putting its provisions into action, and of still further amending the Act by such additional sections as may be shown by experience to be desirable; such for instance, as the imposition of increased penalties recoverable at the discretion of the magistrate, in the case of first offences; the introduction of clauses forbidding the admixture of dead seed, securing the punishment of those who knowingly buy, as well as of those who, with fraudulent intent, sell doctored seed, providing the means of obtaining search-warrants in suspicious cases, etc.

It is alleged we know not with what precise amount of truth, that, owing to the little use that has been made of the Act, the practice of selling doctored seed has again reached large proportions. The profit to be made is so large as to be a great incitement to the rogues. We have been told of cases where old red Clover seed, bought at 8*s.* per cwt., after manipulation was sold for 35*s.*, the cost of doctoring being estimated at about 2*s.* 6*d.* per cwt.

Of course, after a season like that of last autumn, when good seed—as we have already had occasion to remark—was, in most cases, very scanty in quantity, and in some cases non-existent, the temptation to doctor old worthless seed, to make it resemble new, is greater than usual.

The ordinary practice of dyeing consists in the use of indigo or turmeric, and especially in the exposure of the seeds to the fumes of burning sulphur. When seeds so treated are mixed with good seed, detection is difficult to the inexperienced by the naked eye; but the germinating power is easily tested, while soaking in water or still better in spirit will reveal the presence of adventitious colouring matter, and sulphur can be very readily detected by the chemist.

The purchaser, rather than allow himself to be tempted by the low price of the wares offered him, would do well in all cases to secure his supplies from some house of acknowledged reputation. Now-a-days dealers in coal, dog biscuits, petroleum, or firewood often traffic in seeds also. Of course, they have a perfect right to do so if they choose, so long as they conduct their business honourably; but what knowledge of the seed-business can such men really have? They buy and sell with scarcely any knowledge of the commodities in which they deal. How can such people be expected to know that English red Clover seed is better than French or American? How can they know the different values of American, Canadian, or German seed—and how can they recognise the probable source of the seed in which they deal? As a matter of fact, we believe it is generally recognised that English Cow-grass or broad-leaved Clover comes first in point of quality, as better adapted to our climate; then, in successive order, English red Clover, Canadian, or that derived from the North of France; while Clover seed from the South of France is of comparatively little value in this country.

Even from different counties in England the variation in growth and hardihood is great; the cold clays of Essex and Somerset have the reputation of producing the hardiest Clover plant. Suffolk, a sunny county, has a good reputation for its seed. Welsh seed is well thought of, a proof of which is offered in the circumstance that large quantities of Welsh seed have been offered on the market, though little or none has been grown in Wales for the last two years. So, too, Lowland Dutch Red Clover or Maas Red, appreciated in Norfolk, is being offered, though where it can have come from is a matter of speculation.

There is no question that good English seed is often mixed with a certain percentage of that from other countries and which is not actually bad, or dyed seed, but still seed of inferior quality. The class of dealer we have alluded to above is more likely than not to be unaware of these differences. It is a question, therefore, whether the Seed Act might not be so extended as to render illegal any such mixture as has been alluded to, unless the fact be duly announced on the label, though we fear the difficulties in the way of accomplishing this would not be slight.

The very great value of English seeds of a good stock over all other growths, foreign or otherwise, as regards the produce from them against the produce of the other kinds, should in every way be protected and encouraged; and taking into consideration what the loss of a "plant" in a crop of hay or seed means to a farmer, prompt measures should be adopted to meet the case, to protect the producer and consumer from the wiles of the unscrupulous. From what has been said, and especially from the results of the recent trial, it is evident that, although the Seed Adulteration Act, is not quite a dead letter, yet that its provisions require to be more often put in force, and if that were done it might not be found necessary to further amend or extend it, as the multiplication of offences and penalties is in itself undesirable.

THE CONSERVATORY AT CASTLE ASHBY.—The fine gardens of the Marquess of NORTHAMPTON at Castle Ashby have been repeatedly noticed in these columns, and notably at considerable length in our issue for September 25, 1875, when two pretty views in the grounds were given. It was, and is a charming garden, and at that time afforded one of the best examples of bedding-out in spring and summer; for the harsh contrasts of colour then prevalent in gardens, and which were then beginning to be considered not the end-all and be-all of flower gardening, had already made way at Castle Ashby to harmonies in sober tints. The garden was great in monograms and quaint devices in Box and other dwarf-growing shrubs, and also in the natural style of gardening, now rather unhappily designated the "wild garden." The structure shown in our illustration (fig.

56) is an architect's conservatory, and our readers will know what that means. It is a place of handsome proportions, good workmanship, and an ornament to the garden; but the gardener abominates it, for do not his best plants lose their leaves and lower branches, and become attenuated objects of no decorative value, often readily falling a prey to insect enemies? The building, which was designed by Sir Digby Wyatt, stands near to the church, and is 140 feet in length by 30 feet in width; the pillars are monoliths of Bath stone, and support iron girders. The middle of the house is surmounted by a dome of massive

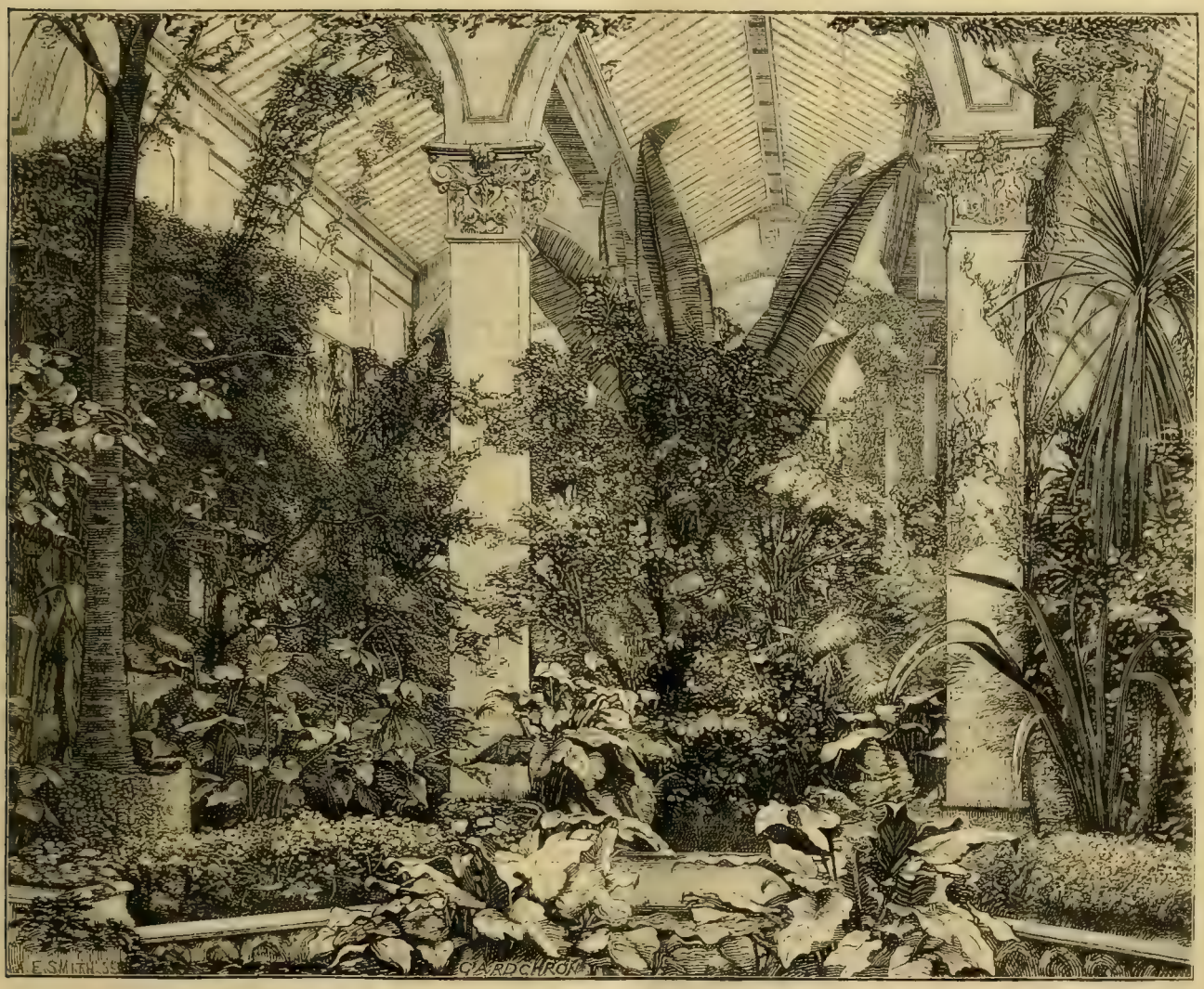


Fig. 56.—View in the conservatory at Castle Ashby, Northamptonshire.

proportions, and it is just at this point that the view was taken. This dome is 40 feet in height; underneath it is a fountain. As will be seen in the view, beds are reserved for flowering plants of a dwarf character, others being filled with Musa ensete, Aralia, Colocasia, Phormium, Dracæna Veitchii and others, Tree Ferns, Clianthus puniceus, Ruscus androgynus, Lapageria, Clethra arborea, Hibbertia, Clematis, &c. Many Orange trees in tubs stand about, one being 200 years old, but these are not seen in the view.

Gardeners' Royal Benevolent Institution.—We are informed by Mr. R. E. Cutler that the above Institution has benefited recently by a legacy of £500 left to it by the late Mr. John Rylands, of Manchester. We are requested to state in response to numerous inquiries addressed to the Secretary that the collecting-cards for this, the Jubilee year of the Institution, will be in the hands of its patrons and friends early in the next week, and that those persons who may fail to obtain one, should communicate with the Secretary, at 50, Parliament Street, London, S.W.

Royal Horticultural Society. — The Scientific Committee of the above will meet for the future at 4 p.m., in the Library, at 117, Victoria Street, S.W. The meetings in March take place on the 12th and 26th.

Dutch Horticultural Society.—It may not be generally known that such a Society exists in London for the sake of bringing together the young Netherlands gardeners, who are picking up knowledge in this country. Belgians cognisant with the Dutch language are also admitted members. Mr. Goemans, 23, Gloucester Road, Kew, is the Secretary.

The Scottish Horticultural Association.—The twelfth annual general meeting of this Association was held on the 5th inst., at 5, St. Andrew Square, Edinburgh, the President, Mr. Alex. McKinnon, in the chair. The number of members present on this occasion exceeded that of any former annual meeting. The Secretary, Mr. Robertson Monro, read the annual report, which showed that the progress and influence of the Association was extending. During the year fifty-two ordinary members and three life members had been added to the roll. Mr. McKenzie, in the Treasurer's report, stated that the income from 2*s.* 6*d.* subscriptions during the year was £40, and the expenditure, which was exceptionally heavy, was £39. The income from the Chrysanthemum show was £131 9*s.* 6*d.* with an expenditure of £131. The Duke of Buccleuch was re-elected honorary President, and Professor Bayley Balfour was elected President for the coming year. Mr. James Greibe, Pilrig Nurseries, Edinburgh, in room of Mr. Malcolm Dunn, Dalkeith Palace Gardens, and Mr. A. McKinnon, Scone, in room of Mr. George McKinnon, Melville Castle Gardens, were elected Vice-Presidents. It was announced that the Duke of Buccleuch had sent a donation of five guineas towards the prize fund of the Centenary Chrysanthemum Show, and that the Lord Provost and Town Council of Edinburgh intimated that they would subscribe £100 to the

guarantee fund of the Chrysanthemum show, and a cup, not to exceed £20, to the prize List. The guarantee fund now amounts to about £250. A new seedling Rhododendron named Hiawatha, a cross between Princess Alice and ciliatum, was exhibited by the raiser, Mr. Carter, of Carterbank, Edinburgh, an enthusiastic amateur. It was seven years' old and occupied a 5-inch pot, and was about 1 foot high, with an erect branching twiggy habit. The leaves are from 1½ to 2 inches long, about 1 inch broad, acutely oval, clothed densely and ciliated with short reddish hairs. The flowers are broadly campanulate, of great substance, white, tinted rose. Messrs. Laird & Sons, Edinburgh, exhibited an excellent plant of Pancratium guianensis in bloom, which was the first of the species which had been seen in flower in this part of Scotland. Mr. Fraser, Ardarroch Gardens, Lochgilphead, exhibited cut blooms of Cattleya Trianæ, including a superior form of alba, also some fine Dendrobiums, and a dark form of D. nobile, unnamed, and a beautiful truss of Cœlogyne cristata alba. Mr. McMillan, Trinity Cottage, Edinburgh, sent a collection of semi-double Camellias of great size and substance.

French Gardeners' Society.—We are also informed that a number of the young French gardeners around London have formed themselves into a Mutual Improvement Society for the promotion of good-fellowship and mutual assistance in the study of gardening, for the formation of a library, &c. Young English gardeners desirous of acquiring a colloquial knowledge of the French language will be cordially welcomed as members, and will enjoy the same privileges as those of French nationality. The meetings take place on the first Saturday of each month. Every member has a right to the use of the library, while books and gardening papers are lent to applicants for the space of one month. M. Ch. Villard, Kew, is the President; M. C. Page, Vice-President; M. Zimmerman, St. Albans, Treasurer; and M. L. Charton, Eythrop, near Aylesbury, Secretary, to whom all communications should be addressed. The meetings are held at 3, Macclesfield Street, Shaftesbury Avenue. We heartily commend the principle of these societies, but would suggest inquiry as to the possibility of federating these societies under one common association. Each nationality might preserve its own individuality and independence, but might at the same time reap the advantages of co-operation and union at a diminished cost.

Minister of Agriculture.—In this country we have not, as yet, had one Minister of Agriculture. We are promised one, however, who is to look after Horticulture as well. May we hope that we may not have so many as our good neighbours, the French, who have had twenty-two since 1871, and 73, since the organisation of the office in January, 1828. For these statistics we are indebted to the *Moniteur d'Horticulture*.

Swellings in the Olive and the Aleppo Pine.—M. Prillieux has ascertained that certain small cellular swellings in these trees are due to the presence of bacteria. At first composed of loose cellular tissue, the tubercles subsequently become woody.

Nicholson's "Dictionary of Gardening."—The completion of this book, invaluable to gardeners, demands attention as a bit of news, but it is not necessary to say more than has already been said as to its utility. That the book has faults both of commission and omission is only to say that the labour has been heavy and exacting. It is the idlers and do nothings who never make mistakes. Of all the compilers who of late years have undertaken a similar task Mr. Nicholson is by far the best, both from his own qualifications and the favourable circumstances under which he is placed. We hope then that the publisher (Upcott Gill, 170, Strand) will meet with sufficient encouragemant to commission Mr. Nicholson to go over the whole work again, correcting such things as are needful, and specially adding those things which are desirable, and in the course of a short time reissue the book so annotated, or publish an exhaustive supplement every few years. Useful features in the present volume are the supplements contributed by the Rev. Percy Myles, and dealing with the pronunciation of the names of plants. Mr. Myles, we are glad to see, has adopted the Continental method of pronouncing Latin, which, indeed, has always been the practice in Ireland and Scotland, and which is destined to become general in England also. Mr. Myles also gives us a list of Greek words frequently used in the construction of generic names. A list of synonyms and cross references is also given. With Bentham and Hooker's *Genera* for the genera of flowering plants, and this work for the most important species grown in gardens, we have now a standard as authoritative and excellent as it is in the nature of circumstances possible to have, and to it horticulturists should loyally conform. We do not mean to deny the right of any one to put whatever names he likes to his plants, so long as he does not publish them, but if he does so, then he should either use English names, concerning the nature of which there can be no doubt; or at any rate he should not employ such names as by their construction imply that the plants have been properly described and registered by a competent botanist. Half the difficulty in nomenclature is caused by the unauthorised use of names botanical in appearance, but purely horticultural or commercial in substance.

Canadian Plants.—In 1878 there was published by Professor Macoun a check-list of the plants known to occur in Canada. This list has for some years been out of print, and since it was issued many new species have been discovered, and the names of many more have been changed. At the request of botanists both in Canada and the United States, Professor Macoun has published, and now offers for sale, what is believed to be a complete list of the Phænogamous and Vascular Cryptogamous Plants of Canada. The price of the list is 50 cents per copy. Those wishing to possess it should write to Jas. M. Macoun, Geological Survey, Ottawa, Ontario, Canada.

National Chrysanthemum Society.—The adjourned general meeting of members took place at Anderton's Hotel, Fleet Street, E.C., on the 28th ult. Mr. E. C. Jukes, Vice-Chairman of Committees, in the chair. Lord Brooke, M.P., was unanimously elected the President of the Society; and the following noblemen and gentlemen Vice-Presidents:—The Earl of Lytton, Lord Ebury, Sir G. Hunter, Sir Lewis Pelly, Sir Edwin Saunders, Leopold de Rothschild, Esq., J. Wormald, Esq., Dr. Hogg, and the late President, Mr. E. Sanderson. The Treasurer, Mr. J. Starling, submitted the Trustees' account of the Reserve Fund made up to December 31, 1888, showing the amount invested in Government Stock to be £98 3*s*. 5*d*., and of the balance at the close of the year 1888, the sum of £14 10*s*. 7*d*. had been invested in New Three per Cents., bringing the total up to £112 14*s*. The Hon. Secretary brought up an estimate for the present year and recommended that the sum of £79 10*s*. should be awarded in prizes at the September show; £195 at the November show, £50 at the Hull Provincial Show, in addition to the prizes offered by the Hull Society; and £50 10*s*. at the mid-winter show in January, 1890. These sums all show an increase upon last year.

Pelargoniums at the Home of Flowers. Florists deserve much praise for the improvements they have effected in Pelargoniums of the zonal and plain-leaved sections, and no one more than Mr. Hy. Cannell of Swanley, and Mr. Pearson of Chilwell, and MM. Sisley, Lemoine, and other continental raisers. Time was when a Tom Thumb, a Basilisk, or a Pink Nosegay were all that we could show in the way of zonals, and these only in summer; but now, owing to constant selection of fine types with rounded petals possessing much substance, and by having an eye to beauty in colour, we have a pretty constant race of scarlet, crimson, pink, salmon, and white-flowered Pelargoniums, with and without eyes, and borne in enormous trusses, and which by our improved methods of culture can be got to flower in early and mid-winter, as well as they do under a different treatment in late summer and autumn. Many an amateur's conservatory is made gay after the Chrysanthemums have passed out of flower by zonals alone; and a pretty sight it is when the owner or his gardener knows rightly how to choose the colours of the plants. We are reminded of the importance of the Pelargonium by the receipt of a boxful of splendid pips from Mr. Cannell.

Bakeria tillandsioides.—Under this name the *Revue Horticole* of February 16, 1889, figures a plant described by M. André as forming a new genus of Bromelias allied to Brocchinia. The plant bears a rosette of numerous linear lanceolate acuminate entire leaves, covered with silvery scales, from the centre of which proceeds a long erect leafless scape, terminated by a loose branching panicle of numerous small pale lilac star-shaped flowers. The whole inflorescence measures 40—50 cent. in length; each flower is about 8 mill. across (¼ inch and upwards). The plant is supposed to be a native of Brazil, and flowered in the collection of M. A. de la Devansaye.

Barbary Plants.—M. Cosson has published the third fascicle of his *Illustrationes Floræ Atlanticæ*, comprising a series of quarto lithographic plates of representations of the floras of Algiers, Tunis, and Marocco. The present part contains plates 31 to 73, and is devoted principally to the Cruciferæ and Resedaceæ. Among the former is figured Iberis gibraltarica from Marocco (Tangier). It is not uncommon in cultivation, but appears to be rare as a wild plant, being only known from Gibraltar, and the opposite coast of Tangier. This is an illustration of the value of gardens to the botanist, a value not always appreciated at its true worth. In cultivation it does not usually produce seed-vessels, but these are figured in the present work.

Seed Lists.—In addition to those previously mentioned we have received exchange lists from the Royal Botanic Garden, Glasnevin; the Cambridge Botanic Garden, the Royal University of Claudiopolis (Klausenburg), Hungary, every page of which is surrounded with a very deep black border, presumably on account of the late Prince Rudolph.

Narcissus in the South of Ireland.—Mr. Hartland sends us, in illustration of the fact, that there is an opening in that district for the establishment of a trade in bulbs and in cut flowers of Narcissi, a selection of cut blooms from the open, comprising Rip van Winkle, Ard Righ, Golden Spur, maximus, nobilis, Golden Plover, Scoticus, Tenby, Trewianus, cernuus, Pseudo-Narcissus, in varieties; Henry Irving, pallidus-præcox, Leda, Bishop Mann, cyclamineus minimus, all well developed fine flowers.

Cheap Quinine.—It is, perhaps, worth recording that at the drug sales during the week ending February 23, 15,000 oz. of German manufactured quinine were sold at 1*s*. 1*d*. per ounce—the lowest price on record. Quinine at 1*s*. an ounce seems to be not far off—a very rapid decline, when it is remembered that less than twenty years ago it sold for a guinea an ounce.

Vegetation at Falmouth.—We have been favoured with the inspection of a list of wild plants which blossomed in the neighbourhood of Falmouth in the month of December. The list was submitted to the Falmouth Naturalists' Society, and comprises no fewer than eighty-eight species—a number that tells a tale as to the mildness of the winter up to

that date, and which precludes our enumerating them at length. The orders represented are: Ranunculaceæ, one species; Fumariaceæ, two; Cruciferæ, eight; Violaceæ, two; Caryophyllaceæ, seven; Hypericaceæ, one; Linaceæ, one; Geraniaceæ, six; Leguminosæ, four; Rosaceæ, five; Umbelliferæ, three; Araliaceæ, one; Rubiaceæ, one; Valerianaceæ, one; Compositæ, eighteen; Campanulaceæ, one; Plumbaginaceæ, one; Primulaceæ, one; Boraginaceæ, two; Solanaceæ, one; Scrophulariaceæ, five; Labiatæ, eight; Plantaginaceæ, one; Chenopodiaceæ, one; Polygonaceæ, three; Euphorbiaceæ, one; Urticaceæ, two. No Monocotyledon was observed in flower.

The Decimal System.—Only an infinitissimal fraction of the civilised world (43 millions) now dispense with the decimal or metrical system, or both. The metrical system of weights and measures, according to a report presented to the French Academy, is now obligatory among 302 millions of the population of the civilised world—a gain of 53 millions since 1877. The same system is optional among 96 millions of people (Great Britain, Canada, United States)—an increase of 19 millions. It is n partial use (Russia, Turkey, India) among 395 millions—an excess of 54 millions over 1877. The metric system is now legalised among more than 794 millions, or more than 60 per cent. of the population of the globe—an increase of 126 millions over 1877. China, Japan, and Mexico have decimal but not metric systems. As to coinage, 255 millions of people adopt the monetary system of France, and the circulation is international; 56 millions have a similar coinage, but not an international circulation.

Emigration to Washington Territory.—The amusing letter in our last number has been taken *au grand serieux* by a considerable number of lads who wish to be adopted. Under all the circumstances, we must decline to accept any responsibility in the matter.

Publications Received.—*The Best Forage Plants.* By Drs. Stebler and Schröter, translated by A. N. McAlpine, B.Sc. (London: D. Nutt, 270, Strand, W.C.).—*The Advertisers' Guardian* (London: L. Collins, 16, Great Marlborough Street, W.).—*Carters' Practical Gardener.* Edited by E. J. Beale, F.L.S. (London: James Carter & Co., 237 and 238, High Holborn.)—*The Cruise of the Marchesa to Kamschatka and New Guinea.* By F. H. H. Guillemard, M.D., &c.; 2nd edition. (London: John Murray, Albermarle Street.)

Useful Inventions.

Messrs. Hooper & Co. (Limited), Covent Garden, London, W.C., send us a specimen of their cheap Plant Protectors, and we extract the following remarks from a circular accompanying it:—"This protector is a cone of wood, turned out of the solid trunk of the tree, and, unlike the inverted flower-pot so often used, it admits abundant light and air. The open side being placed towards the south or south-west, the plant covered by it is perfectly protected from winds and frost, so destructive to young vegetation in the spring, so that tender and half-tender subjects may be planted out much earlier than hitherto, and with safety. Those subjects which will be benefited by the use of this plant protector will at once occur in great numbers to the mind of the gardener or amateur, whose greatest difficulties have hitherto been in the season when plants, more or less tender, are first put out into the open.

"A stick thrust into the ground through the centre of the protector suffices to keep it in position, and secure it from removal by the wind. Their conical form and the cross-grain cut of the wood causes rain and sunshine to harden and strengthen the protectors, so that if taken care of they will last many years. They also pack away in a very small compass."

A Novelty in Canal Transport and Construction.

The usual methods of transporting goods by means of canal boats are well known, but Mr. Arthur Pickard, of Leeds, proposes to furnish the motive-power in the water itself. To this end he would divide a canal longitudinally, and at one end of a given length he would place a fan-wheel driven by an engine of 10-horse power, which engine would, if it were placed where the alteration of level required the hauling or lowering of the canal boats answer for that purpose also. The fan is placed in an aperture of the dividing wall, and by its action drives the water along the canal, and through an aperture in the dividing partition at the opposite end of the canal—the water maintaining the same level throughout in both conduits. The boats, which are in reality tanks, with or without covers, have flat bottoms and rectangular ends, are thus carried at the rate of 5 miles per hour up or down the canal, as may be required. If necessary, the boats may be furnished with flanged wheels, so that they may run on rails on inclines and level roads to load and unload; or they may be raised bodily by means of a crane.

Docks for loading or unloading are readily made by enclosing a space parallel with the canal, and

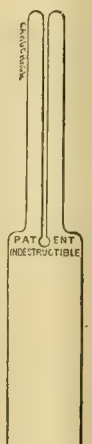


Fig. 57.—New copper label.

allowing the water to flow into it, merely shutting it off from the canal by solid gates, so that the flow of water in the canal itself may not be diverted, or its force dissipated. There are many purposes to which the system appears applicable, notably the carriage at a very cheap rate of garden and farm produce, such as Potatos, Apples, Hops, grain, fodder of all kinds, and, in fact, anything which will not spoil by a short delay in transit.

The following are the advantages claimed by Mr. Pickard for his invention:—

1. One power to carry any load any level distance.
2. Dispensing with haulage and attendance.
3. The use of truck boats, which may be bodily lifted from the waterway, to load or unload, and may also be instantaneously transferred from one current or level to another, dispensing with the tediousness of locks.
4. Can be adapted to present canals, by dividing the waterway and providing guide rails in the mid stream.
5. Where present canals have use of an existing stream, it can be utilised in forming a current, and where they have no natural supply of water, they at present have a pumping engine, which engine may be used for forming the current.
6. May be made a great saving for conveying product from colliery, or works, to a railway or canal, or as a feeder for any class of traffic to or from a railway or canal.
7. May be adapted for relieving goods traffic on railways, by forming current in each side of permanent way.
8. In forming new canals, they may be constructed of continuous iron tanks, which may be supported over valleys, roadways, or other waterways, and levelled by excavation through high ground, thus reducing the number of locks or new levels to a minimum.
9. One set of machinery will form current in two or more distinct levels or courses.
10. The current being constant, prevents any delays or stoppages of ice, and if the canal be of new formation, its bed will always be kept clear.
11. The speed of present canal traffic may with ease be doubled or trebled, and the cost of carriage immeasurably reduced.
12. It may in many cases be with advantage used for conveyance of passengers usefully, or as means of amusement or recreation.

We understand a company is being formed to work the patent.

New Label.

Mr. Chandler, of the Devon Rosery, Torquay, sends us a sample of his newly-devised label, of which—as we think it likely to be useful—we have had an illustration made (fig. 57). It is made of thin copper, with a tag at the end for attaching it to the plant. It may be written upon with an ordinary pencil or pointed style, which indents the surface of the copper, the inscription being thus practically indelible. Obviously it must not be attached to galvanised (*i.e.*, zinc) wire, or the galvanic action would be injurious both to plant and metal.

Florists' Flowers.

Pelargoniums (Greenhouse).

Now that the days have lengthened so much, the plants begin to look healthier, and by rights they ought to have been repotted before November last into the pots in which they are to flower. If this has not been done it should be seen to at once. They do not require a very large shift at one time, and specimens large enough for any purpose may be flowered in 6-inch and 7-inch pots; indeed, large exhibition specimens, forming a mass of bloom no less than 21 feet in circumference, have been grown in 8-inch pots. All plants intended to flower early—say in May—should be established in their flowering pots before the winter, and will now be showing their bloom-buds in the centre of the growing stems. After this period frequent applications of weak liquid-manure water is good for producing well coloured foliage and richly tinted flowers. It is necessary to place sticks to the flower-stems of most of the large-flowered varieties, in order that a regularly arranged head of bloom may be produced. The decorative, or Covent Garden Market type, produce larger trusses of flowers, and in greater abundance, than the old-fashioned florists' type, and many of them do not require sticks. The small-flowered, or fancy varieties, are also very pretty, and produce a mass of bloom, but they require no sticks to support them. The plants must be kept perfectly clean, well exposed to the light, and in an airy position. They do not suffer much from insect pests, except greenfly, but that can easily be destroyed by tobacco smoke. *J. Douglas.*

Foreign Correspondence.

Violet Culture.—Among the varieties of sweet double Violets, mentioned by your correspondent J. Heath, in his interesting articles on "Violet Culture," I find that while he refers to the Count Brazza, white, he makes no allusion to the beautiful blue or deep purple sort which is cultivated in Italy under the same designation.

A few years ago there appeared in the *Gardeners'*

Chronicle a figure of this blue or purple variety under the name of De Brazza, flowers of which had been sent to the Editor by the late Marchese Corsi Salviati of this City. I now enclose a few flowers of this Violet gathered from plants presented to me a few years ago, which came direct from the gardens at Saleschiano, the seat of Count Brazza di Savorgnan, near Udine. Unfortunately it is so late in the season that the Eudine specimens do but scant justice to this beautiful variety, since the flowers which I have been gathering, during the whole winter from these plants, from the month of October, have, as a general rule, been more than double the size of those sent; but they will probably be sufficient to show whether your correspondent has referred to this variety under some other nomenclature. If so, I should very much like to know what, as this variety is, at any rate here, very rare and difficult to cultivate to perfection. I should, if he would care to have them, be glad to forward a few sorts to your correspondent, to see what he would say about them, and their method of culture.

It is reported that at Udine the special perfection to which these Violets attain is in some measure due to the use of artificial manures. As to the employment of these your correspondent says nothing, and I have not as yet tried their application. Could your correspondent or any of your readers supply any hints on this subject? With the present growing taste for Violet culture, they would doubtless be very acceptable to a large circle of cultivators. *T. C. H.*

THE SHIRLEY POPPY: ITS HISTORY.

In the summer of (I think) 1879 or 1880 I noticed in a wilderness corner of my garden, among a patch of field Poppies, one bloom with a narrow white edge. I marked it with a bit of wool, and saved the seed-capsule. The seed was sown the next year, and I obtained varieties with deeper white edges, and some of a paler scarlet colour. Of these I marked and kept the best. The next year the flowers got still paler colours and wider white edges. In 1883 I began to see that the presence of black, either at the base of the petals or in the stamens, was a great disfigurement; I therefore pulled up and destroyed every plant having black in it and in order to get the black out of the strain I used to get up a few minutes before the bees were about (4 A.M.); and have continued this work of selecting the most beautiful flowers for seed, and have ruthlessly destroyed all plants which showed even a symptom of black, however lovely they might otherwise be. This absence of black blood it is which gives my strain of the Poppies their wonderfully light, bright, tissue-paper-like appearance, and constitutes the whole and sole merit of the strain. I now get very few rogues, but still every year one or two will run back to the old black blood, and nothing but patient perseverance in destroying them will keep the strain pure.

The colours go from absolute white with yellowish stamens through pink of all shades, to glowing scarlet—but a scarlet without black. Some are red with white edges, others white with red edges; and a few come veined and streaked from the centre towards the edges. I am now trying to increase the proportion of those veined and flaked varieties, but my great ambition is some day to get a yellow Papaver Rhœas. A pure white P. Rhœas was found last year wild in a cornfield near Lowestoft. I have tried hybridising with yellow nudicaule, but hitherto with, I think, no success. I say, I think, because I obtained last year some distinct salmon-coloured ones, and this may be due to yellow nudicaule influence, but I think it is not. I saved all the seed I could of these salmon shades, and this year I hope to have the colour still more decided.

Culture. — Sow early in September to stand through the winter, to give early blooms; and in early February, for main crop. Sow very thinly on well manured soil. I sow in a square bed broadcast. When the seedlings are up I push a Dutch hoe through the bed, leaving a row or line of seedlings standing every 5 inches, destroying all the rest as weeds. The lines are then thinned out in a few days, leaving the plants 4 inches apart in the lines. The bed must be watered in hot weather, and liquid manure improves them, as it does everything else if not used too strong. In gathering for house decoration it is most important to take a jug of water out to the bed, and as each flower is cut at once to drop it into the water, else, if the white viscid juice is allowed to become dry at the cut end the flowers are sure to fade. They should, too, be gathered early in the morning, and only the newly opened or opening ones plucked. Treated thus they last in water two or three days well. *N.B.* Every plant that gives a single black-blooded flower should be destroyed. *W. Wilks.* [For the block illustrating this article we are indebted to Messrs. Hurst & Son. Ed.]

TRADE NOTICES.

THE NURSERY AND SEED TRADE ASSOCIATION (LIMITED), 25, OLD JEWRY, E.C.

The report for the past year contains several matters of great interest to commercial horticulturists, and some of which we extract. The Association is not so well supported as its utility warrants. The President is Mr. Sherwood (Hurst & Son), the Treasurer, Mr. C. Hooper; the Trustees, Mr. Harry J. Veitch. Mr. T. A. Dickson; Covent Garden Market, W.C.; Mr. J. Hayes; (Messrs. J. & J. Hayes), Edmonton. Solicitor, Mr. Charles Butcher, 25, Old Jewry, E.C. Secretary, Mr. F. C. Goodchild.

Long Firms.—The year has been remarkable for the numerous attempts on the part of persons (pretending to belong to the trade) to obtain goods fraudulently from members of the trade. In some instances they have been successful, and it has subsequently been discovered that the goods so obtained have been sold either by public auction or privately on the first opportunity.

The course usually adopted is to write or telegraph, requesting the immediate dispatch of the goods ordered, and intimating that a cheque has been posted.

Occasionally, a more deliberate course is pursued, and a small order, accompanied by cash, is followed by a larger order, for which credit is desired, and too frequently given. The amounts of the orders vary from a few pounds to a few hundred pounds, and in one case it amounted to over a thousand pounds.

Your committee would strongly recommend members in such cases to communicate with the Secretary the names of all such persons before, executing the orders, as a safeguard against bad debts. The Secretary, through the information given by members, and otherwise obtained, has enabled members to avoid dealings with such persons.

Payment on Account.—As much loss is sometimes occasioned to members by their using cheques sent by customers for amounts less than those due, your committee wish to call their attention to the subject. If a customer sends in payment of an account a cheque (or other negotiable instrument) for an amount less than the account applied for, and states that it is sent in settlement of the account (or words to that effect) and if it be not the intention of the member to accept such cheque, &c., in settlement, he must at once return it, otherwise he cannot recover the balance of the account. It is not sufficient for him to acknowledge it on account of the amount due, as by so doing, and by using the cheque &c., the customer is released in respect of the balance. Members, therefore, must either accept it in full discharge or return it.

Rating.—The question as to the assessment of nurseries to the poor's-rate has again received the attention of the committee. The opinion of an eminent counsel has been taken on the subject, and the following were the questions submitted to him, and his answers thereto:—

Q. Should the assessment be made on the amount of the rent reserved by the lease, as representing the "annual value?"

A. No; the annual rent is only evidence in the case as to the proper "annual value," which is that named in the 6 & 7 William IV., cap. 96, sec. 1, and no other.

Q. Does the lessor's right (under the Agricultural Holdings Acts, 1865 and 1883) of purchase, in priority to others, of greenhouses erected by the lessee, affect the question as to the annual value?

A. No.

Q. Should the "annual value" be taken as applicable to the lessee only; if so, by what means should the "annual value" be ascertained?

A. The proper test is, what would be the rent which the hypothetical tenant mentioned in the Act of William IV., would give for the premises such as they are and used as they are. The deductions to be made are also named in the Act.

Q. Are greenhouses to be considered as implements of trade, or as trade fixtures?

A. In my opinion they are clearly trade fixtures (See Penton *v.* Robart, Woodfalls' *Landlord and Tenant*, chap. 16; sec. 8; and refer also to 14 and 15, Vic. cap. 25; sec. 3).

Q. What is the proper amount at which the assessment should be made?

A. The question of amount is a pure question of fact, and must be fixed in accordance with the Act of William IV. It is quite clear that chattels and trade fixtures cannot be rated as such (see 3 and 4 Vic., c. 89, and Chidley *v.* West Ham Local Board), but it is quite another question whether they should not be taken into account as enhancing the value of the premises or tenements. In my opinion the greenhouses must be taken into account for the purpose of arriving at the rateable value of these nursery gardens, and taken into account as enhancing the value of the heriditaments in question. And the question will be (subject to the statutory deductions to be made), what might the premises with these greenhouses upon them be reasonably expected to let at from year to year, free of all usual tenants' rates and taxes. This point is completely concluded by authority (see Tyne Boiler Works *v.* Tynemouth Union; Laing *v.* Bishopwearmouth Local Board; Regina *v.* Lee; Regina *v.* Quest; Regina *v.* Haslam and Regina *v.* Wells). The fact that the land is partially consumed in the process of gardening, and selling, makes no difference (see Regina *v.* Westbrook). And the fact that such consumption has to be replaced is important only as bearing on the question of deductions. As the £50 (the rent of the nursery in question is paid for the grounds, without the greenhouses, it is obviously not the rateable value.

Local Rates.—With regard, however, to the local rates, the matter stands on a different basis. By the Public Health Act, 1875, "the occupier of any land used as market gardens or nursery grounds, shall be assessed in respect of the same in the proportion of one-fourth part only of the nett annual value thereof."

It has been decided by the Court of Appeal, that land with greenhouses upon it used for the purpose of growing fruit, vegetables, &c., for the market, constitutes a market garden or nursery ground within the meaning of the Act. Notwithstanding this decision, however, it is still the practice of several local authorities to assess nurserymen on the full net annual value. Your committee recommend the members who are thus assessed to communicate with the Secretary, in order that steps may be taken to reduce the assessments. To illustrate the matter, assuming the assessment of the poor to be £50, and the local rate 6*d.* in the pound, the nursery grounds should be assessed at one-fourth of the assessment to the poor (£50), *i.e.*, £12 10*s.*, and the rate levied at 6*d.* in the pound on that amount.

HOME CORRESPONDENCE.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—This is the Jubilee Year of the Institution, and the noble way in which the Committee of the Institution propose to celebrate the event is, I think, deserving of all praise, and more than that, of the practical aid also of every gardener in the kingdom. If my brethren of the spade will but carefully read the advertisement at p. 259 of your last issue, in which it is stated that if but £3000 can be raised by June 13 next, the whole of the unsuccessful candidates at the last election (seventeen in number) will be placed on the Pension list at once. I am quite sure that we shall—poor as we are as a class—resolve that the money shall be forthcoming. The first subscription list shows such a magnificent result that every gardener should look upon it

as a duty he owes to himself, subscribe little or much, according to his means. The Secretary has a happy knack in obtaining these big amounts, and I know nothing is more encouraging to him in his efforts in this direction than the assurance of the practical help and sympathy of gardeners. I know many gardeners, good men and true, who hold aloof from this Institution on the ground that sometimes candidates who have never subscribed a penny to its funds get a pension before others who have subscribed, and with this objection I have a good deal of sympathy. If every one of us had some of the real sympathy which is borne out in practice the remedy for this apparent injustice would be in our own hands, because by our subscriptions we could outvote the richer subscribers, who, though not gardeners, are entitled by their subscriptions to nominate for election *bonâ fide* gardeners, whether they have been subscribers or not. If we look at it fairly, this is only just and right, and those who think otherwise (as I myself once did) now know what is the remedy, namely, to subscribe in greater numbers, and vote accordingly. *W. Wildsmith.*

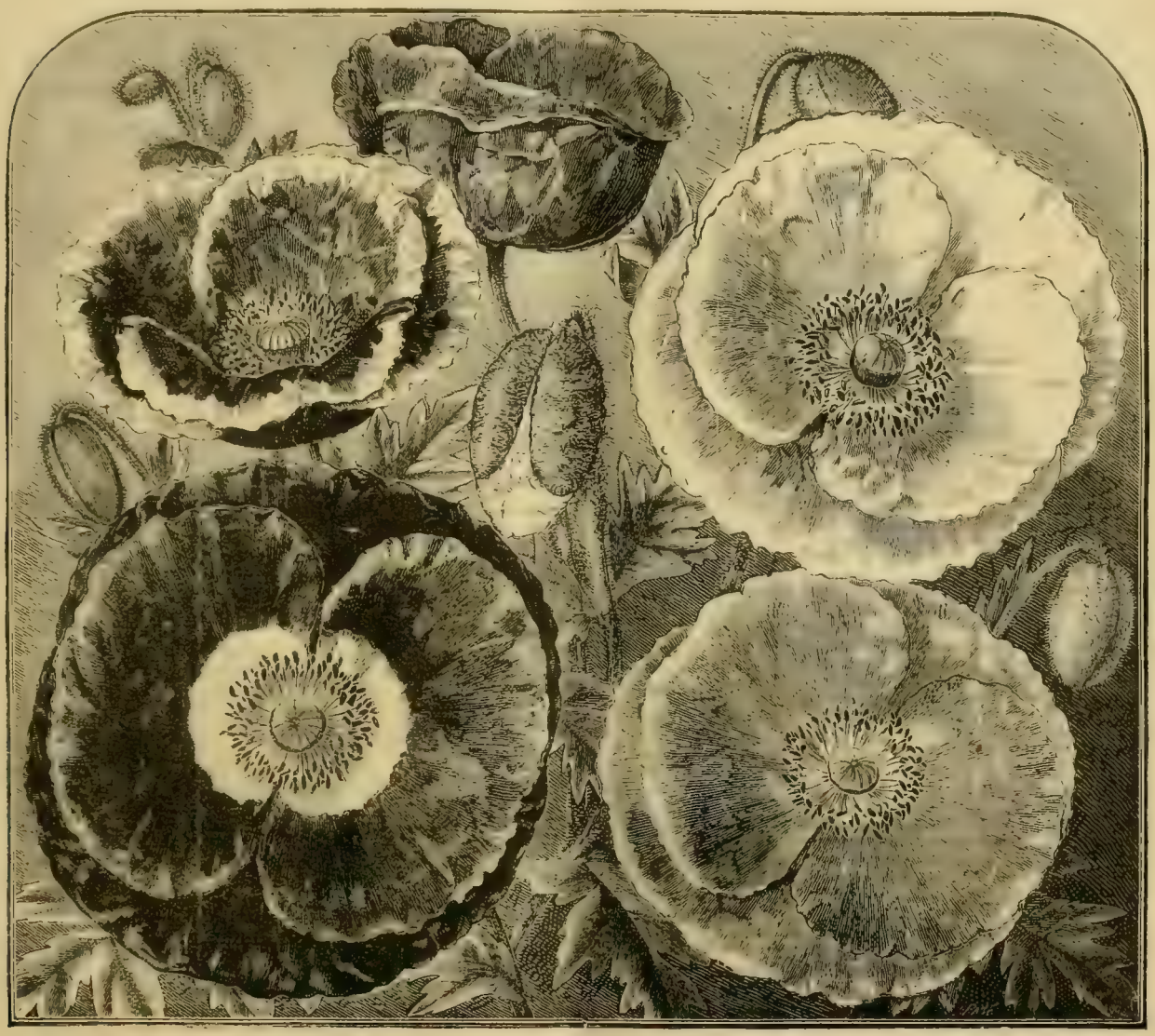


Fig. 58.—Shirley poppies: white to glowing scarlet. (see p. 308.)

PLANT COLOUR.—Mr. Sorby, who has chemically studied the question of plant colour, tells us that the various pigments of bright petals are already contained in the ordinary tissues of the plant, whose normal juices only need a slight chemical change in order to turn them into yellow, red, or blue. "The coloured substances in the petals are in many instances exactly the same as those in the foliage from which the chlorophyll has disappeared, so that the petals are often exactly like leaves which have turned yellow and red in autumn, or the very yellow or red leaves of early spring." Thus we see that all coloured petals are due to oxidisation or other chemical change in the usual and normal constituents of ordinary green leaves. It thus becomes evident that this subject is one of great and practical interest to the florist and the gardener, since we may hope that at no distant date the chemists may further help us on to a more enlightened state than "chance" or "accident" in the development of floral colouring. Now it is conclusively known that all plants have the elements of all colours in their composition, we are not without hope that the blue Rose, Chrysanthemum, Dahlia, and Pæony, may ultimately be facts, in our gardens. It is simply a question of time, and I think even "A. D." will admit that plant colour is an important practical question and one in which all gardeners are deeply concerned. "A. D." persists in misquoting me. I never said or wrote that green Cabbages were more "robust" than red-leaved ones. What I wrote at p. 244 was that the green Cow Cabbage was sometimes "larger and heavier," which is of course quite a different thing, for no one would argue that size and weight were always to be taken as evidence of a plant's being either robust or hardy, a young Oak sapling, for example, being quite as robust as its older parent of far greater size and weight. "A. D." thinks the colour of Potato tubers as compared with the colour of their leaves and flowers is capricious and chimerical (p. 277), I maintain that there is no caprice, no chance, no accident, and no "exception," in plant-colour or in Nature generally. Of course, this and many other questions concerning plant-life are wholly, or in part, "mysteries," as "A. H." says at p. 277; but we must never forget that "Order is Heaven's first law," and plant-colour is in strict accord with physical and chemical laws, even although at the present moment these laws may seem capricious and unintelligible, more or less, to us all. "A. H." (p. 277) says that "cultivation rather tends to fix colours," and I should like to point out that it can fix them on the one hand by isolation and self-fertilisation, or it can vary them on the other hand by cross-fertilisation. Cross-fertilisation occasionally gives strength and variety, but if once a particular variety, such as the white Snapdragon, or a blue Chinese Primula, is obtained, we must not fertilise them with pollen from other coloured varieties if we want them to "come true"

from seed. I again say that, by cultivation and cross-fertilisation in the garden, colour may be transposed to, or driven from, one part of a plant to another, or, what is practically the same thing, chemical changes once confined to the root, or stem, or leaves, may be induced to take place in the floral leaves or petals of the flower. If "A. D." and "A. H." will carefully examine the evidence I have produced in these pages, they will find that there is nothing erratic or very wide of the mark. Colour chemically varies from green, through yellow and white to pink, red, purple, and blue; and no flower can be blue until all these grades, or stages, are successively passed. Colour "sports," as reversions, of course, vary in the opposite way. *F. W. Burbidge.*

BEGONIA MANICATA PLANTED OUT.—We have some plants of this species tied to a trellis on a wall in a dark corner of the plant-stove which have been full of flower for several weeks past. They are planted out in a well-drained narrow border composed principally of loam, Several of the panicles of bloom have stems 5 feet high, and are so light and graceful in appearance as to seem to be hanging unsupported in the air at first sight. The foliage of this species of Begonia is very ornamental when the plant is well grown. I know of no other plant which would give such good results as regards flowers in such a dark uncongenial corner. *W. H. Divers. Ketton Hall, Stamford.*

RUNNER BEANS.—The summer and autumn of 1886 proved one of the worst character for harvesting Runner and dwarf French Beans experienced for years past. The plants did not make a start into growth until the season was somewhat advanced, and when there were hopes of a crop, frost set in, and destroyed much of the promise of it. So scarce are Runners, excepting, perhaps, the Giant White, which is not in such large demand, that since January 1st prices of Scarlet and Painted Lady Runners have advanced from 50 to 75 per cent., while the well-known dwarf variety, Canadian Wonder, shows a slight advance. Runner Beans, 1-year old, invariably show a good growth, but the difficulty lies in keeping the sample fresh and bright, and this is best done by double sacking them, and keeping them in a dry place away from the light. Owing to the lateness of our springs, some of the market gardeners who grow Runner Beans for picking for market largely sow in pots, and then transplant to the open ground as soon as the weather permits. Time was when it was done much earlier than now-a-days; at present it does not appear to be safe to put Runner Beans out into the open ground until the second week in June. Then a fine warm, growing summer is required to produce a crop sufficient to remunerate the cultivator. *R. D.*

HAZEL CATKINS.—I can corroborate the observations of W. Earley with regard to the sparsity of Hazel catkins this season. In this district (West Yorkshire) they are only just arriving at maturity, and this in unusually small numbers. A fortnight ago I noticed scores of pistillate flowers on at least a dozen shrubs in hedgerow and woodland, the catkins being altogether absent, or, in some instances, about in the same state as one sees them at Christmas. We had a severe frost on October 1 last year—a time when the Catkins would be in course of development. Perhaps this has had something to do with it. *S.*

VIOLAS AT THE TEMPLE SHOW.—I trust the paragraph from Messrs. Dobie & Sons, so kindly furnished by them in reply to my query, found on p. 245, will be brought to the notice of the appointed judges when the competition takes place. It is now made evident that the object of the competition is first, to popularise Violas as a section of hardy flowers, distinct from the Pansy; and, second, to exhibit their value as cut flowers. Messrs. Dobie & Sons think that the distinctions which are so well understood in the North, with respect to Violas and Pansies, are as fully understood generally; but here, in the South, where many of the beautiful northern Violas do so indifferently well, we mix Pansies and Violas very considerably. Still farther, for that reason we have here very much less range of variety to select from, so that it looks very much as if the prizes to be competed for at the Temple would go North. I should be very much pleased to be found wrong in the matter. I am afraid that the botanical distinctions referred to are not quite so easily understood as may be desired. We have intermixed the bedding Viola with the Pansy so thoroughly, that wonderful nicety is required to tell where one section ends and the other begins. As Messrs. Dobie & Sons will hardly be competitors, they may, perhaps, should the appointed judges get befogged, act as referees, and still farther may put up collections of Violas recognised as such in Scotland, and Pansies so recognised also, and thus help the public to determine what the trade regard as being the one or the other. We had last year a grand season for Violas and Pansies, and some little encouragement may thus have been afforded to Southern gardeners tired of the eternal bedding stuff to try some of the lovely things found under the designation of bedding Violas and Pansies. I cannot but regret that we have no class for these things in broad pans, showing natural habit and floriferousness. *A. D.*

CHOISYA TERNATA.—In the southern parts of Hampshire this plant will flourish in the open air, and is very satisfactory as a wall plant, growing freely. With the aid of a little manure as a mulching to the roots, the leaves assume an intense green colour; and as a bush in the shrubberies it also does well. As a covering for the back walls of cool houses the plant is a capital subject, growing with freedom, and flowering in profusion—a fact which is much appreciated in the spring. The shoots may easily be kept close to the wall by tying them to wires fixed to the wall, or by nailing, and in this way the foliage forms a dense covering. Cuttings of the half-ripened shoots taken in the spring strike readily under a hand-light on a mild bottom-heat, and quickly grow into bushy little plants. As the foliage of Choisya is liable to be disfigured by red-spider in the summer months, the foliage should be liberally syringed, and the roots kept uniformly moist. *M.*

GINKGO ADIANTIFOLIA (p. 264).—It would add to the interest of the notice of this tree if the writer could say whether there are in England both the male and female trees, and if so, where? I understand that we have only the male tree. Any notices also of the recent flowering of the tree in England would be interesting. I have never seen the flower nor heard of any tree in flower. The only notices of flowering that I can find are that Miller states that the male tree flowered at Kew in 1795, and in Watson's *Dendrologia* there is a plate (168) of one in flower, of which the "floration" is said to be "8th May, 1824, against a wall at Kew," and "place" "Mrs. Simpson's, Parser's Cross, Walham Green." *Henry N. Ellacombe, Bitton Vicarage.*

—— Among the beautiful trees to be found at Brocklesby Park, the seat of the Earl of Yarborough, Lincolnshire, is a splendid specimen of the Maidenhair Tree, whose dimensions almost equal those of the Kew tree given in the *Gardeners' Chronicle*, p. 264. *S. Scott.* [Perhaps Mr. Tillyard would kindly furnish particulars. Ed.]

STOCKS FOR THE PEACH.—I find the inconvenience caused by budding on weak growing stocks may sometimes be remedied to a certain extent by slitting the bark the whole length of the stock in three or four places equidistant on the circumference, and in doing so to allow the point of the knife to penetrate as far as the hard wood. I do not say this would be of any benefit when the trees have got into as bad a state as the one figured on p. 213. I slit the bark as soon as undue swelling appears about the point of union; the cut bark opens gradually, but fills up again with new growth in a short time, thus giving more freedom for the motions of the sap. I should not hesitate to repeat the operation after a few years if it appeared to be advisable to do so, but the cuts would be made in fresh places. There would seem to be much to be learnt about the various stocks employed by nurserymen for the Peach, Nectarine, and other fruits. Unfortunately, those who see the most of the results of unsuitable wildlings as stocks seldom have the opportunity of ascertaining the kind of Plum on which the variety is worked. *W. H. Divers.*

IRIS PERSICA.—It is exactly two years over the century since the Persian Iris was figured in the *Botanical Magazine*, where it has the place of honour—tab. 1. The colour of the flower, the spots and blotches, are the same now as then, and although it has been largely cultivated ever since, it shows no signs of breaking away. However that may be, its great beauty, earliness, and sweet fragrance, mark it as a plant to be grown even more largely than it is at present. It is perfectly amenable to warm treatment and a month at least may be gained in time of flowering by potting early. We are told that it may be grown in glasses like a Hyacinth, and if so, it would be certainly worth a trial on account of its fragrance alone. Parkinson tells us that in his time (1629) it was a rare bud, and seldom flowered. A native of Persia, flowering in the open now. *D.*

DOUBLE CINERARIAS.—The double flowered Cineraria can be grown just the same as the single, the same treatment holding good. I find the double ones more useful for cutting, as the flowers last much longer in water and are also very useful for buttonholes. Mine were raised from a packet of seed, and I am not disappointed with them. Although the double varieties are useful they are not likely to take the place of the single ones. *G. Howes, Merton.* [Some very fine double Cineraria blooms came with this note. Ed.]

Obituary.

COLONEL A. M. JONES.—We regret to have to announce the sudden death, from apoplexy, of Colonel Jones, of Clifton, aged sixty-three. He was widely known and greatly respected. He held a commission in the 75th Foot, and was with that regiment in India, afterwards exchanging into the 27th Foot. For twenty-eight years he was in the Bristol Rifle Corps, but we have to speak of Colonel Jones as a horticulturist. He was one of the most enthusiastic Fern cultivators, and his knowledge of the varieties of British species was second to none. For thirty years he was associated with Moore, Padley, Clapham, Lowe, Carbonell, Wollaston, Barnes, Stansfield, Fraser, and Wills, all well-known collectors and raisers of new varieties; but during the last few years death has removed many of these men. Wollaston, Lowe, Barnes, Stansfield, and Fraser alone remain. A few years ago Colonel Jones published a series of excellent plates, with brief descriptions of varieties of British Ferns, and last September he was joint author with Mr. Lowe in a paper on "Hybrid Ferns," read before the British Association, and published in the *Annals of Botany*. He established a British Fernery at the Clifton Zoological Gardens that is a credit to the neighbourhood. Here of late years he spent most of his time, taking great interest in the gardens. He has raised some of our finest British varieties of Ferns, his favourite species being Polystichum angulare. Any one who knows his varieties in the divisilosum section of this Fern will agree that they are as elegant as Todea superba. At the Floral *Fête* at Bath during the meeting of the British Association last autumn Colonel Jones undertook to construct a rockery and plant it with a magnificent collection of varieties of British Ferns in order to show what had been accomplished by labour and a knowledge of the subject, and perhaps we may never again see such an interesting display. He and Mr. Lowe took all the first and second prizes and some thirty First-class Seedling Certificates.

Some years ago a petition was presented to the Director of the Royal Gardens, Kew, asking that a British Fernery might be established for which specimens were offered. This was signed by Jones, Carbonell, Fox, Lowe, and others. The fernery was formed and a number of Ferns forwarded to Kew. Mr. Carbonell, who took great delight in his plants, promised that at his death, his collection should be given to Kew, and his collection is now in consequence at Kew. Colonel Jones was of a liberal disposition, and gave his plants to all those who took an interest in the subject, and by this means he induced a number of persons to study this beautiful class of plants. Before studying Ferns Colonel Jones devoted himself successfully to making a collection of sponges and corals, and many of these are now in the Oxford Museum.

REV. JOHN WOOD.—We regret to announce the death of the Rev. John George Wood, M.A., F.L.S., the well-known naturalist, who, while on a visit to

Coventry, died there on Sunday from an attack of peritonitis. The deceased gentleman, who has done much to popularise the study of natural history, was the son of a surgeon who practised at Oxford, but who was at one time chemical lecturer at the Middlesex Hospital. He was born in London in 1827 and was educated first at Ashbourne Grammar School, and afterwards at Merton College, Oxford, which he entered in 1844. After being attached for two years to the Anatomical Museum at Christ Church, Oxford, he was ordained in 1852 as chaplain to the Boatmen's Floating Chapel.

THE BULB GARDEN.

TRITELEIA UNIFLORA.

Although this little bulb is hardy it is also worthy to be grown in pots for the greenhouse, and it is then, I think, prettier than when in the garden. For several years I have grown a small number in pots with very satisfactory results. The flowers come nearly white, with just the faintest tinge of lavender at the tips of the petals. It has a one-flowered scape, but so many spring from a root that the pots are nearly smothered with them. Plenty of foliage is produced, and as it hangs over the pots together with the flowers the pots are nearly hidden. Its culture is of the simplest kind. In the beginning of August the bulbs are repotted, 6-inch pots being used, the compost being light and porous. The pots are filled with bulbs, and are then plunged in coal-ashes in a cool frame, and receive no more attention than that of giving abundance of air to the frame. They begin flowering in January if the season be mild, and without being in any way forced. If the potting be delayed till late in the autumn the bulbs have a long enough season to get well rooted before flowering, and when grown indoors the bulbs ripen early, and should be baked in the sun—laying the pots on their sides. When brought forward in the way mentioned the flowering season lasts for a long time. They are very showy when used as front-row plants in greenhouse or conservatory, but they are not suitable for bouquets, owing to their Garlic-like odour when rubbed or bruised. There is a variety called lilacina, with a deeper tint of blue in the flowers, and which succeeds under exactly the same conditions as the other. We have seen the plant under the name of Leucocoryne alliacea; the specific name is unfortunate. This Onion-like characteristic is in some respects a drawback, but it is the only one which may reasonably be urged against them. *F. Ross.*

LAW NOTES.

OUTGOING TENANTS.

Until a decision was given the other day in the Doncaster County Court, the claim of an outgoing tenant to the payment guaranteed to him under covenants in accordance with the "custom of the country," or even under the custom without covenants, was deemed almost as secure as a draft upon the Bank of England. For generations incomer after incomer, without demur, has paid the quitting tenant the amount of the valuation of emblements, tillages, manure, hay, and other things varying in number in different counties; or if there has been no incoming tenant the sum has been paid by the landlord, who is the person really liable. But in the now notorious Lambcote Grange case the farm was mortgaged beyond its value, and the mortgagees foreclosed and seized the land and everything upon it, except the moveable property and live stock of the tenant. They sold his growing crops and kept the money, and refused to allow him a penny for his manure or his hay. Then they advertised the farm for sale, with full Yorkshire tenant-right. Mr. Fawcett, the tenant, made a claim under the Agricultural Holdings Act for certain improvements, as well as for the sum due to him under the custom of the county, and the amount due to him was decided by arbitration in the usual way. But the mortgagees refused to pay the amount awarded by the umpire, £1018. The case was taken to the Doncaster County Court, and Judge Bristowe decided that Mr. Fawcett had no legal claim against the mortgagees. Under the law as it stands the mortgagees, if they have a right to take possession of a farm, can seize the property on which the tenant-right is due and refuse to pay a penny for it. *Agricultural Gazette.*

MONRO *v.* KNOWLES.

This action, which was heard at the Westminster County Court, before his Honour Judge Bayley, on March 6 last, was brought by Mr. George Monro, commission salesman, of Covent Garden Market, against the defendant, a grower, of Broadwater, Worthing, to recover an amount — the balance due for baskets sent by the plaintiff to the defendant, and not returned. Mr. Charles E. Jones, instructed by Messrs. John C. Button & Co., appeared for the plaintiff; and Mr. W. F. Burrell, of Worthing, for the defendant. From the statement of the plaintiff's counsel it appeared that it was the custom of salesmen, upon request, to supply growers and senders with baskets, boxes, and other utensils for the purpose of conveying produce to the market for sale. The plaintiff, in this case, at the request of the defendant, had at different times forwarded to him a large number of baskets, &c., each consignment being accompanied by an invoice, at the foot of which appeared "please note that these empties are booked to you at above prices, and will be allowed for when returned." The price charged is of nominal amount, and does not in any way represent the value of the baskets. The parties had dealt with each other since 1883 until the month of October 1888, when the defendant discontinued to send goods to the plaintiff, who thereupon wrote for the return of his baskets. At that time there was standing to the defendant's credit an amount in respect of goods sold by the palintiff for the defendant, and after taking credit for the value of the baskets belonging to the plaintiff and not returned by the defendant, a small balance was due to the defendant, for which the plaintiff forwarded his cheque. This the defendant returned, demanding payment of his amount in full, stating that the plaintiff was not entitled to stop the value of the baskets. The plaintiff, acting under his solicitor's advice, paid the defendant's account, and instituted these proceedings. Mr. Jones remarked that the plaintiff's object in bringing this action was to establish conclusively the right to the return of the baskets (by the Judge: "Or be paid for them."). The plaintiff was called, and bore out the opening statements of Counsel, and in the course of his evidence he stated that he was called upon to lay out about £1000 per annum to provide and replenish his baskets for the purposes of his business, and that it would be utterly impossible for any salesmen to carry on his business unless the baskets consigned to senders or growers were either returned or paid for. Evidence was also given to prove the custom of the trade, and by a Brighton salesman in reference to the receipt of baskets from the defendant bearing the name of the plaintiff. After hearing the evidence for the defence His Honour, without hesitation, held the plaintiff was entitled to recover, and gave judgment accordingly.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending March 4, is furnished from the Meteorological Office:—

"The *weather* has been fairer than of late at our extreme northern and western stations, but in most other parts of the kingdom the sky has been generally cloudy or overcast, and slight falls of snow or sleet have been very prevalent. In some parts of Scotland and over our south-western districts, however, the falls of snow towards the end of the period were heavy.

"The *temperature* has been much below the mean in all districts. The average readings for this period have been considerably lower over the kingdom as a whole than any recorded during the present winter. The deficit has ranged from 9° in 'Scotland, N.,' and the 'Channel Islands,' and 7° in Ireland and the greater part of Scotland to as much as 9° or 10° over England. The highest of the maxima were registered during the early part of the period, and ranged from 41° over the north of England and the west of Scotland to 44° in 'Ireland, N.,' and 50° in 'Ireland, S.,' and the 'Channel Islands.' On most days the maxima were far below 40°. The absolute minima, which occurred generally either on March 3 or 4, were as low as 8° in 'Scotland, E.' (at Braemar), 11° in 'England, N.E.' (at Durham), and between 14° and 21° in most other districts. In 'England, S.W.' the lowest reading was 25°, and in the 'Channel Islands' 32°.

"The *rainfall* has slightly exceeded the mean in 'England, N.E.,' but has been less elsewhere, especially over eastern, central, and north-western England.

"*Bright sunshine* has been rather more prevalent than it was last week in most districts, the percentage of the possible amount of duration having ranged from 11 to 45 in Scotland, from 22 to 33 in Ireland, and from 14 to 30 over England. In the 'Channel Islands' the percentage was 44."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending March 4.	Temperature. Accumulated. Above 42°, for the Week.	Below 42°, for the Week.	Above 42°, difference from Mean since Jan. 1, 1889.	Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1889.	Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Deg-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	6 —	0	67	— 15	+ 58	2 —	48	10.1	45	17
2	7 —	0	77	— 19	+ 40	2 —	38	3.5	26	24
3	8 —	0	74	— 39	+ 52	1 +	34	2.5	20	21
4	10 —	0	79	— 68	+ 135	3 —	34	2.5	30	20
5	9 —	0	73	— 68	+ 105	4 —	30	2.8	20	18
6	10 —	0	67	— 74	+ 105	3 —	32	3.3	14	17
7	7 —	0	67	— 13	+ 21	7 —	38	7.8	11	21
8	9 —	0	68	— 40	+ 30	6 —	33	4.0	23	21
9	10 —	0	59	— 72	+ 86	1 —	32	6.2	21	23
10	7 —	0	52	— 16	+ 8	5 —	45	6.4	22	18
11	7	2	38	— 23	+ 11	4 —	41	7.1	33	24
12	6 —	1	26	— 26	— 7	2 —	41	4.7	44	28

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, March 7.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. Ed.]

Market quiet, with prices practically unaltered. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, half-sieve...	2 0– 4 0	Lemons, per case	...12 0–21 0
— Canada and Nova Scotia, per barrel	7 0– 17 0	Pine-apples, Eng., lb.	1 6– 2 0
Cobs, 100 lb.	...100 0–110 0	— St. Michael, each	2 0– 3 0
Grapes, per lb.	... 1 6– 4 6	Strawberries, per lb.	12 0–14 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English, per 100	12 0– ...	Mustard and Cress, punnet	0 4– ...
— French, bundle	18 0– ...	Onions, per bunch	0 5– ...
Beans, Jersey and French, per lb.	3 6– ...	Parsley, per lb.	1 0– ...
Beet, red, per dozen	1 0– 2 0	Peas, French, per lb.	1 0– ...
Carrots, per bunch	0 6– ...	Potatos, per cwt.	4 0– 5 0
Cauliflowers, each	0 3– ...	— kidney, per cwt.	4 0– 5 0
Celery, per bundle	1 6– 2 0	— new French, lb.	0 6– ...
Cucumbers, each	1 0– ...	Rhubarb, bundle	0 6– ...
Endive, per dozen	3 0– ...	Sealkale, punnet	2 6– ...
Green Mint, bunch	1 0– ...	Shallots, per lb.	0 6– ...
Herbs, per bunch	0 6– ...	Spinach, per bushel	5 0– ...
Leeks, per bunch	0 4– ...	Tomatos, per lb.	2 0– ...
Lettuce, per dozen	1 6– ...	Turnips, per bunch, new	0 5– ...
Mushrooms, punnet	1 6– ...		

POTATOS.—Beauty of Hebron, 80*s.*; Imperators, 70*s.*; Magnum Bonums, 80*s.*; and Dunbar Regents, 110*s.* per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Foliage plants, various, each	2 0–10 0
Arum Lilies, p. doz.	9 0–15 0	Ficus elastica, each	1 6– 7 0
Azaleas, dozen	24 0–42 0	Genista, dozen	9 0–18 0
Cineraria, per dozen	8 0–12 0	Hyacinths, dozen	6 0– 9 0
Cyperus, per dozen	4 0–12 0	Lily-of-Val., doz. pts.	12 0–24 0
Dracæna terminalis, per dozen	30 0–60 0	Marguerites, doz.	6 0–12 0
— viridis, per doz.	12 0–24 0	Palms in var., each	2 6–21 0
Erica, various, doz.	12 0–30 0	Pelargoniums, scarlet, per dozen	6 0– 9 0
Euonymus, in var., per dozen	6 0–18 0	Primulas, per dozen	4 0– 6 0
Evergreens, in var., per dozen	6 0–24 0	Solanums, dozen	6 0–12 0
Ferns, in var., doz.	4 0–18 0	Tulips, dozen pots	6 0– 9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutillons, 12 bun.	3 0– 6 0	Marguerites, 12 bun.	3 0– 6 0
Anemone, Fr., 12 bun.	2 0– 6 0	Mignonette, 12 bun.	2 0– 4 0
Arum Lilies, 12 blooms	3 0– 6 0	Narcis., paper-white, (French), 12 bun.	2 0– 6 0
Azaleas, 12 sprays	0 6– 1 0	— double, 12 bun.	1 6– 3 0
Bouvardias, per bun.	0 9– 1 0	Pelargoniums, 12 spr.	1 0– 1 6
Camellias, white, 12 blooms	2 0– 4 0	— scarlet, 12 spr.	0 6– 0 9
— red, 12 blooms	0 9– 2 0	Primroses, 12 bun.	1 0– 1 6
Carnations, 12 blms.	2 0– 3 0	Primulas, dbl., 12 sp.	1 0– 1 6
Chrysanthemums, dozen bunches	2 0– 4 0	Roses, Tea, per doz.	2 0– 6 0
Daffodils, dbl. 12 bun.	4 0– 9 0	— coloured, dozen	2 0– 4 0
— single, 12 bun.	6 0–12 0	— red, per dozen	6 0– 9 0
— French, 12 bun.	2 6– 4 0	— Safrano, dozen	2 0– 4 0
Eucharis, per dozen	3 0– 6 0	Safrano (Fr.), doz.	1 0– 3 0
Gardenias, 12 blooms	15 0–30 0	Snowdrops, 12 bun.	1 0– 3 0
Heliotropes, 12 spr.	0 6– 1 0	Tuberoses, 12 blms.	2 0– 4 0
Hyacinths, Roman, 12 sprays	1 0– 1 6	Tulips, 12 blooms	0 8– 1 0
Lilac, white Fr., bun.	4 0– 6 0	Violets, 12 bunches	1 0– 1 6
— lilac-coloured, p. bunch	3 0– 5 0	— dark, Fr., bunch	1 0– 2 0
Lily-of-Val., 12 spr.	0 6– 1 0	— Parme, Fr., bun.	2 6– 3 6
		Wallflowers, 12 bun.	4 0– 6 0
		— French, 12 bun.	1 0– 2 0

SEEDS.

LONDON: *March* 6.—Messrs. John Shaw & Sons, of 37, Mark Lane, report to-day's market thinly attended. Choice Canadian Clover seed, now obtainable on very moderate terms, meets with considerable favour. Values for Trefoil are firm; Alsike and white, however, are dull. There is more business doing in both perennial and Italian Ryegrasses. Sainfoin also meets an improved inquiry. For Tares full prices are realised. Scarlet Runners continue in eager request at advancing rates; the total rise now exceeds 25*s.* per bushel. Bird seeds are slow. There is no alteration in Peas or Haricots. For Linseed there is a better feeling.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending March 2:—Wheat, 29*s.* 7*d.*; Barley, 26*s.* 1*d.*; Oats, 16*s.* 8*d.* For the corresponding week in 1888:—Wheat, 30*s.* 2*d.*; Barley, 25*s.* 1*d.*; Oats, 15*s.* 10*d.*

FRUIT AND VEGETABLES.

SPITALFIELDS, *March* 6.—Quotations:—Savoys, 2*s.* to 4*s.* 6*d.* per tally; Greens, 6*s.* to 10*s.* do.; Cauliflowers, 6*d.* to 1*s.* 3*d.* per dozen; Sprouting Broccoli, 9*d.* to 1*s.* per sack; Brussels Sprouts, 9*d.* to 1*s.* 3*d.* per half-sieve; Turnip-tops, 1*s.* 9*d* to 2*s.* 3*d.* per sack; Spinach, 1*s.* 9*d.* to 2*s.* per bushel; Parsnips, 6*d.* to 9*d.* per score; Beetroots, 6*d.* to 10*d.* per dozen; Sealkale, 1*s.* to 1*s.* 6*d.* per punnet; Radishes, 4*d.* to 9*d.* per dozen bunches; Turnips, 2*s.* to 2*s.* 6*d.* do.; Carrots, 1*s.* 6*d.* to 2*s* 3*d.* do.; Parsley, 7*s.* to 10*s.* do.; Rhubarb, 1*s.* 9*d.* to 2*s.* per dozen bundles; Celery, 10*s.* to 14*s.* do.; Horseradish, 1*s.* to 1*s.* 4*d.* per bundle; English Onions, 6*s.* 6*d.* to 7*s.* per cwt.; Spanish do., 7*s.* to 9*s.* per case; Bordeaux do., 4*s.* 6*d.* to 5*s.* do.; Dutch do., 3*s.* to 4*s.* 6*d.* per bag; Belgian do., 3*s.* 6*d.* to 4*s.* do.; Endive, 2*s.* per doz.; American Apples, 9*s.* 6*d.* to 15*s.* per barrel; English, 3*s.* 6*d.* to 7*s.* per bushel; ditto, 1*s.* 6*d.* to 3*s.* per half-bushel; Carrots, 20*s.* to 26*s.* per ton; Mangels, 16*s.* to 18*s.* do.

STRATFORD: *March* 5.—Supply has been good during the past week, and fair trade was done at the following prices:—Cabbages, 2*s.* to 3*s.* per tally; Savoys, 2*s.* 6*d.* to 3*s.* do.; Cauliflowers, 1*s.* to 1*s.* 9*d.* per dozen; Turnips, 2*s.* 6*d.* to 3*s.* per dozen bunches; Carrots, household, 20*s.* to 30*s.* per ton; do., cattle feeding, 15*s.* to 20*s.* do.; Parsnips, 40*s.* to 60*s.*, do.; Mangels, 11*s.* to 17*s.* do.; Swedes, 12*s.* to 16*s.* do.; Onions, English, 120*s.* to 140*s.* per ton; do., Dutch, 3*s.* 6*d.* to 4*s.* 6*d.* per bag; do., Bordeaux, 5*s.* to 5*s.* 6*d.* per case; Apples, English, 3*s.* to 5*s.* 6*d.* per bushel; Watercress, 6*d.* per dozen; Carrots, 2*s.* to 2*s.* 6*d.* per dozen bunches; Celery, 6*d.* to 1*s.* per roll; Cress, 2*s.* per dozen baskets; Rhubarb, 1*s.* 9*d.* to 2*s.* per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: *March* 5.—Supplies adequate, and demand is not pressing. Scotch Regents, 90*s.* to 120*s.*; English, 65*s.* to 100*s.*; Hebrons, 90*s.* to 100*s.*; Magnum Bonums, 60*s.* to 100*s.*; Scotch, do., 90*s.* to 120*s.*; other varieties, 60*s.* to 90*s.* per ton.

SPITALFIELDS: *March* 6.—Quotations:—Champions, 55*s.* to 60*s.*; Regents, 75*s.* to 110*s.*; Imperators, 75*s.* to 80*s.*; Hebrons, 30*s.* to 65*s.*; Magnums, 65*s.* to 90*s.*; Scotch do., 90*s.* to 110*s.* per ton.

STRATFORD: *March* 5.—Quotations:—Scotch Regents, 80*s.* to 110*s.*; do., Magnums, 70*s.* to 110*s.*; English Magnums (light), 60*s.* to 90*s.*; do. (dark), 60*s.* to 65*s.*; do., Regents, 60*s.* to 80*s.* per ton.

Imports.—The imports into London last week consisted of 20 bags from New York.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, old prime, 126*s.* to 144*s.*; do., best second, 85*s.* to 120*s.*; do., inferior, 36*s.* to 70*s.*; prime old Hay, 108*s.* to 126*s.*; best new, 90*s.* to 105*s.*; inferior, 50*s.* to 70*s.*; old straw, 42*s.* to 48*s.*; new, 28*s.* to 42*s* per load.

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, *do* PLEASE NOTE *that letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the* PUBLISHER, and not to the Editor, but that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

ADIANTUM FRONDS TURNING BROWN AND WITHERING: *C. H. E.* It may be that the plants stand too near the hot-water pipes or flue, or they have been watered overhead—a dangerous proceeding with these Ferns at any time. No particulars having been given, we can but surmise the cause.

BOOKS: *W. Melles.* In *The Ivy*, by Shirley Hibberd (London: Groombridge & Sons, 5, Paternoster Row), you will find what you require.

FILBERTS NOT BEARING: *Irish Correspondent.* We suspect the Nuts have never been pruned in. The bushes often produce nuts when two years old, but they require to be pruned basin-shape to get large nuts, and the centres kept open. The bushes in your case may have been growing naturally, and are crowded with wood which has not ripened. It would be advisable to prune the bushes severely now, so as to form them; the end bud left on a shoot to be an outer one, so that in time the desired shape will be obtained. Messrs Geo. Bunyard & Co., Old Nurseries, Maidstone, supply a photograph of a properly pruned Filbert bush at a small cost.

FUNGUS: *J. W.* Dry-rot fungus, Merulius lachrymans.

INSECTS: *J. H.* A species of cockroach, very destructive. Trap them.

MUSHROOM-GROWING IN AN UNHEATED CELLAR: *S. M.* If the cellar is large enough to hold several beds—each, say, 12 feet long by 4 feet in width—prepared materials for one bed may be made into a bed, and more stable-dung may be introduced in quantity sufficient for one or more beds, to be there turned over and allowed to lose its rankest heat; and by so doing the temperature of the cellar will be kept up to the desired degree of warmth—55° to 60°. It is generally found to be an easier task to keep a cellar up to that point than an above-ground building. The proper amount of materials necessary to obtain this degree of warmth will readily be found by observation.

NAMES OF PLANTS: *C. H.* 1, Abies pectinata; 2, Cupressus torulosa; 3, Abies Nordmanniana; 4, A. Pinsapo; 5, Pinus excelsa; 6, not recognised. — *G. Mantin.* 1, Oncidium (not recognised); 2, not found; 3, specimen insufficient and decayed; 4, probably Oncidium cornigerum (brown var.). — *B. S.* 1 and 2, Cupressus Lawsoniana; 3, Thuiopsis borealis; 4, Pinus sp.; 5, Thuia gigantea; 6, Ligustrum sinense.—*C. B.* 1, Cypripedium barbatum; 2, Pandanus graminifolius; 4, Rivina humilis.—*F. W.* The Guava (Psidium pomiferum); fruit edible.—*W. Sorley.* Odontoglossum Rossi majus, a very fine variety; Masdevallia ignea and M. i. grandiflora; Oncidium abortivum; Lycaste Skinneri, a very large flower; Adiantum hispidulum (the hairy one) and A. setulosum.—*A. J.* Correa alba.—*Thos. Findlay.* Arundo conspicua, Gynerium argenteum differs from Arundo in having dicecious flowers.—*F. Taylor.* An Indigofera, which we are unable to name without more ample materials.—*W. F. and S.* Narcissus Pseudo-Narcissus var. moschatus.

SCLEROTIA IN MAPLE LEAVES: *S.* Sclerotium complanatum of Tode. I am not aware that it has ever been successfully cultivated, or that it has been ascertained what perfect fungus is developed from it. It has no connection whatever with the Rhytisma acerinum, which forms the large pitch-coloured patches on the leaves of Maples. *M. C. C.*

UNHEATED PEACH-HOUSE: *S. M.* Keep the house as cool as possible short of the freezing-point. Do not force the trees by syringing and closing early in the afternoon. Treat it rather, whilst hard frosts are imminent, as you would a Peach-wall case. Give abundant air during the day, except when frosty winds are blowing. In the event of hard frost, cover the roof and ends with Frigi Domo or mats. Thoroughly water the borders, or the bloom and wood-buds may drop.

UNHEATED VINERIES: *S. M.* Give all the ventilation possible day and night, and when the buds show signs of renewal of growth it will then be time enough to shut up the house. See that the borders are in a sufficiently moist state, or the buds may break weakly. If water be necessary, give the soil a thorough soaking.

WORKS ON GRASSES: *W. E. M.* None of the books you mention can be had now, except by chance at book-sales and at second-hand booksellers. There are now some good modern books which may answer your purpose.

CATALOGUES RECEIVED.

BROWN & WILSON, 10, Market Place, Manchester—Farm Seeds.

DICKSONS (LIMITED), Chester—Farm Seeds.

CLARK & Co., 85, Bedford Street, North Shields—Seeds.

ROBERT VEITCH & SON, 54, High Street, Exeter—Agricultural Seeds.

DICKSONS & Co., 1, Waterloo Place, Edinburgh—Farm Seeds.

TOOGOOD & FINLAYSON, Southampton—Agricultural Seeds.

THOMAS KENNEDY & Co., 108, High Street, Dumfries, N.B.—Agricultural Seeds.

WILLIAM WATT, Cupar-Fife and Perth, N.B.—Farm Seeds.

VILMORIN-ANDRIEUX & Co., 4, Quai de la Mégisserie, Paris—Seed of Trees, Shrubs, and Greenhouse Plants.

JOHN LAING & SONS, Forest Hill, London, S.E.—New Chrysanthemums.

COMMUNICATIONS RECEIVED.—Ch. V.—W. B. H., Cork.—P. N.—Dr. Costerus, Amsterdam.—F. H.,—H. J. R., Florence.—R. V. S.—A. C.—J. H.—H. D'O.—B. D. J.—W. Sill.—Dr. S.—F. W. B.—W. W.—The Horticultural College, Swanley.—G. H.—S. B.—E. B.—G. S.—C. B.—J. W.—A. McK.—G. E. W.—E. N.—A. S.—E. W.—W. M. B.—G. Baker.—E. Mawley.—W. S.—B. A.—F. A.—C. B. S.—J. R. J.—T. B.—J. G. B.—W. W.—J. S.—H.

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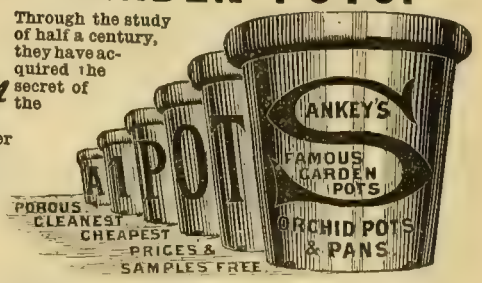


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"Excellent Garden Pots. Show careful making and burning, with the employment of first-rate materials."—*Gardeners Chronicle.*
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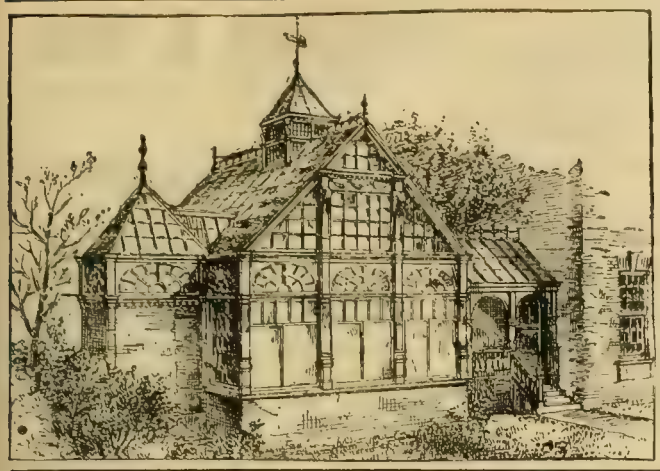
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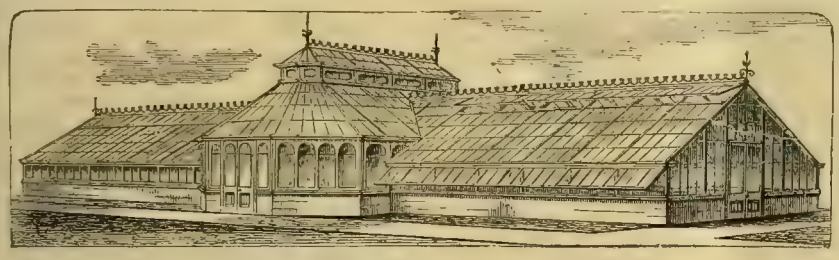
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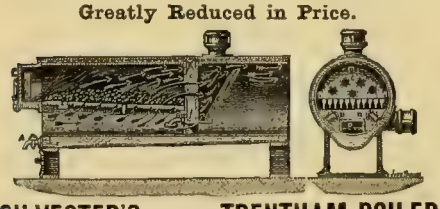
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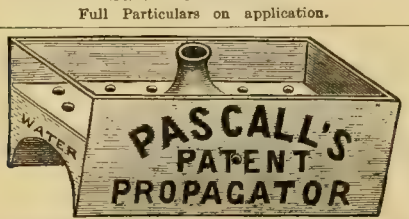
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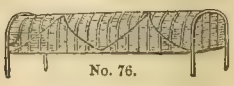


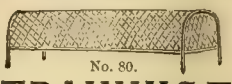
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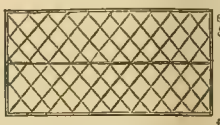
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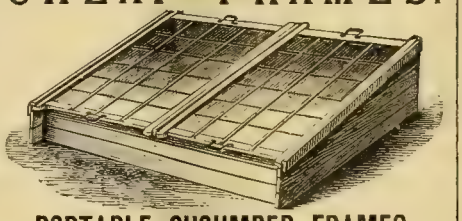
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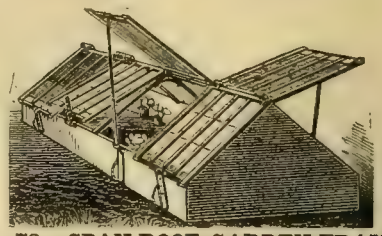
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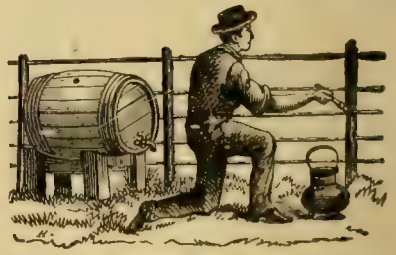
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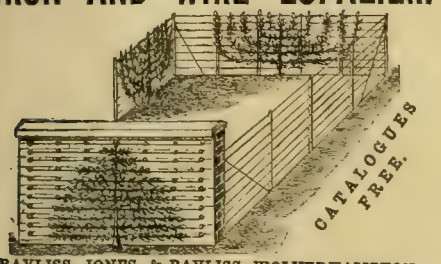
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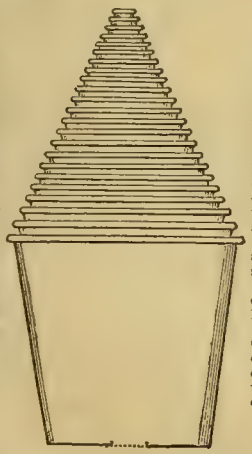
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GARDENING APPOINTMENTS.

Mr. G. H. SMITH, late of Redlynch House, Downton, has been appointed as Gardener to W. BAILEY, Esq., The Terrace, Oaken, Wolverhampton.

Mr. W. C. MEREDITH, late Foreman at Mereworth Castle Gardens, has been appointed Head Gardener to G. WILLIAMS, Esq., Scorrier House, Scorrier, Cornwall.

Mr. C. TERRY, for the past seven years General Foreman at Shepley Hall Gardens, has been engaged to succeed Mr. ATKINS as Gardener to Lord EGERTON, Tatton Park, Knutsford.

Mr. CHARLES STROUD, late Foreman at Benham Park Gardens, has lately been appointed Head Gardener to D. FABER, Esq., Ampfield House, Romsey, Hants.

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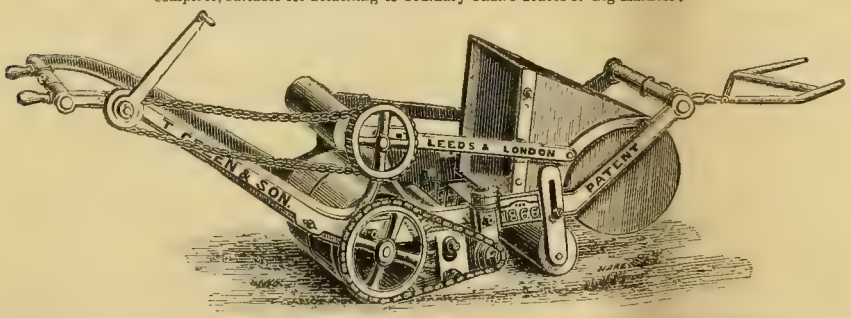


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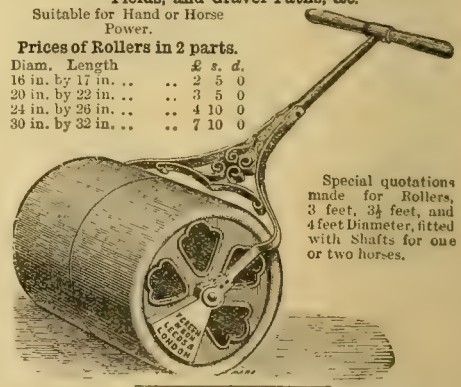
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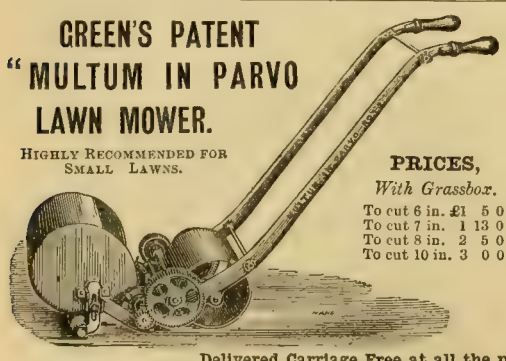
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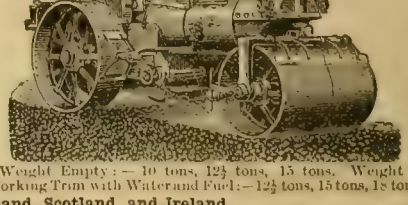
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PASTUPLANTA, the best Artificial Manure. It enriches the soil with the fertilisers drawn from it by plants; no unpleasant smell; admirably adapted for all pot plants. In bags: 112 lb., 19*s.*; 56 lb., 11*s.* 3*d.*; 28 lb., 6*s.* 9*d.*; 14 lb., 4*s.*; 7 lb., 2*s.* 3*d.* In tins, 1*s.* each. Sole Manufacturers, PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

Flowers, Fruit, and Vegetables.
J. B. THOMAS, Covent Garden Market. Telegraph Address, "THOMASES, London." Telephone, No. 2822. See large Advertisement, p. 326.

SALES BY AUCTION.

Monday Next.

3000 grand Bulbs of LILIUM AURATUM from Japan, in splendid condition; about 5000 various imported and English-grown LILIES, comprising unusually fine Bulbs of Lilium rubrum cruentum, album Kraetzeri, rubro-vittatum, auratum virginale, platyphyllum, Brownii, and others; 1000 LILIUM LONGIFLORUM for forcing, a selection of named hybrid JAPANESE IRIS, producing immense flowers, and awarded many First-class Certificates; these Iris are perfectly hardy, and easily grown. The Sale will also include an assortment of other HARDY BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, March 18, at half-past 12 o'Clock precisely.

On view morning of Sale and Catalogues had.

Tuesday Next.

Named CARNATIONS and PICOTEES, in pots; Standard and Dwarf Roses, FRUIT TREES, EVERGREENS, CAMELLIAS, and AZALEAS from an English Nursery.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, March 19, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Wednesday Next.

5000 LILIUM AURATUM from Japan. A chice collection of hardy English-grown LILIES, including very fine Bulbs of most of the principal varieties. IRIS, GREENHOUSE PLANTS, CARNATIONS, PICOTEES, GLADIOLI, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, March 20, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Friday Next.

CYPRIPEDIUMS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 22, a few choice selected CYPRIPEDIUMS from a well known collection, including C. Sedeni porphyreum, S. candidulum, Spicerianum nigrum, Dauthieri, melanopthalmum, Schroderæ, grande, and others, many of them being specimen plants in excellent condition.

On view morning of Sale, and Catalogues had.

Friday Next.

CYPRIPEDIUM HIRSUTISSIMUM, in perfect health, grand specimen; the finest variety ever flowered.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE on FRIDAY NEXT, March 22, 1889.

Friday Next.

Imported and Established ORCHIDS, mostly for Sale without Reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 22, at half-past 12 o'Clock precisely, a large quantity of Imported and Established ORCHIDS, including the following:—

ODONTOGLOSSUM ALEXANDRÆ, a grand importation of the best type, and in fine condition, together with other Orchids, from Messrs. Shuttleworth, Carder & Co.

CYPRIPEDIUM ROTHSCHILDIANUM, 50 good plants.

ESTABLISHED ORCHIDS, a small private Collection, comprising 150 Cattleya Dowiana, 120 Cattleya Skinneri, and about 800 other Orchids.

Also a quantity of Imported DENDROBIUMS, ONCIDIUMS, ODONTOGLOSSUMS, CATTLEYAS, ORCHIDS in FLOWER, &c.

On view morning of Sale, and Catalogues had.

Special Sale.—Tuesday, March 26.

ORCHIDS in FLOWER.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be GLAD TO RECEIVE ENTRIES in due course.

Sample Sale.—March 28.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SAMPLE SALE will take place on THURSDAY, March 28.

The Sunbury House Collection of Orchids.

SECOND and REMAINING PORTION, by order of Major Leudy, who is relinquishing their cultivation in consequence of ill-health.

IMPORTANT UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, April 2, the SECOND and REMAINING PORTION of this well-known Collection of ESTABLISHED ORCHIDS.

Further particulars will appear.

Preliminary Notice.

By order of the Executors of the late Mr. J. H. Bath, of Manor Farm, North Cray.

8000 ESTABLISHED ORCHIDS.

For Sale without Reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, April 9, the whole of this extensive Collection of ORCHIDS, comprising 5000 Odontoglossum Alexandræ, Pescatorei, and triumphans, mostly unflowered; 3000 Cattleyas, Cypripediums, Dendrobium, &c.

Wednesday Next.—(Sale No. 7893.)

Choice Named Standard, Half-Standard, and Dwarf ROSES, from a well-known English and French Grower; Pyramid, Standard, and Dwarf-trained FRUIT TREES to name; Hardy Ornamental EVERGREENS, SHRUBS, and CONIFERS; CARNATIONS, PICOTEES, and other BORDER PLANTS in variety; DAHLIAS, GLADIOLI, LILIUMS, FREESIAS, and other Hardy Bulbs; LILY of the VALLEY Crowns, SPIRÆAS, &c.

MR. J. C. STEVENS will SELL the above by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 20, at half-past 12 o'Clock precisely.

On view morning of Sale and Catalogues had.

Wednesday and Thursday Next.

10,000 Grand Bulbs of LILIUM AURATUM, and other LILIES, just received from Japan, in splendid condition.

MR. J. C. STEVENS will include the above in his SALES by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY NEXT, March 20 and 21.

On view mornings of Sales, and Catalogues had.

Thursday Next.—(Sale No. 7894.)

A choice lot of ESTABLISHED ORCHIDS, many in Flower and Bud. Also a small collection of DRACÆNAS DAVALLIAS, PALMS, FERNS, and other STOVE and GREENHOUSE PLANTS.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 21.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7894.)

DENDROBIUM WARDIANUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 21, at half-past 12 o'Clock precisely, imported plants of DENDROBIUM WARDIANUM, best vars.; D. CRASSINODE, D. THYRSIFLORUM, D. BRYMERIANUM.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7894.)

Six cases of Indian ORCHIDS, received direct, comprising Vanda Parishii, V. species, Dendrobium suavissimum, Aërides crassifolium, Soccolabiums, Cypripedium Godefroyæ, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 21.

On view morning of Sale, and catalogues had.

The Valuable Collection of Orchids formed by H. J. BUCHAN, Esq.

MR. J. C. STEVENS has received instructions from H. J. Buchan, Esq., of Wilton House, Southampton (in consequence of the land having been bought for building), to offer for SALE, without the least Reserve, the SECOND WEEK in APRIL, his celebrated COLLECTION of ORCHIDS, comprising, amongst other fine things:—

Cypripedium caudatum roseum	Dendrobium stratiotes
,, Sanderianum	,, Lowii
,, Spicerianum	,, nobile nobilius
,, Druryi	Cattleya Schroderii
Lælia flava	Epidendrum prismatocarpum
,, autumnalis Buchanii	Angræcum sesquipedale
,, anceps alba	,, Dubuyssonii
,, elegans	Cœlogyne cristata alba
,, ,, Schilleriana	Trichopilia crispa marginata (true)
,, ,, alba	,, suavis alba
Odontoglosum × Ruckeriana	Maxillaria Sanderiana
,, polyxanthum	,, Hubshii
,, cuspitatum platyglossum	Masdevallia Bull's Blood

Besides all the leading varieties of other things.

Re **Tomkins, St. Albans.**

MR. W. DORANT will SELL by AUCTION, on THURSDAY, March 28, 1889, at 12 noon, upon the Premises, 20, George Street, St. Albans, Herts, the valuable large Stock-in-Trade of SEEDS (FLOWER and VEGETABLES), all in choicest varieties, ready for immediate sowing, also Bales of Raffia, Sacks, Bags, Cases of Flower Sticks, Labels, Tallies, Pockets, Weighing Machine, new Seed Winnower, Sieves, Measures, Barrows, Trade Fixtures, Mahogany Counters and Nests of Drawers, Show Cases, Shelves, Gas Fittings, Pulley Chains, Office Furniture, and other items, together with the valuable Lease of the above extensive Premises.

On view four days previous, and on morning of Sale. Catalogues obtained of the Trustee, F. C. GOODCHILD, Esq., 25, Old Jewry, E.C.; of A. EWEN, Esq., Official Receiver, Luton, Beds; or of W. DORANT, Auctioneer, Victoria Street, St. Albans.

WANTED, on Lease, about an Acre of LAND, with Glass. Also DWELLING HOUSE.

Address HORTUS, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Yorkshire, West Riding.

On the confines of an important and thriving Market Town.

TO BE SOLD, as a going concern, and at a great sacrifice, to ensure an early Sale, a very Old-established NURSERY and FLORIST'S BUSINESS. The Premises comprise about 5½ Acres of capital Land, held at a very moderate rental and well stocked with useful Stuff. With Foreman's Cottage, Packing Barn, 3-stall Stable and Coach-house, Stone-built Offices and Store room. The Glass Erections comprise 6 useful Greenhouses, efficiently heated with Hot Water, also numerous Cold Frames, mostly covered with movable Glass Lights. Well supplied with Water. The Nursery is situate about 2 miles from the Town, and within 1 mile of a Railway Station. Satisfactory reasons will be given for Disposal. A splendid opportunity for acquiring a Genuine Business on exceedingly reasonable terms. The Vendor will be open to consider any reasonable offer to effect an early Sale.

For further particulars apply to Mr. F. CARTER, Accountant, &c., Nelson Chambers, Cloth Hall Street, Huddersfield.

FOR DISPOSAL, the LEASE of a SMALL NURSERY, S.E. District. Seven Glasshouses, Pits, Sheds, good Six roomed Cottage. Stock at Valuation. Rent, £55. Suit Working Man with Small Capital.

J. B., 4, Bedford Gardens, Campden Hill, Kensington, W.

To Grape, Fruit, Tomato Growers, MARKET GARDENERS, &c.

TO BE DISPOSED OF, an Old-established BUSINESS in the Channel Islands in full work, suitable for a Partnership. Capital required about £4000.—Apply in the first instance by letter addressed to A. B. C. H., Bedford Villa, Teddington, Middlesex. Principals only dealt with.

CUT FLOWERS, BULBS, PLANTS, &c.—Best class of customers in district for good flowers. Sales, WEDNESDAY and FRIDAY Night all the year round. Daily, when required. Largest and most centrally situated Horticultural Sale Rooms in Birmingham.—POPE AND SONS, 6, Phillip's Street (close to Market Hall), Birmingham.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received fine importations of the following, and many other ORCHIDS:—

ODONTOGLOSSUM ALEXANDRÆ (Pacho type).
LÆLIA ANCEPS (White), distinct-looking type.
,, ANCEPS MORADA.
CATTLEYA GUTTATA LEOPOLDI.
MILTONIA MORELLIANA.
DENDROBIUMS and other ORCHIDS, in quantity, from the East Indies.

Full particulars, Post-free, on application to

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

TO BE SOLD, CHEAP, to clear ground for annual transplanting.

RHODODENDRON PONTICUM, nice bushy plants, 1 to 1½ feet high, 25s. per 100.

RHODODENDRONS, hybrid seedlings from the best varieties, mixed colours, 1 to 1½ feet high, 6s. per doz., 15s. per 100; 1½ to 2 feet, 10s. per doz., 75s. per 100; 2 to 2½ feet, 18s. per doz.

RHODODENDRONS, selected seedlings, colour labelled on each plant, fine bushes, mostly well filled with flower-buds, 3 to 4 feet high, 24s. to 36s. per dozen. These would make an effective display this summer.

RHODODENDRONS, the best-named kinds, 1½ to 3 feet high. For description and prices see Catalogue.

HOLLIES, Common Green, fine stuff, well rooted, 2 to 2½ feet high, 6s. per doz., 40s. per 100; 2½ to 3 feet, 8s. per doz., 50s. per 100.

HOLLIES, Silver, well rooted, 2 to 3 feet high, 18s. per doz.

ANDROMEDA FLORIBUNDA, dense bushes, 1½ feet high, and as much across, 12s. per doz.; 1½ to 2 feet high, 2 to 2½ feet across, 18s. per doz.

DAPHNE MEZEREUM, in flower and bud, very bushy, reds, 3s. per doz.; whites, 4s. per doz.

HARDY HEATHS, of sorts (including "cinerea superba" and "herbacea alba"), good plants, 4s. per dozen.

LILIUM AURATUM, home-grown flowering bulbs, 8s. per dozen; 50s. per 100.

HANDSWORTH BOX, green and bushy, 2½ to 3 feet high, 6s. per dozen; extra large bushes, 4 to 5 feet high, 1s. 6d. to 2s. 6d. each.

COMMON LILACS, large bushes, 5 to 7 feet high, 1s. 6d. each.

CATALOGUE of General Nursery Stock on application.

ISAAC DAVIES AND SON, Nurserymen, Ormskirk, Lancashire.

To the Trade.

MANGEL WURZEL AND TURNIP SEEDS.

H. AND F. SHARPE will be pleased to give special quotation for their fine selected stocks of home-grown MANGEL WURZEL and TURNIP SEEDS of 1888 growth, and raised from picked bulbs. The growth is strong, and the prices will be found very reasonable. Samples may be had on application

Seed Growing Establishment, Wisbech.

FOR SALE, 20,000 strong GERANIUMS, from 8s. to 10s. per 100. Warranted to give satisfaction. These prices not binding after this month.

T. BOX, Perry Street Nurseries, Gravesend.

FINEST OF ALL PETUNIAS.—Magnificent new Dwarf Striped PETUNIA SEED. This is, without doubt, the finest strain possible to grow. The plants commence to bloom 3 inches high, and are most attractive; scarcely two flowers are alike. Thousands are sold in Covent Garden Market, and acknowledged by all to be the best they have ever grown. Per packet, 1s. and 2s.

CHARLES BURLEY, Nurseries, Brentwood, Essex.

TREES and SHRUBS suitable for Towns and Smoky Districts. CATALOGUE free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

A few Large Healthy Palms.

FOR IMMEDIATE DISPOSAL, LATANIA BORBONICA, CHAMÆROPS EXCELSA and PHŒNIX RECLINATA, 3 to 6 feet high, from 10s. per pair.

GARDENER, Holly Lodge, Stamford Hill, London, N.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL,

AT

The "ALBION," Aldersgate Street,

JUNE 13, 1889,

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Donations and Collections already promised or sent towards the Jubilee Collection of 1889:—

	£	s.	d.
LEOPOLD DE ROTHSCHILD, Esq., Chairman ...	105	0	0
The DUKE of WESTMINSTER, K.G., President ...	100	0	0
The DUKE of BEDFORD, K.G.	100	0	0
The EARL of DERBY, K.G.	21	0	0
Baron HENRY SCHRODER, Vice-President ...	105	0	0
Lord REVELSTOKE	52	10	0
JAMES McINTOSH, Esq., Vice-President	52	10	0
N. N. SHERWOOD, Esq. (Hurst & Son), Trustee ...	52	10	0
H. B. MILDMAY, Esq., Berkeley Square	52	10	0
HERBERT J. ADAMS, Esq., Vice-President ...	26	5	0
HARRY J. VEITCH, Esq., Treasurer	26	5	0
C. CZARNIKOW, Esq., Effingham Hall, Dorking...	21	0	0
A. A. SILLEM, Esq., Sydenham	10	10	0
J. F. TIARCK, Esq., Chislehurst	10	10	0
JOHN LEE, Esq., Kensington (Trustee)	10	10	0
THAMES BANK IRON CO., Upper Ground Street	10	10	0
J. H. VEITCH, Esq., Chelsea	10	10	0
ARTHUR J. VEITCH, Esq., Chelsea	10	10	0
THOMAS MANNING, Esq., Chelsea	10	10	0
Mrs. H. J. VEITCH, Redcliff Gardens, S.W. ...	10	10	0
B. S. WILLIAMS, Esq., Upper Holloway, N. ...	10	10	0
Mr. C. W. BUCK, Covent Garden	5	5	0
Mr. E. R. CUTLER, Secretary	10	10	0
Messrs. JOHN LAING AND SON, Forest Hill ...	5	5	0
Messrs. WEBBER AND CO., Covent Garden ...	5	5	0
Mr. A. PLUMMER, Seedsman, Staines	4	4	0
Mr. R. H. ROBINSON, The Gardens, Heversham, Milnthorp	7	7	0
Mr. JOHN CROOK, Gardener, Farnborough ...	8	5	0
Mr. EDWARD MITCHELL, Gr., Bolton Lodge, Leeds	10	10	0
Mr. W. R. HODGES, Gardener, Copley Dene, Highgate	10	10	0
Mr. E. GILBERT, The Gardens, Old Charlton, Kent	1	15	0
Mrs. VINCENT NICHOLL, Red Hill	2	2	0
W. J. BROWN, Esq.	1	1	0
Miss CATTLEY, Clayden, Edenbridge, Kent ...	2	2	0
ROBERT HOGG, Esq., LL.D., Vice-President ...	10	10	0
RICHARD CHRIMES, Esq., Rotherham	21	0	0
Messrs. NUTTING AND SON, Southwark Street ...	10	10	0
Mr. WM. COLLINS, Gr., Chios House, Clapham Park	10	10	0
Mr. WM. WILDSMITH, Heckfield Gardens ...	1	1	0
Messrs. WATKINS AND SIMPSON, Exeter Street...	5	5	0
Mr. H. E. TILLMAN, Covent Garden	3	3	0
Mr. S. E. KAY, Finchley	2	2	0
Messrs. DICKSON, The Nurseries, Chester	10	10	0
Mr. GEORGE MONRO, Covent Garden	10	10	0
Messrs. BARR AND SON, King Street, Covent Garden	2	2	0
Mr. W. S. JOHNSON, St. Martin's Lane	5	5	0
Mr. J. C. STEVENS, King Street, Covent Garden ...	5	5	0
Messrs. CUTBUSH AND SON, Nurseries, Highgate...	5	5	0
Mr. J. ROBERTS, The Gardens, Gunnersbury ...	10	10	0
Mr. B. WADDS, Birdsall Gardens, York	1	1	0
Mr. G. WYTHES, Syon Gardens, Brentford	1	1	0
Mr. W. DENNING, Nurseries, Hampton	1	1	0
Mr. J. WALKER, Whitton, Hounslow	2	2	0
Mr. PETER BLAIR, The Gardens, Trentham ...	1	1	0
Messrs. H. & A. TURNER, Royal Nurseries, Slough	10	10	0
Mr. W. C. LEECH, Albury Gardens, Guildford (annual)...	1	1	0
Miss OSBORN, Streatham	3	3	0
Mr. W. BROWN, Merivale Gardens, Atherstone ...	2	2	0
Mr. THOS. S. WARE, Hale Farm Nurseries, Tottenham	2	2	0
Mr. PEARMAN, Salmon's Garden, Chiselhurst ...	10	10	0
Messrs. JACOB WRENCH AND SONS, London Bridge	5	5	0
Messrs. HOWCROFT AND WATKINS, Hart Street, Covent Garden...	5	5	0

DOUBLE PERENNIAL SUNFLOWERS, varieties "Anemoniflora" and "Soleil d'Or," the former having a yellow Anemone-flowered flat and frilled centre, with the outer florets or guard-petals extended, and known in English gardens as *multiflorus plenus*. Plants, each 9*d.*; post-free, 3*d.* extra. The new plant, or "Quilled form," is bright orange in colour, and the outline that of a Cactus Dahlia, the A. W. Tait type; and, to prevent confusion in the term "plenus," designated by me as "Soleil d'Or," this I call the Irish Quilled flower. Each, 1*s.* 6*d.*; extra size, 2*s.* 6*d.*, *post-free*. Illustrations of both forms, as drawn by Gertrude Hartland, can be had for a stamped envelope. I have been instrumental in getting distinctions for the first time observed by English florists in their Catalogues; but if you want the Irish plant, better have it from the introducer.
WM. BAYLOR HARTLAND, Old Established Garden Seed Warehouse, 24, Patrick Street, Cork.

Fruit Trees.

50,000 PLUMS and DAMSONS; Standard and Dwarf-trained Morello CHERRIES, all fine grown trees. For price apply to
FLETCHER BROS., Ottershaw Nursery, Chertsey, Surrey.

FORBES' CATALOGUE for 1889 is the largest, best, most reliable and complete ever issued on Florists' Flowers.
It consists of 112 pages of closely-printed matter, with Prices and full descriptions of all the newest and best Pansies, Violas, Phloxes, Pentstemons, Antirrhinums, Hollyhocks, Delphiniums, Pyrethrum, Potentillas, Auriculas, Dahlias, Pelargoniums, Fuchsias, Petunias, Begonias, Perennials, Stove and Greenhouse Plants, Ferns, &c., all of which are made a leading speciality and can consequently be had better than anywhere else.
The CATALOGUE itself is a most useful and convenient reference book on all sections of Florists' Flowers, and it should be in the hands of all, and carefully perused before ordering elsewhere.
Free on application.
JOHN FORBES, Buccleuch Nurseries, Hawick, Scotland.

The Finest Main Crop

POTATO.

SHARPE'S

DUKE OF ALBANY.

Duke of Albany is a White Kidney; it has a short haulm, with a pale, flat leaf, is quite as early as Myatt's Prolific, as large in size and as heavy a cropper as Magnum Bonum, than which it is eight weeks earlier; it is ripe early in August, and will keep until spring, being a good first-class Potato from the middle of July until the month of March.
The crop is immense, and the tubers are of a perfect shape, with no eyes, so there is no waste in paring; the skin is slightly rough, and the quality of the flesh unsurpassed, being white, mealy, and of the most delicious flavour.

Price 2s. 6d. per Stone.

Price per Cwt. or Ton on application.

CHARLES SHARPE & CO.,
Seed Growers and Merchants,
SLEAFORD, LINCOLNSHIRE.

PRIMULA OBCONICA, greatly improved strain (crop 1888) for Present Sowing, per packet, 6*d.* and 1*s.* Large Trade packets, 2*s.* 6*d.*, 5*s.*, 10*s.* 6*d.*, and 21*s.* each. Primrose, Old Double Crimson Pompadour: see coloured plate in the *Garden*, Oct., 1888, Magnificent plants, 15*s.* per dozen, 1*s.* 6*d.* each.
W. BAYLOR HARTLAND, Seedsman and Florist, Cork.

A. Lietze, Rio de Janeiro, Brazil,

A. LIETZE'S NEW CALADIUMS, ORCHIDS, and PALM SEEDS.
Price LISTS of above Post-free to all applicants from Messrs. ADOLPH V. ESSEN AND CO., 73, Gr. Reichenstr., Hamburg, Germany.

100 ALPINE and HERBACEOUS PLANTS, 25*s.* Descriptive CATALOGUE, Illustrated, with Cultural Notes, 72 pages (containing much interesting information). Post-free, 9*d.*
STANSFIELD BROS., Southport.

To the Trade.

POTATOS FOR SEED.
30 Tons of BEAUTY OF HEBRON.
First-class stuff, and Grown on the best of Warp Soil.
Free on Rails at 80*s.* per ton.
B. CLEGG, Adlingfleet Grange, Goole.

VERTEGANS' NOVELTY CATALOGUE of "FLORAL GEMS," free by Post to all applicants.
VERTEGANS AND CO., Chad Valley Nurseries, Birmingham.

VERTEGANS' NOVELTY CATALOGUE of SEEDS for the GARDEN, free by Post on application to
VERTEGANS AND CO., Chad Valley Nurseries, Birmingham.

VERTEGANS' Illustrated CATALOGUE.—Those who have not received one of our Speciality Catalogues should lose no time in obtaining it. Free by Post.
VERTEGANS AND CO., Chad Valley Nurseries, Birmingham.

THE GARDENERS' ORPHAN FUND.

THE SECOND ELECTION.
FIVE CHILDREN
to be Elected to the benefits of this Fund,
consisting of an allowance of 5*s.* per week (subject to the conditions stated in Rule xiii.), will take place on

FRIDAY, July 19 next, at the
Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed Form, copies of which may be had Gratis of the Hon. Secretary, or any of the Local Secretaries. Such Form must be correctly filled up, duly signed, and returned to the Secretary not later than SATURDAY, April 20, 1889.

A. F. BARRON, Hon. Sec.
Royal Horticultural Society's Gardens, Chiswick, W.

POLYANTHUS.—HARDY'S finest selected gold laced show flowers, strong plants, 5*s.* per 100; 45*s.* per 1000.
POLYANTHUS PRIMROSE.—"HARDY'S New Novelty," about 8 colours mixed, magnificent trusses, strong plants, 5*s.* per 100; 45*s.* per 1000.
PRIMROSE.—"HARDY'S Novelty Hybrids," about 30 beautiful colours, from pure white to dark crimson and maroon, strong plants, 5*s.* per 100; 45*s.* per 1000.
VIOLA CONUTA, Queen of Blues, 5*s.* per 100; 45*s.* per 1000; White Virgin, 5*s.* per 100; 45*s.* per 1000.
HOLLYHOCKS, finest double, mixed, 2*s.* doz., 15*s.* per 100.
LILY, old English, pure white, fine bulbs, 2*s.* doz. 15*s.* per doz.
CARNATION, choice Double (Border), large plants, splendid mixed colours, 3*s.* per doz., 20*s.* per 100.
CLOVE, fine old crimson, 2*s.* 6*d.* per doz., 18*s.* per 100.
SINKINS PINK, Mrs. Sinkins, 15*s.* per 100.
PYRETHRUM, double and single, named, 3*s.* doz., 20*s.* per 100.
Packing free. Extra Plants for Carriage. Cash.
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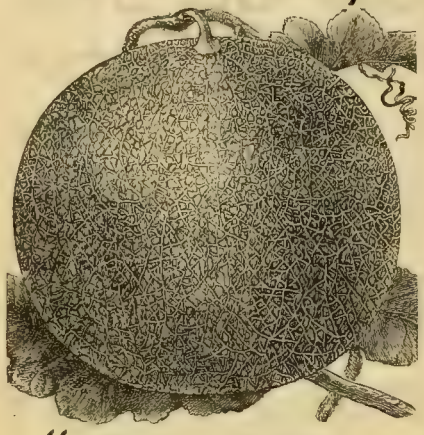
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THE
Gardeners' Chronicle.
SATURDAY, MARCH 16, 1889.

A HISTORY OF ENGLISH GARDENING.

(Continued from p. 264.)

THE preceding notes on the gardens of England at the time of the Norman invasion, it must be said, are few and scanty, but they give all that is at present known, or, indeed, is likely to be known, respecting the gardens of our Anglo-Saxon ancestors. After the Norman conquest we begin to tread on firmer ground, and find traces of horticultural knowledge among monastic writers. Brithnold, the first Abbot of Ely, A.D. 1107, we learn from his *Chronicle*, was celebrated for his skill in horticulture, and that he planted gardens and extensive orchards around his monastery.* William of Malmesbury, writing in the twelfth century, refers to the culture of the Vine in England, particularly in Gloucestershire. In a Bull of Pope Alexander III., dated 1175, confiscating the property belonging to the monastery of Winchenby, in Gloucestershire, the town of "Swireng, with all its orchards" is noticed, and in a charter of JOHN, granting property to Lanthony Priory, is likewise mentioned the church of Herdesley, "with its twelve acres of orchard adjoining." From Fitzstephen's *Chronicle* we get a glimpse at the gardens of London at the end of the twelfth century. "Adjoining to the buildings of that city," he writes, "all round lie the gardens of those citizens who dwell in the suburbs which are well furnished with trees, are spacious and beautiful." †

The earliest English author who has treated of horticulture, and that only incidentally, is Alexander Neckam. This old chronicler lived in the latter half of the twelfth century, and was first a master of a grammar school at St. Albans, and afterwards Abbot of Cirencester. His work, entitled *De rerum Natura*, was published many years ago, from the original MS., by Mr. Wright, for the *Chronicles and Memorials of Great Britain* series. His observations on

* Gale. *Hist. Ely*, ii. 2. † Ed. 1772, p. 80.

gardening matters, however, must be received with some caution. Thus his description of what a *nobilis hortus* should contain is evidently, in a great degree, purely rhetorical, since it enumerates, besides trees and plants indigenous to or those probably acclimatised in England, others which are even now, with all our improved methods of cultivation, extremely difficult to grow in this climate. He mentions, for instance, the Pomegranate and Citron, both of which it is very doubtful were ever cultivated in this country in Anglo-Norman times. It should be remembered, nevertheless, that both had been grown in Italy and the South of France from the time of the Romans, and that specimens may have been introduced as curiosities by some one or other of the travelled or alien churchmen of Neckam's time. We know from the memorials of the early abbots of St Alban's preserved by Matthew Paris, that they frequently visited Italy on the affairs of their house, and they may have imported from thence horticultural rarities for their gardens, just as they were accustomed to bring over precious materials for their churches.

Several other writers of the twelfth century incidentally notice horticultural matters, but it is not until the commencement of the next century that we have much material to work upon. In 1223 we read of Pear and other fruit trees being imported from France,* and Stowe mentions that he found it recorded that "Henry III., in the forty-sixth year of his reign, wrote to Errard of Westminster, commanding him that he should buy certain Perie (Pear) plants, and set them in the same, and in the place without his Tower of London, within the wall of the said city."† This monarch, in fact, appears to have been a great patron of horticulture, and many interesting entries relating to his gardens are to be found in the *Liberate Rolls*. In all, six royal gardens are mentioned. They were situated at Winchester, Kennington, Woodstock, Evereswell, Clarendon, and Guildford. The one at Woodstock seems to have been the most extensive. It was surrounded by a ditch, and divided into three areas; the King's garden, the Queen's, and the "vivary." The Queen's garden, we read, was surrounded by a "good and high wall," and contained a "fair turfed arbour," in which the "Queen may walk." It also had a "fountain" and many gravel "walks." The vivary was surrounded by a hedge, with a gateway on the side of the King's garden. Large quantities of spices and other articles of consumption were, during the early years of the thirteenth century, imported from abroad. Among these articles were Pepper, sugar, Cumin, Almonds, Ginger, Cetewale, Figs, Raisins, Anise, Dates, Chestnuts, Olives, Rice, Cloves, Mace, Saffron, Nuts, and Walnuts. Wheat and woad are also mentioned among the imports. Onions and Garlic‡ are spoken of as being brought to England by merchants of Amiens, Corby, and Nesle in Picardy. Apples, Pears, and Walnuts are noted as having been brought on pack horses or in carts to the London market; as also Garlic, Onions, and Leeks of home growth. Several choice kinds of fruit, as Grapes, Cherries, Peaches, Mulberries, Quinces, and Medlars, are also recorded as having been grown in England in the time of Henry III., but these were only to be found on the tables of the opulent.§

* 7 Hen. III., m. 9.

† Stowe's *Survey*, ed. 1598, p. 48. This writ is still preserved.

‡ These two vegetables formed the staple food of the lower classes. See *Relig. Antiq.*, i. 48.

§ *Liber Albus, Intro.*, p. 84.

"In 1257," writes Matthew Paris, describing the bad season of that year, "Apples were scarce and Pears still scarcer, while Quinces, Cherries, Plums, and all kinds of vegetables and shell fruits, were entirely destroyed." These latter were probably the common Hazel nuts, Walnuts, and perhaps Chestnuts. The latter appear to have been much esteemed by our Anglo-Norman ancestors and on the *Pipe Rolls* are several interesting entries which refer to them. In 1159 Henry II. ordered a quantity to be conveyed to his queen at Salisbury.* In 1256 the Sheriffs of London were ordered to buy some 2000 for the King's use.† These last were imported from France, but that the Chestnut was extensively grown in England in early times is proved by an entry given in Rogers' *Agricultural Prices*, which records that in 1287, some fifty shillings' worth were sold from the trees at Middleton, in Norfolk. In the same work is given a number of entries relating to the gardens of the thirteenth century. At Woodstock we read of "150 plants for the garden" being bought in the year 1265. At Ibstone, in Buckinghamshire, appears to have been a large garden. In 1293 some eighteen plants were bought to plant in it. In the following year thirty ditto were bought; in 1296, twenty-one; in 1297, sixty-six; and in 1298, thirty-six. At Hampstead, Kenet, Cambridge, Cheddington, Stoke and Cusham, are also preserved accounts referring to gardens that existed at those places in the thirteenth century.

By far the most interesting documents, however, which throw light on the early history of English horticulture are a series of bills which were delivered by the Fruiterer of Edward I. into the Treasury, and which are now preserved in the Record Office. Edward I., like his father, also appears to have been a great patron of horticulture, and not only did he introduce many fruit and other trees from abroad, but also laid out several gardens in England. An interesting entry refers to one of these in his *Wardrobe Accounts*, and runs as follows: — "To Master Robert de Beverley, Keeper of the King's woods, £97 17*s.* 7½*d.*, to make mews at Charing, and likewise to make the King's kitchen garden there." The earliest of the fruiterer's bills is dated 1276, the second 1286, and the third 1292. From the names applied to the various fruits in these accounts we gather that France had the honour to supply those which were held in most esteem. Among the purchases for the Royal Gardens at Westminster we find enumerated plants, or sets, of Pears called Kaylewell, or Calswell, Rewel, or De Regula, and Pesse-pucelle; these are rude versions of the names of French varieties formerly in great repute. Besides these varieties of Pear, several others are mentioned in these bills. Among them may be noted varieties called Martins, Dreyes, Sorells, Gold Knobs, and Cheysills. Two varieties of Apples are recorded as having been grown at Westminster; the Costard and Pearmain. Gooseberries, Peaches, Quinces, Medlars, and Nuts were also cultivated. No flowers are mentioned except Roses. Another set of bills—bills unique of their kind—are preserved among the papers of the Duchy of Lancaster. They form the accounts which were rendered by the bailiff of the Earl of Lincoln of profits arising from, and expenditure upon, the Earl's garden in Holborn, in 1296. We learn from these curious documents that Apples, Pears, large Nuts (? Walnuts), and Cherries were produced in sufficient quantities not only to supply the Earl's table, but also to yield a profit by their sale.* The vegetables cultivated in this garden were Peas, Beans, Onions, Garlic, Leeks, and



FIG. 59.— A NOBLEMAN'S GARDEN AND ORCHARD, THIRTEENTH CENTURY, FROM A MS. IN THE BODLEIAN LIBRARY.

* *Pipe Rolls*, i., 25.

† *Claus.*, 40, *Hen. III.*, m. 14.

* £9 2*s.* 3*d.* (about £135 present value) was received in the year from the sale of fruits alone.

some few others, which are not specially named. Hemp and Damsons were also grown there. The stock purchased for "replenishing" the garden comprised cuttings or sets of S. Regle, Martin, Caillou, and Pesse-pucelle Pears. Apple and Cherry trees were also bought. The only flowers mentioned are Roses, a quantity of which were sold, producing 3*s.* 2*d.* It appears there was a pond or vivary in the garden, as the bailiff expended 8*s.* in purchase of small fish, &c., to feed the pike that were in it. The accounts further show that the garden was enclosed by a *palina* or fosse; that it was managed by a head gardener, who had an annual fee of 52*s.* 2*d.*, together with a robe or livery; his assistants seem to have been numerous; they were engaged in dressing the Vines and manuring the ground; their collective wages for the year amounted to £5. The arrangement of the gardens and orchards round a thirteenth century nobleman's mansion may be well seen in fig. 59, which is taken from a manuscript of that period, preserved in the Bodleian Library at Oxford.

Very little is recorded of the monastery gardens of the thirteenth century. In the *Household Accounts* of Bishop Swinfield, 1289, however, a few fruits and vegetables are mentioned as having been grown in the Gloucestershire monastic gardens. These were Apples, Pears, Almonds, Figs, Onions, Garlic, Leeks, Peas, Beans, Cabbages,* and a few varieties of pot-herbs. Several monasteries in the western and northern counties even planted orchards in the southern ones, where the climate was more favourable for the cultivation of the fruits. Thus we read of Bishop Swinfield, whose monastery was situated in Gloucestershire, planting an orchard in West Kent.* *P. E. N.*

(*To be continued.*)

* See entry dated March 17, 1289.

SAXIFRAGES.

The section Kabschia of Engler may be said to contain the cream of the genus—as far, at any rate, as regards true alpines—including, as it does, such charming species as Burseriana, media, aretioides, squarrosa, marginata, and others, all of which are highly prized as decorative rock-plants. Taken as a whole, it is no doubt the prettiest group, but it is also the most difficult to manage, and success to a large extent is only to be gained by experience and a study of their several requirements. An indication of the exact locality, and the conditions under which they flourish in their native habitats, together with a knowledge of the means employed in other gardens where they have been grown well, are certainly useful; but they do not ensure success, even where the exact position, soil, &c., have been carefully copied. Local influences have a great deal to do with the good or bad behaviour of alpines generally; and this, as we consider it, the most important agent, is in nine cases out of ten entirely overlooked, and the fault laid to want of proper attention, &c. Of course, in gardens where a collection of alpines is grown, the cultivator is not long in lighting on the position most suitable to a newcomer; but this act is the result of long experience, however simple it may in itself appear to the outsider.

Following the order in Dr. Engler's *Monographie der Gattung Saxifraga* [see *Gardeners' Chronicle*, 1866, p. 1196], *S. media*, is the first of this section. This plant has long been in cultivation, and is known in many gardens under the name calyciflora. It is a dwarf species, rarely more than 1—2 inches, the neat stiff-looking rosettes composed of spatulate leaves, usually blunt, but in some forms pointed, and with 3—5 pits on each side of the cartilaginous margins; flowers purple, medium-sized, borne in a paniculate or racemose inflorescence, the whole glandular-hairy. Pyrenees, flowering June—July. It is a very slow grower, rarely ripening seed, and in consequence at present extremely rare. *S. Frederici-augusti*, Biasoe (not of gardens) is placed as a variety; it has also purplish flowers on a spicate inflorescence. It is not in cultivation. The plant being distributed under this name is luteo-purpurea, Lap.

S. aretoides, is of quite a different stamp to the above, and next to Burseriana is the most common in gardens. It forms small dense cushions of linear obtuse leaves, the short glandular hirsute stems bearing 2—5 yellow flowers. W. and C. Pyrenees; flowering now. S. a. præcox, an early form of the above sent out by Paul & Son, Cheshunt, is a fortnight earlier, but otherwise similar. S. a. primulina has larger flowers of a pleasing primrose-yellow.

S. scardica, resembles media more than the above, forming distinct rosettes of short oblong acute leaves, white with calcareous secretions. The margins with from 9—15 pits. The short

* See his *Household Accounts*, Dors. ii.



Fig. 60.—Saxifraga cuscutiformis.



Fig. 61.—Saxifraga media.

sturdy stems carry a corymbose head of from 3—11 rosy-white flowers ¾ inch in diameter. Mount Olympus; Schar Dagh, &c.; June and July.

S. Rocheliana, together with the variety coriophylla, are very common plants in the garden, very free flowering, and useful on exposed rockeries. The type form large patches of neat rosettes; the leaves spatulate obtuse, glabrous, the margins 7—9 pitted; flower-stems numerous, bearing 3—9 large pure white flowers. The variety differs chiefly in its smaller oblong obtuse leaves.

S. marginata. This pretty species was reintroduced a few years ago by Mr. Maw, of Crocus fame, and the following year figured in the *Botanical Magazine*, t. 6702, from specimens collected on Mount Taygetus. We have also seen plants from Abruzzi, in Italy, and the mountains above Amalfi, at 3500 feet elevation. It forms a dense cushion of neat rosette; the leaves obovate-cuneate, and obtuse, usually ciliated at the base; flowers white, 5—7 in a loose corymbose inflorescence. June.

S. diapensoides is still a rare plant, though easily managed, and useful for sheltered nooks on the rockery. It forms a dense cushion of linear oblong obtuse leaves, the base ciliated, and the whole surface more or less crusted with lime; flower-stem corymbose, bearing 2—3 largish white flowers. Dauphiny, &c.; June—July.

S. squarrosa, habit somewhat like the above; leaves denser, linear lanceolate, obtuse; flowers white, 2—3 on a stem. Tyrol, &c.; July—August.

S. cæsia is a very old species, and has been in cultivation for very many years. Of the very dwarf compact lot this is doubtless the best; the flowers are medium-sized, and are produced in great abundance; leaves linear, oblong acute, in neat rosettes; the corymbose inflorescence bearing 2—6 largish white flowers. Pyrenees, &c.; June and July.

S. valdensis. There seem to be several forms of this species in cultivation, one of them passing current as S. cæsia major. It is a fine plant for the rockery, soon covering large areas, and propagated by division with great facility; leaves narrow, spathulate, obtuse, almost white with calcareous crust; inflorescence corymbose, bearing 6—10 pretty white flowers. Mont Cenis; July.

S. Tombeanensis has somewhat the habit of S. diapensioides, with larger flowers and more robust habit. The erect stems rarely exceed 3—4 inches in height, bearing 1—3 large pure white flowers; leaves ovate lanceolate. S. Tyrol, &c.; April—May.

S. Burseriana is too well known to need detailing at any length. It is perhaps the most useful of the whole group. It is amongst the earliest to flower, its large white flowers being always a welcome sight in early spring. (See fig. 63, p. 333.)

Others of this section in cultivation are the well known S. sancta, yellow; S. juniperifolia, yellowish; S. pseudo-sancta, citron-yellow; and S. imbricata, Royle, whitish with violet anthers.

The Porphyrion Group.

This group includes all those nearly related to S. oppositifolia, such as S. biflora, retusa, &c., all of which are of the greatest possible interest for the adornment of the rock garden in early spring. The cultivation of the oppositifolia set is not so easy as it appears to be, and many experiments will have to be made before all that the plants are capable of doing will be brought out. We have tried them in all kinds of places, and the strongest and best flowering piece we have is on a small rockery with a western exposure. The great secret is a cool bottom, minus the usual accompaniment of stagnant moisture, and, in consequence, our plants are always placed several feet above the walk level, and as near large stones if possible.

S. oppositifolia has been largely imported of late years, and many fine varieties selected; these have been given such varietal names as maxima, splendens, pyrenaica (fig. 64), alba, &c., all of exceptional merit for spring decoration.

S. Rudolphiana is placed as a variety by Dr. Engler, and may be readily recognised by its shorter stems, more dense habit, nearly orbicular 3—5 nerved petals, the whole plant glandular ciliated. High Alps, Tyrol, &c., flowering April. Two other forms are named by Dr. Engler—alternifolia and grandiflora; but we have not seen them in gardens.

S. biflora is very rare, and we only seen a few specimens alive. It differs chiefly in its narrow lanceolate 3-nerved petals, and more numerous deep violet-purple flowers. It grows in the granitic regions of the Alps, flowering in June and July.

S. retusa, of which specimens were on the exhibition table on Tuesday, is a beauty of another stamp, and equally useful in its way, with long, lanceolate-triangular leaves, 3—5 pitted on the upper surface; the flowers, are numerous, rich purple. Pyrenees, &c.; June and July. The only hybrids in this group are Kochii and Huteri both between oppositifolia and biflora.

The Hirculus Group.

The species in cultivation belonging to this group are essentially aquatic in their requirements, and although they may do well in shady spots, they are always seen at their best in a bog or other marshy situation. S. Hirculus itself is well known, but is quite surpassed by the variety grandiflora introduced from Kew a few years ago. The flowers are much larger than the type, and of a rich yellow. In addition to this, S. diversifolia may be noted. It is a Himalayan species, the flowers rich yellow, over an inch in diameter, and very easily managed. It flowers in August and September. To the above may be added S. aizoides, though belonging to another group; it requires the aquatic treatment and forms a lovely patch from June to August. S. peltata is a very fine species, but requires so much room for development, as to be unsuitable for small gardens.

The Aspera Group.

Trachyphyllum of Engler's monograph contains, besides Aizoides, only five species cultivated in gardens—S. flagellaris, aspera, tricuspidata, tenella, and bronchialis, none of the latter four being worth troubling about unless for complete collections. S. flagellaris, a curious and very pretty little species, does not seem to be more than a biennial, reproducing itself by small Strawberry-like runners, which root and form independent plants for the next year's flowering. It is widely distributed over Europe, Himalayas, &c. Flowers yellow.

Euaizoonia.

This group, next to Dactyloides, is the best represented in gardens, and perhaps, as a whole, the most generally useful. It includes S. longifolia, lingulata, crustata, Hostii and its variety Macnabiana, altissima, aizoon, of which there are numerous good forms; cotyledon (pyramidalis, &c.), and mutata. These form a section of dwarf alpines that can ill be dispensed with, however small the collection may be, and particularly in the case of pyramidalis, which may be grown in a cold frame [and also on the rockery]. Its great beauty is unrivalled by any in the genus.

The Dactyloides, Robertsonia, Diptera, sections are well represented in good collections; the former includes most of the mossy species, of which S. Camposii (Wallacei), cæspitosa, and hypnoides may be taken as types, and which are very useful for rockeries and borders, the two first being specially adapted for edgings. The second group includes London Pride (S. umbrosa), S. geum, and S. cuneifolia, all of which are well known. Diptera includes sarmentosa, Fortunei, cuscutiformis (fig. 60), and cortusæfolia, charming plants, but requiring slight protection. Other groups represented in cultivation are Cymbalaria, tridactylites, nephrophyllum (S. granulata, irrigua, &c.), Micropetalum (S. rotundifolia and its varieties), Boraphila (S. stellaris, Clusii, virginiensis, integrifolia, &c.), the latter group especially being largely represented, and many of the species of rare merit. *D. D.*

New or Noteworthy Plants.

Iris (Sect. Oncocyclus) atropurpurea, *n. sp.**

This new species of Oncocylus has been imported from Syria in some quantity by Messrs. Damman & Co, of Naples. In leaf, habit, and inflorescence it closely resembles I. Sari var. lurida, *Bot. Mag.*, t. 6960, but the segments of both rows are a uniform unspotted purplish-black, the outer more decidedly smaller than the inner, and furnished with a thick, diffused beard down the broad claw of yellow hairs, minutely tipped with purplish-black.

From the living plants forwarded by Messrs. Damman, roots have been obtained for growth at Kew, a specimen for the Herbarium, and a coloured drawing for the Collection of Drawings.

Rootstock moderately stout, oblique, furnished with long, fleshy, cylindrical fibres. Leaves linear, glaucescent, falcate, ½ foot long at the flowering time. Stem one-headed, erect, 4—5 inches long. Spathe one-flowered; outer valves green, erect, lanceolate, 3 inches long. Perianth-tube green, cylindrical, longer than the ovary; falls oblong-cuneate, 2 inches long, 1½ inch broad, with a short unspotted, purplish-black limb, and a dense diffused beard down the broad claw of yellow hairs, tipped with purplish-black; standards orbicular-unguiculate, erect, 3 inches long, 2 inches broad, also unspotted, purplish-black. Style-branches an inch long; crests small, ovate. *J. G. Baker.*

Orchid Notes and Gleanings.

Pleurothallis roezlii.

A specimen of this handsome and rare species is now in flower in Messrs. Seeger & Tropp's nursery, Lordship Lane, East Dulwich. It has an arching spike of drooping rich claret-red flowers, each flower over an inch in length, and an oblong form—a singular and striking plant. There are many among the Pleurothalli quite decorative enough for ordinary culture, and all are beautiful when seen in a mass. Many of them are not inferior in beauty to some of the Masdevallias which have been so eagerly taken into collections, and their turn will doubtless come in time.

Cattleya Lindleyana.

Very few examples of this distinct species have ever been in cultivation and consequently it is not well known. From a horticultural point of view, however, it is one of the Cattleyas that could best be spared, as its flowers, although pretty, are neither so large nor so showy as most others in the genus. It is figured at t. 5549 in the *Botanical Magazine*, and a healthy plant is now flowering at Kew. The flowers are 4 inches across, with narrow sepals and petals, usually of a pinkish-white, but in the Kew plant they are irregularly spotted with bright rosy-purple. The lip is broad and spreading, the base enclosing the column; it is blush-white, marked with rose-coloured radiating veins. The scapes bear one or two flowers. In the *Botanical Magazine* it is stated that the plant was received from Bahia, but, as is pointed out in *Veitch's Manual*, it was probably only shipped from there, and most likely grows in the more central parts of Brazil *W. B.*

Phalænopsis at Hutton Park, Brentwood.

These thrive admirably in the Cattleya house of G. H. Baxter, Esq., which is a light span-roofed structure, about 50 feet in length, and which runs north and south. The plants are grown in baskets

* *Iris (Oncocyclus) atropurpurea*, n. sp.—Rhizomate obliquo, foliis linearibus falcatis glaucescentibus; caule monocephalo semipedali; spathæ valvis magnis lanceolatis; perianthii tubo cylindriato viridulo ovario longiori, limbo atropurpureo immaculato; segmentis exterioribus minoribus oblongo-cuneatis barba diffusa lutea nigro-capitata præditis, interioribus concoloribus orbiculari-unguiculatis; styli ramis appendicibus parvis ovatis. *J. G. B.*

suspended near the roof; and the presence of a large rain-water tank in the house explains much of the success attending the culture of these plants. One fine example of Phalænopsis Schilleriana bears 126 expanded flowers of large size.

Many others, viz., P. amabilis, P. Sanderiana, and P. Schilleriana, are almost as good as the above. A handsome marbled variety of the last-named, from the Philbrick collection, was superb. There is also a fine display of Cattleyas and other Orchids; and most things seem to thrive in a marvellous degree. It is needless to say that the Cattleya-house containing the Phalænopsis is carefully shaded.

Broughtonia lilacina.

This pretty and interesting Orchid is now in flower at Kew. It is the Læliopsis domingensis of Lindley, of which a figure is given in Paxton's *Flower Garden*, t. 105, and its affinity with Broughtonia, Cattleya, Lælia, and Epidendrum, is discussed:—"A Cattleya in all respects, except that the flowers are membranous, and the veins of the lip bearded." It has only four pollen masses, otherwise it might have been included in Lælia. Henfrey described it in the *Gardeners' Magazine* under the name preferred now at Kew, the slight difference between it and the other three or four Broughtonias being insufficient to constitute a genus. The late Mr. Day grew and flowered it at Tottenham a few years ago, his plant having larger pseudobulbs than those on the Kew plant, which are much larger than those represented in Paxton's figure here referred to. These pseudobulbs on the Kew specimen are ovate, 2 inches long, irregularly ridged, with two apical oblong leathery leaves, 8 inches long, and 1½ inch wide. The scape springs from the top of the ripened pseudobulb, and is a foot long, erect, slender, with small brown sheaths 2 inches apart, and nine flowers, which are clustered on the topmost 2 inches. The pedicels are 1 inch long, slightly curved, the sepals narrow, pointed, 1 inch long, the petals twice as broad; the lip is folded 1 inch across in front, two-lobed, wavy, and slightly denticulate, the margins recurved. Colour rosy-lilac, with darker lines running from the front to the base of the lip, white inside. The plant has been in bloom a fortnight, and the flowers are still fresh. It is cultivated on a Teak block in a moist stove.

According to Paxton, this species was first found on trees in St. Domingo, and again on Logwood trees in woods near Miragoane. The Kew specimen was obtained from the Jamaica Botanic Gardens. *W. Watson.*

Miltonia cuneata.

Like the other species of Miltonia, the flowers of this are very handsome, and the foliage has not that yellow tinge which many regard as a disadvantage in the spectabilis group. It is also one of the most easily grown. During the growing season it delights in abundant moisture at the root and in the atmosphere. It should be potted in a compost of peat-fibre, sphagnum, and soft broken brick, and occupy a position in the intermediate-house. The erect spikes of six to ten flowers begin to push from the base of the pseudobulbs about the new year, and are in full beauty about the end of February. The flowers are 3 to 4 inches across, with the spreading yellow sepals and petals nearly covered with blotches of reddish-brown, against which the rosy-tinted white of the wedge-shaped lip forms a most effective contrast. The vigorous habit of the plant, and its green foliage, render healthy specimens presentable at all times. It was introduced from Brazil in 1843.

Sarcochilus cuneoides.

Two very pretty species of Sarcochili—S. Fitzgeraldii and S. Hartmannii—although far from common under cultivation, are occasionally met with in select collections. Of quite a different habit is the species under notice, of which a number of plants were imported in 1887, and which last year flowered in several places, amongst others at Kew, where it is again in bloom. It proves to be a pretty and free flowering little Orchid, and as far as may be judged at present—an easily grown one. The flowers, which are borne thickly on spikes 4 or 5 inches long, measure half an inch in diameter, and are yellow, spotted with brown, all the parts being broad and rounded. It is not, as has been suggested, a leafless Orchid, for it produces lance-shaped purplish leaves in the spring, which, however, die away in a few weeks. A feature of the plant is the abundance of roots it forms. In a wild state it clings by these to the smaller branches of trees, but under cultivation it succeeds best in a basket of sphagnum, and requires an intermediate temperature.

Mrs. Arbuthnot's Orchids.

A fine display of Orchids in flower is now to be seen at Mrs. Arbuthnot's garden, Bexley, amongst which were noticed a plant of Dendrobium Devonianum, with sepals and petals very highly coloured; another of D. crassinode, with ninety-seven flowers; one of D. Wardianum, with 113 flowers, and another with monster flowers A plant of D. barbatulum was furnished with three racemes having 104 of its lovely flowers. It grew in a 4-inch basket. Lælia harpophylla, with numerous bright, orange-vermilion flowers, was most effective. Odontoglossum crispum and Cattleya Trianæ were in great variety, and well flowered. Mr. Mitchell, the gardener, manages the orchids in a skilful manner. *J. Carvill.*

THE EDUCATION OF THE GARDENER.

We are so accustomed to hear of the shortcomings of our gardeners, and to find in gardening literature unfavourable comparisons made between them and their Continental *confrères*, that it was quite refreshing to read Dr. J. E. Weiss' jeremiad in a recent issue of the *Illustrierte Monatshefte fur die Gesammt Interessen des Garten Baues* concerning the general want of knowledge exhibited by the craft in the German Empire, and the steps which should be taken to correct this state of things, together with a curriculum of suitable studies. It is supposed by many persons in this country that the German gardener of the present day is greatly in advance of the Englishmen in scientific acquirements, but it would now appear that this impression is an erroneous one, and that, taken generally, he is not much better, if not worse, than our own countryman. In practice, that is as a mere workman, whether we judge him by the quality of his work or the quantity which he is capable of supplying from his thews and sinews, he is decidedly behind the latter; and now Dr. Weiss caps his charge by declaring him to be scantily equipped with scientific knowledge. We must now take heart of grace and try to keep our position, for there is little room for doubt that when the *Deutscher* has had his shortcomings so pointedly brought home to him as is done by Dr. Weiss, he will endeavour by all the means in his power to head his rivals—the French, English, Dutch, and Belgian gardeners.

In the article mentioned there are various reasons given why German gardening stands at the present day at a low level, and foremost amongst these are want of internal communications, scarcity of money to cultivate the land as it demands in successful gardening, good soil for the same purpose, and lastly, suitable persons to carry on such business—most of the persons following it being educated in a practical manner, but not scientifically. The course of study recommended by Dr. Weiss is, with certain differences due to school arrangements peculiar to the country, very similar to that which has been from time to time advocated in the columns of the *Gardeners' Chronicle*. The entrance to the proposed horticultural schools, would take place at the age of fourteen to sixteen years, that is, after the boys had completed three to five classes in the *Latinschule*. Before that age few boys would be capable of undergoing the scientific discipline of the school. A certain acquaintance with Latin is demanded; the principles of chemistry, of physics, a knowledge of soils, zoology so far as to diagnose the various and numerous enemies of cultivated plants. Besides these subjects the student should acquire a knowledge of accounts, and learn how account-books are kept. He must know how to lay out grounds, large or small, in a tasteful manner, and draw plans for the same; a knowledge of two foreign languages is desirable (in the case of German lads, French, and English). It will be seen from the above that the course of study must be extended to at least three years, and after that time the student has still to be taught the practical part of a gardeners' business.

For nurserymen and others likely to fill the front ranks of horticulture in our country such protracted studies may be necessary, if they are not really indispensable; but for the ordinary gardener who, at the best, may get a £100 a year as wages, and often has to be content with half that sum, the game is not worth the candle. Nor will many parents spend so much money on their sons' training as the whole course will cost (without reckoning the previous schooling), when the chances of getting even a bare livelihood are so meagre as at present. Much better prospects await the boy in other occupations, and with far less special training and its inevitable expense. *One Who Knows.*

American Notes.

ROSE GROWING AND FORCING.

The American States, in which are found the most advancement in horticulture, are undoubtedly New York and New Jersey, the former, perhaps, taking precedence. New York city is assuredly the largest market for cut flowers, of which the Rose heads the list, it being found there from year's end to year's end, fabulous prices being paid for the blooms during the Christmas season.

It is somewhat curious to note that there is no "Covent Garden" in America (a fact much lamented by the producer), the whole of the stock being placed in the hands of a few commission salesmen, who, at such times as Christmas continue to keep up high prices whenever an opportunity presents itself, which oftimes places the middleman in an awkward position, as the retail customers also combine too, and leave him with a quantity of the perishable article unsold. The main objects of the grower, and that which he strives to attain, are economy in production, size, and colour of blooms, and good prices.

The Henderson Company (late John Henderson) of Long Island, New York State, is one of the largest growers of the Rose for cut blooms, and it was through the courtesy of the manager that we were permitted to view this part of their nursery.

Flushing is a small country town, about 12 miles north of New York city, and it is here that the thirty-seven houses, ranging from 100 to 300 feet in length, are situated, the whole being devoted to the growing of Roses. These are built in the American style, and heated with hot-water, with benches or stages for the plants, of various heights, all being so arranged that they stand at about an equal distance from the glass, and are ensured the utmost amount of light. The following is a list of the few varieties of Teas and Perpetuals which have been tried and proven as to their amenability, to forcing, and in regard to their value when sold. Perpetuals are a specialty in this nursery, and are grown as well as possible:—

Teas.—Perle des Jardins, Niphetos, Cornelia Cook, Catherine Mermet, Souvenir d'un Ami, La France, W. F. Bennett, Papa Gontier, Madame de Watteville, Lady Mary.

Perpetuals.—Jacques, Général Jacqueminot, Paul Néron, Baroness Rothschild (or Gloire de Paris), Anna de Diesbach, Mabel Morrison, Magna Charta, Ulrich Brunner, Madame Luizet, Mrs. Sikes Laing.

American Beauty and Maréchal Niel are not much grown, and on enquiring the reason, we were told that while they were able to force such Roses as

Ulrich Brunner and Magna Charta, the Beauty had no value, although the majority of growers give it preference owing to the high prices which it realises.

Maréchal Niel is rarely seen in the market, and is but little grown, owing to the shy flowering habit which characterises it here.

Papa Gontier is a Rose of French origin, and was introduced by the Company, and one of the fashionable Tea Roses. It is a charming flower, with long pointed buds of glowing carmine-crimson colour, and which are of good substance. It has the reputation of keeping longer when cut than any other Rose.

Although this is one of the largest Rose-growing establishments, there are not more than twenty men employed to do the work, which must necessarily be very heavy. To give some idea of the magnitude of the business, we may state that two men are solely employed in cutting the blooms, which, when cut, are placed at once in cool cellars, where they remain till the next morning before being sent to market.

In answer to my queries, the following answers were given:—Do you find by experience that planting out in shallow benches is superior to growing in pots?—Yes, for the reason that it is a saving of labour, and is more economical, and the plants have a better chance of forming roots. How many plants does a house, say, 200 feet long contain?—About 2500. What is the average produce of one plant, taking Teas and Perpetuals?—From fifteen to twenty. And the average price obtained for them?—From 50 to 75 cents apiece. Then, undoubtedly, Rose forcing pays?—Well, yes, in the end it does—considerably; but there are many obstacles to contend with, and heavy expenses to meet. Do you advocate steam or hot-water heating?—Decidedly steam—for which our houses were originally intended, but owing to some defect in the apparatus we abandoned it in favour of the hot-water system. It ensures a great saving of fuel, and the temperature can be more easily regulated.

We noticed a new white Rose of robust habit, but the flowers nowhere approached in quality a Niphetos or a Bride. This Rose originated here, and is a sport from Souvenir d'un Ami, and was named Flushing; but it was never sent out. A climbing sport from Perle des Jardins will prove an acquisition if it flower as freely as does its parent.

As a few remarks concerning the treatment of forced Roses may afford an insight into new methods, I will endeavour to give in these a brief outline. It must be understood, in the first instance, that when the plants are grown on what is termed the "bench" system, they are thrown away every year, and the beds planted with others, but I was told that a bed of Perle des Jardins—Perles, as they are called—had been left for five years; but it is rare to leave the plants so long, it having been proved that young plants give most returns as regards the number of the flowers and better colours.

The Tea-scented Roses are either grown from cuttings or are worked on the Manetti, but the former is preferred. The perpetuals are invariably from England, and I may state without hesitation that there is a splendid market here for the grower of really good stuff, which is not always the case with importations, some of which were indifferent.

For those grown from cuttings the wood is selected during the month of January from the plants which have served their turn, and are soon to be thrown away. To be perfection it must not snap when bent. The shoots are cut into 3-inch lengths, and between two buds in a slanting direction, one leaf being left; and if in any case this is lost the cutting will scarcely ever make a good plant, and will most likely die. These are placed in the propagating-house in pure sand, which is kept at a temperature of 60°. In three weeks they are rooted, when they are potted, repotting being carried out until June, when they are placed on the raised benches which have been prepared to the depth of 5 inches only with good loam and rotted manure (in some cases bone-dust is added), in lines 1 foot apart, the distance between the plants being immaterial—6 inches in some cases: planting diagonally is not advocated here, as the facilities of cleaning, &c., are not so good; they are then kept constantly growing in a temperature of 55°.

Watering is done sparingly at first, as the moisture from syringing is sufficient, and liquid manure is afforded when the beds are full of roots, not sooner.

The greatest plagues to the Rose forcer are mildew and aphis; the former is kept down by means of sulphur, as in England; the latter by the use of tobacco stems or cigar manufacturers' refuse, which can be bought at the nominal price of 1 cent per pound; these are either tied in small bundles and laid on the benches or strewn in the paths, being renewed from time to time as the good qualities evaporate. We have never seen this form of Tobacco used in England, but it may be recommended as decidedly more economical than fumigation, and as effective.

John Reid, of Jersey, City Heights, U.S., is another large Rose grower, possessing a well-kept establishment, comprising many thousand feet of glass. All the choice forcing Roses are grown, including American Beauty, La France, and the pretty Madame Cusin, which is one of those pushing to the fore.

Besides Roses Mr. Reid forces bulbs and Lily of the Valley, to which some twenty houses are devoted. Narcissus and Tulips are his specialties. Smilax Asparagus is grown largely for the New York market, and several houses were allotted to the above. It is grown in beds and trailed to the roof on strings. In one house there were noted some 2000 plants. It realises from 15 to 20 cents a string. Several houses are allotted for Carnations, the following varieties being grown:—Hintze's White, Grace Wilder, Philadelphia, &c. *From our New York Correspondent.*



Fig. 62.—Saxifraga Maweana.

THE PORTULACA.

Portulacas, when well grown upon sunny borders, are, probably, not inferior in pleasing effect to any other plants. Though easily grown, the plants are rarely seen at their best, and for no valid reason they have been pushed aside to make way for other less beautiful plants.

Reverting to the culture of these plants, and the malpractices followed in regard to them, it may be supposed that the wrong treatment adopted is due to a belief in their hardihood. For example, seeds will lie in the ground during our winters, and germinate in the spring, occasionally growing into plants and blooming in the following summer; and because it is possible to sow them in sunny aspects, with the result that in fine seasons a meagre display is obtained. But Portulacas are not to be relied on under this kind of treatment, and it is unnecessary to follow the subject.

Another mistaken practice is to sow the seeds in pans or boxes, the seedlings to be transplanted straight from thence into the open borders, although in a favourable season, and with good treatment, a good display sometimes result.

To achieve success in their culture, however, the minute seeds should be sown in fine sandy soil in March, putting the seeds into a moderately warm pit or frame. When large enough to be handled prick out the seedlings into well crocked shallow pans or boxes of sandy soil, and place them in a sunny frame or the greenhouse. When the young plants begin to grow and to crowd each other they should be potted in thumb-sized pots, keeping them still in the sunny frame until about the first week in June, when they may be planted out. Probably Portulacas have most beauty when planted in rows, a few inches apart, so as to give a wide band of colour. A dry soil suits them; and when they are to be planted in clumps in mixed borders, small hillocks of sandy soil should be prepared for their reception, taking care that these are trodden firm before planting, besides making the soil firm about the roots. It is advisable to give the plants no water, the moisture in the soil sufficing for their needs. By this means an early and continued summer show may be assured. Portulacas are suitable for the margins of vases for window boxes and rockeries, &c., although they are rarely utilized in that way. One fact remains to be added in favour of these plants, and that is, they generally come true to colour from seeds, however much the quality of blooms may vary. *W. Earley, Ilford.*

Colonial Notes.

BOTANIC GARDENS, MARITZBURG, NATAL.

Mr. Adlam, a valued correspondent, has been appointed as Curator of the above Institution, and from his intelligence and energy is likely to render good service to horticulture and botany.

The Maritzburg Botanic Gardens were first enclosed and planted in 1874, and are 100 acres in extent, situate in the Zwartkop Valley, 2 miles from town. The site is very diversified, consisting of a gently sloping piece of ground in extent about 30 acres, which is watered by two perennial mountain streams, the remainder consisting of a steep hillside rising to a height of some 300 feet above the rest of the garden, the sides of which are being planted with Pinus insignis, Acacias, &c. The local temperature is frequently over 80° in the shade during summer, and sinks to 3° and 4° of frost in the winter—severe enough to cut back Brugmansia suaveolens.

The lower part of the garden is about 2300 feet above the sea, and is planted with a selection of trees and shrubs which, considering their age—none over seventeen years—it would be difficult to match elsewhere for vigour and size. Taking the girth of a few of the largest at 5 feet from the ground we find Casuarina tenuissima to be 5 feet 3 inches; Acacia dealbata, 7 feet; A. melanoxylon, 4 feet; Cupressus macrocarpa, 5 feet; Pinus canariensis, 4 feet; P. pinaster, 4 feet; P. insignis, 5 feet 6 inches; Grevillea robusta, 3 feet 9 inches; Cupressus Lawsoniana, 3 feet; Eucalyptus globulus, 5 feet 6 inches; all in fine health. There is a fair collection of flowering shrubs. Azalea indica vars., and double Camellia 8 feet high and half as much through. Large bushes of Lagerströmia indica vars., Gardenia florida, Oleanders, Brugmansias, Hydrangeas, Magnolias, and a large number of Tea and other Roses, mostly antiquated varieties.

Of glass-houses there is scarcely a vestige. The garden of the capital of Natal contains but one iron conservatory, 18 feet by 9 feet, in a wretched state of repair, and not a glass frame of any kind! The collections of Ferns, Heaths, Begonias, Fuchsias, Orchids, Caladiums, Carnations, Palms, Cannas, Rhododendrons, Cacti, Dracænas, Crotons, and Coleus do not exist, and the Curator ventures to ask his friends' help to collect the above-named plants which he stands so much in need of.

There is very much to be done, and the institution in some sort is like St. Edmund's Abbey when Abbot Sampson was installed (*vide* Carlyle). It may be added that the Government grant is only £350, and the public subscription list for last year only £28. Few plants are sold, but a considerable number of young trees are granted free to the railway and other Government institutions.

Oodeypore.

The annual report of the garden of H.H. the Maharana for 1888 has been issued. It is a record of steady progress, and affords evidence that the garden is appreciated by the inhabitants. The Date Palm has been introduced, and seems likely to thrive, while there is a good demand for grafted Mangos, Oranges, and Loquats. The Victoria regia grows to an immense size, and flowers freely. Of course no sooner do horticulturists feel their feet than they begin to think of a flower-show, and so we learn that the first show of the kind was held, with an encouraging amount of success, on February 23 and 24 last. Mr. Storey, the superintendent, may be congratulated on the success of his efforts.



Fig. 63.—Saxifraga burseriana var. major. (see p. 330.)

DOUBLE FLOWERS CAUSED BY MITES.

A large number of experiments has been carried out at Innsbruck by Professor Peyritsch, tending to show that double flowers may be artificially produced by the agency of a mite (Phytoptus). It seems that the Professor was examining a wild double flower of Valeriana tripteris, and discovered that it was infested with the mites in question. He transferred these mites to other plants, chiefly of the orders Valerianaceæ and Cruciferæ, and a few Scrophularineæ, Commelynaceæ, and even others, but the best results were obtained in the first-named. Various kinds of doubling were produced, such as petalody of the stamens and pistil, prolification and duplication of the corolla, &c., as well as torsions and fasciations of the shoot. The leaves were also affected, the margin showing teeth like those of a comb. By infecting the plant at different times either the leaves or the flowers may be influenced, and it appears that the parasite must attack the organ in its earliest stages. Professor Peyritsch thinks that there are certain mites which produce double flowers in certain plants, as the mites in which he was particularly interested were always most abundant in certain species and less so in others. The experiments are recorded in the *Transactions of the Imperial Academy of Vienna*, vol. xcvii., I., p. 597. The plants of Valerianaceæ experimented upon include Valeriana (twelve sp.), Valerianella (three sp.), Fedia, Centranthus (three sp.), Patrinea. Abnormal leaves were induced in ten species of Valeriana, all of the Valerianellas, two of Centranthus, and in Fedia. Double flowers were produced in Valeriana in six cases, three times in Centranthus, and once each in Fedia and Valerianella. Among the Crucifers Professor Peyritsch worked on Biscutella, Brassica nigra, Capsella bursa pastoris, Cochlearia officinalis Eruca, Lepidium, Malcolmia (two sp.), and Sisymbrium Sophia. Various were the results; in many of the cases (Cochlearia, Eruca, Lepidium, Sisymbrium, Brassica, Capsella) bracts were formed, resembling the leaves, but of smaller size; proliferous flowers were formed in Brassica and Biscutella; petalody of stamens occurred in Cochlearia and Eruca. In Linaria cymbalaria peloriate flowers and other changes were found.

Professor Peyritsch says that the results are effective or not according as the plant is a good host-plant for the mite—a good host-plant being quite crippled.

Among the Valerians, those plants with their leaves were more easily affected than others with more substance.

The Phytoptus infesting the buds of the Hazel, Corylus, and which causes malformations in it, was transferred to plants of Brassica, Sisymbrium, Capsella, and Myagrum. Bracts were, in consequence, developed in Sisymbrium, Capsella, and Myagrum, in which as in most Crucifers, the bracts are generally wanting; and in the last-named double flowers.

Bellis perennis gave the same results when infected by the mites from Valeriana, Campanula, or Corylus—viz., the production of very hairy leaves but not toothed, the disc florets green, and the involucral bracts elongated.

It was observed that after infection growth in length was slow, but lateral bud development was accelerated unless other abnormalities appeared. *Udo Dammer, Berlin.*

Plant Notes.

COBURGIA INCARNATA VAR. TRICHROMA.

The Coburgias are not common in gardens, and even where cultivated they do not often flower. At Kew several species have flowered recently, the above-named being now nicely in flower in the Cape plant-house. The bulbs and foliage resemble those of the smaller Hippeastrum, and the scape, which is developed along with the new leaves after the winter rest is 18 inches long, hollow, two-edged, and about 1 inch through. It bears an umbel of six flowers which when in bud are enclosed in dark green spathe-valves. Each flower is 3 inches long, the tube curved, widening gradually from a narrow base, and then dividing into six oblong pointed segments which open out flat and form a limb 1½ inch across. The colour of the whole flower is bright salmon-red with a broad green stripe on the back of each segment and two green stripes on the front. The flowers remain fresh for a long time. This is one of the best of the Coburgias, though all of them are worth growing. It was introduced from Lima in 1838, and was described by Dean Herbert who wrote, "The true

Coburgias are shy flowerers with us, and also in their native country, having a great disposition to waste their strength in producing offsets. They like strong alluvial and manured soil, and are often found wild on inaccessible rocks, on the edge of a precipice, and sometimes deeply inbedded in the drift soil." The species cultivated at Kew are C. fulva, C. incarnata, and its varieties trichroma and peruviana; C. lineata and C. luteo-viride, with several unnamed kinds. They are treated as for Hippeastrums, except that during summer they are kept in a sunny greenhouse, and in winter rested in a dry house where the temperature does not full below 45°. In February they are removed into a warmer house and watered. They are repotted if necessary in February, and all the small offset bulbs are removed, single bulbs proving the most likely to bloom. Mr. Baker reduces Coburgia to Stenomesson. *W. Watson.*

Pinguicula caudata.

This Mexican species is the finest known representative of a small genus of stemless herbaceous plants (Butterworts) belonging to the Lentibulariaceæ, a group of plants characterised by bearing close above the roots a tuft of leaves of membranous texture, incurved at the edges, and greasy to the touch. The colours of the flowers vary in different plants from light to a very deep pink, and these blooms are solitary upon leafless stems of about 9 inches in height. This interesting plant merits a position in every garden, and is one which should be more commonly grown, inasmuch as the individual flower lasts several weeks in perfection, and the flowering stage of the plant lasts over a considerable period. It is of easy culture, succeeding well in a cool-house, if given a plentiful supply of water. It should be potted in a compost made of equal parts of peat, loam, and leaf-mould, with a pinch of silver-sand added to these. *F. Ashton.*

TABLE DECORATIONS.

At the present time ornamental foliage plants are extensively employed in all kinds of decorative work. The most effective way of setting up foliage plants for table and other indoor decoration is to stand the pots in shallow dishes or trays (these may be about 10 or 12 inches across), then form a groundwork by embedding the pot in moss, and if the moss is not fresh and of good colour, Selaginella denticulata may be used to cover it. The moss should be well moistened and pressed fairly firm; it should be worked up so as to entirely cover the pots, and in this a few flowers and foliage may be arranged. It will require a sharp-pointed stick to make holes for the flower-stems, and when properly managed the flowers will stand up well, and a light and elegant arrangement may be made with but very little material. Where several stands are used for a table, a distinct colour may be used for each. Cyperus alternifolius is a useful plant for this kind of arrangement, especially for such flowers as Daffodils, Lily of the Valley, Tulips, &c., and the moisture required to keep the flowers fresh will not be injurious to the plants.

Many other plants may be used for the same purpose, with equal effect, but in the case of choicer plants, they should not be allowed to remain in the wet moss too long.

Of Palms, Cocos Weddelliana, Geonoma gracilis, Euterpe edulis, and Areca lutescens are some of the most effective. The Kentias are rather too heavy, except where large plants are required. Aralia Veitchii. A. V. gracillima, A. leptophylla, and the beautiful A. elegantissima are all among the most elegant of table plants, and if properly cared for, the same plants will do service for a considerable time. The great point is to avoid using them in cold, draughty positions. Casuarina equisetifolia is also very pretty. Of hardier plants, Grevillea robusta and Dracæna indivisa may be recommended.

For plants with coloured foliage, such as Crotons, Dracænas, &c., small Ferns may be bedded in the moss. Instead of using flowers, cut foliage of various kinds may also be used with great effect. In arranging plants and flowers together, as recommended above, one great advantage is that it does away with expensive pot stands, which are not always elegant, whereas an ordinary flat dish or tray may be used with moss, and, when properly done, the stand will be entirely covered by moss, foliage, and flowers. *H.*

PLANTS AND THEIR CULTURE.

Basket Plants.—Many species and varieties of Ferns make beautiful objects when planted in baskets, and to grow them in such receptacles shade and abundance of moisture are wanted. Weak growers will not require large baskets, and quite small ones will answer for species of Adiantum, of which amabile is a type. This species grows quickly, soon covering the sides. Davallias are also nice basket Ferns, which grow with freedom; D. bullata, D. dissecta, D. elegans, D. Mariesii, D. canariensis are some of the best for this purpose. Platycerium alcicorne is a useful plant, as is P. grande, but it requires more warmth than the former. For very large baskets the Goniophlebiums are very effective; also the beautiful Woodwardia radicans, when plenty of space can be given to it. Many other species of Ferns will grow equally as well as those named, and are effective in baskets. All Ferns should be put into their baskets as soon as possible; those having creeping stolons should be kept pegged or otherwise secured to the outsides of the baskets. Do not let any Ferns in baskets become dry, and most of those employed will take copious supplies of water when the soil is filled with their roots. When large baskets are made use of other plants look pretty when grown in them, such as Thunbergia alata, Clitoria ternata, and Maurandya Barclayana. Seeds of these plants should be sown early, so that strong plants in pots can be transferred to the baskets before they are made use of in greenhouse or conservatory. Convolvulus mauritanicus is a very attractive basket plant for a cool conservatory, the flowers lasting a long time if the plant be well treated. It produces a long succession of its light blue flowers. Torenia Baillonii and T. Fournerii may also be sown or propagated from cuttings for basket furnishing. These plants require a warm house in the early stages of their growth, and rather small baskets.

The Work in the Stove.—Potting, cleansing, and rearranging the inmates should now be brought to a close, when a slight rise in the temperature may be made—65° by night and 15° to 20° higher by day during mild weather, being sufficient if the houses have been kept at the minimum point during the winter. In the use of top ventilation much caution must be exercised, and the houses kept closer to encourage the plants to grow. The shading blinds should now be put into their places, and these will be found useful as a means of keeping the houses at a steady temperature during frosty nights, and will be wanted shortly for shading during strong bursts of sunshine. The stock of Selaginella denticulata may now be increased, and small pots and pans of the plant are always useful. Cuttings of Gymnostachya Pearcei and Fittonia argyroneura, Tradescantias, Panicum variegatum and P. sulcatum, and Ficus repens should be propagated, as all these trailing and graceful plants will be found serviceable in many ways. The early sown Gloxinias will now be ready to prick off, using in the pans a rich light sandy compost. The plants should be placed near the light to prevent drawing. Plants of Cissus discolor may now be pruned-in and allowed to break freely before being repotted or top-dressed. Cuttings will strike readily if taken from the parent-plant with a heel attached. Pitcher-plants are often grown in baskets in the stove, and any old plants requiring it should be shifted, and any which have become leggy may be cut down and induced to form new roots by giving the plants bottom-heat. The pieces of old stems may be rooted in a brisk bottom-heat. Young plants should be top-dressed. Cuttings of Thyrsacanthus rutilans may be propagated when cuttings can be procured, putting them in a light sandy soil in small pots. Scale is a great enemy to the plant, and soon disfigure it if the leaves be not frequently sponged. The plants when potted from the cutting pot should be potted into 3-inch pots, finally shifting them into 5-inch, and plunging them in a mild bottom-heat till the pots become full of roots, and always keeping the plants near to the glass. In giving the plants their final shift, a large proportion of loam, and a small quantity of well-decomposed cow-manure, should be found in the compost.

Hints for the Greenhouse.—A sowing of Primula sinensis should now be made for early autumn flowering, also a small sowing of Cockscombs and Celosias in a hotbed frame, and some seeds of Gomphrena globosa (Globe Amaranth) for conservatory decoration during the summer. Impatiens Sultani may now be sown, giving the plants plenty of heat and moisture through the earlier stage of its growth; the same remark applies to Balsams and Petunias if grown from seed. If a good variety of Petunias has been kept for stock—which is the best plan, and cuttings have been struck, the old plants may be thrown away. Libonias, Salvias, Solanum capsicatum, Tree Carnations, and Bouvardias, and other winter-blooming plants, should be propagated. The early struck Fuchsias, if ready to pot off into small pots, may be grown on quickly. Shade the young plants when potted, not allowing them to droop. The old plants may be shaken out, repotted, and kept close till they break, when they may be cut back. The last shift should be given to Pelargoniums and herbaceous Calceolarias; those intended to flower late should be stopped for the last time, and tied out neatly. A few of the best varieties of Cyclamen should be picked out and placed on a shelf, and have their blooms fertilised, if seed be required, allowing half-a-dozen or fewer blooms to remain on each plant. Primulas required for the same purpose should also be placed in a dry position, and somewhat reducing the trusses in size. Plants of Cinerarias wanted for late blooming should be placed in a pit facing north, to retard them, liquid manure being frequently afforded them.

The stock of tuberous-rooted Begonias should now be started in an intermediate-house or pit; these plants should never be given much heat or long weakly shoots and small flowers will result. Early sown seedlings will now be ready to prick off into small pots or pans, always keeping them near the light and repotting as required. The seed pan will produce a few more plants after taking out the large ones, and should be taken care of. Plants of Eupatorium and White Arum coming into bloom should receive liquid manure and abundance of water when their pots are full of roots. *G. Wythes, Sion Gardens, Brentford.*

THE FLOWER GARDEN.

General Work.—Indoors this will mainly consist in the propagation of tender soft-wooded bedding plants. For my part, autumn propagation is only carried out so far as to secure sufficient stock to supply cuttings in the spring, thus saving the labour of attending to them, and also the space they would occupy during winter. Pelargoniums are an exception, for it is only autumn struck plants of these which will ensure a good result in the beds. Certainly it is possible, by taking strong cuttings now and putting them into heat, to have moderately good plants by planting-out time. Calceolarias, Violas, Gnaphalium, Leucophyton, Echeverias, and all kinds of half-hardy plants that winter well in cold frames must, as a matter of course, be propagated in the autumn, and now that these plants are starting into active growth they will require attention daily, more especially in respect of ventilating the frames freely whenever the weather is favourable, so as to prevent a weakly growth. The points of Calceolarias and Violas will require to be pinched out so as to cause the shoots to branch out at the bottom, and if the cuttings were put in closely together every alternate plant should be lifted at once and planted in other frames. The plants left in the frame will not need to be removed, for if the holes made by the removal of the plants are filled in with a little fresh soil the former will soon recover any slight check that they may have received by the removal of the other plants. Repot old plants of Fuchsias, Cannas, and also Dahlia roots of such sorts as it is desired to propagate. They will do

afterwards in any position that is warm, but not necessarily light until growth begins, when light must be afforded them.

Out-of-doors.—Cut back the shoots of Ivy on buildings and screens, and it is important that the cutting be done before new growth is made, which may now soon occur if the weather becomes a little milder. The edgings of grass verges should be cut and regravelling of walks completed whilst the under-soil and gravel are still wet, and therefore better to roll down firmly. Sow seeds in the open border of Sweet Peas and Mignonette. The ground for the latter cannot well be too firmly pressed down previous to sowing.

Annual Flowers.—At the instance of an unknown correspondent my two last notes have had reference to arrangements of bedding plants. I now wish to supplement those notes by references to such annual plants as Stocks, Asters, Zinnias, Everlastings, Phlox Drummondii, Salpiglossis, Sweet Scabious, &c. A summer flower garden without these would to me be lacking in an important feature, and that being so I opine they should be specially mentioned. I concede that these plants are not well adapted to take the place of "bedding plants" proper, and it is not as such that I advocate their employment; although I think that plants of Phlox Drummondii, Sweet Scabious, and Salpiglossis, by due attention to pinching, pegging, and, in the case of Salpiglossis, of tying up, make as lasting summer flower beds as may be obtained by aught else; but their employment in this way is not the most effective way, and I would rather see them in large clumps standing amongst herbaceous plants, or in the beds of Roses where these are planted thinly; in fact, I think it desirable to plant the Roses a good distance apart, with the view of planting such annuals between them, Stocks in particular, because these are just in the height of their perfection when the Roses are done, and they furnish a continuation of flowers. As clumps amongst perennial plants they are all well suited, and if pains be taken to plant them close to the earlier flowering perennials, the display will last to the very end of the season. The commoner mode of employing them—and a very excellent one too—is to plant them on any spare border having a southern or western aspect to supply flowers for cutting. In many gardens they may be employed in all the various ways mentioned. The sowing and raising of annuals is most simple. I do not wish to boast, but failure to have a good plant has never yet been my lot, and why?—because the same pains was taken with this simple operation as was bestowed on thinning a bunch of Grapes. Frames in which to sow are desirable, but we cannot spare these, and must extemporise frames by using the lights of the late vinery laying them on bricks. On the hard ground underneath loam, leaf-soil, and sand is laid 5 inches thick and made firm, then small drills are made with a sharp-pointed stick, and the seeds are sown thinly and covered by the hand. A slight watering is then given, and the lights are put over and not removed till the seedlings are seen peeping through the soil; then air is afforded them freely, and as soon as the lights must be put on to the vinery roof a framework of sticks is constructed, and over this canvas is laid when the nights are cold. The seedlings are pricked out when big enough to handle, and the canvas covering is used so long as the nights remain cold. *W. Wildsmith.*

Fruits Under Glass.

Grape Vines.—The earliest Vines which are in pots will now be swelling after the stoning process and must be well supplied with manure water—examining them two or three times a day. Top-dress when the roots appear on the surface—using a warmed soil and sprinkling a small quantity of Thomson's or other artificial manure upon the surface of the soil every alternate day before giving water. A night temperature of 70° should be maintained, pushing the plants on as much as possible in the day-time. Afford a modicum of air on mild bright days, and shut up early. As soon as colouring commences less moisture must be employed in the house, and more air be afforded; still care must be exercised in this matter so as not to starve or check growth.

The Second House.—The bunches will now have had their berries thinned out, and the shoots tied in and properly distributed over the trellis, it will therefore be a proper occasion to afford a good watering to the inside border, and if the border is not made of very rich materials manure water may be employed.

Keep a night temperature in the house of 65°, damp the paths and walls twice on fine days, shutting it up with sun-heat, and allowing the warmth to reach 85° or 90° on bright afternoons. A close watch must be kept for red-spider, and if it appear, at once sponge the affected leaves, using a soft sponge with a very light hand.

The Succeeding House.—Here the Vines may be in flower, demanding that a somewhat drier atmosphere should be the rule, damping down the paths once on bright mornings only, and not at all in the afternoon. Give air whenever it is mild outside. Keep the shoots stopped to a couple of leaves beyond the bunch, and keep them free of the glass. Let the temperature at night be 60°—65°. If the house be a mixed one save the pollen from the Hamburgh and Foster's Seedling Vines to impregnate the flowers of the shyer setting Muscats and others. In the later vineries some Vines will be ready for disbudding, and the late houses may now be closed, following in all cases earlier directions as regards syringing, &c.

Strawberries.—Keep introducing these in batches for succession; those colouring and ripening can be kept in a more dry and airy house to give them flavour, but do not check them with cold draughts. It is advisable to support the fruits by a few forked sticks stuck in the pots; thin the fruit where required, and water twice a day if necessary, especially when very bright. Syringe on bright mornings, and keep down all insects, &c. Plants in bloom should have a night temperature of 55° to 60°; those with fruit swelling from 60° to 70°, with air given on suitable days, shutting up between 2 and 3 o'clock, when the sun will be able to run up the temperature for an hour or so, damp the house two or three times a day. *W. Bennett, Rangemore, Burton-on-Trent.*

The Hardy Fruit Garden.

Work of the Week.—As soon as the nailing of the Peach and Nectarine trees is brought to a close, the borders should be loosened on the surface by being forked over, care being taken that the top roots are not injured. Old trees which bore heavy crops last year will be the better for having a top-dressing of moderately heavy loam, mortar rubble, and bone meal; and in warm localities, if the soil is light and well drained, a heavy mulch of cow manure should be applied at once. It is better to do this now than later, as I have repeatedly proved by results, and the trees greatly improve in their early stages of growth. But where the soil is naturally cold and heavy, it is much better to defer the mulching till a much later date. As the blooming period approaches no time should be lost before getting the blinds and other means of protection in readiness. Get everything ready, but do not cover up till the flowers are just about to expand. Apricots being the first to suffer in some districts, the protectors should be fixed early to prevent loss, but they should not be hung over the tree on fine warm days, or more harm than good will be the consequence.

Damsons.—Probably no fruit trees get so small an amount of attention as these, pruning being seldom done, and the trees are untouched, but those who give a little timely pruning annually will reap the reward of their labour. In this county, where Damsons are grown largely, and where pruning is the usual practice, excellent crops of very large fruit are secured. The main point to be observed is in the formation of the heads in young trees, and when this is properly done at starting, very little requires to be done afterwards, with the exception of keeping the branches from crossing each other, and from being crowded. In commencing with trees newly planted, there should be from four to seven shoots selected at equal distances to form the main branches; these, if strong, should be shortened back to within 12 inches of the stem, and to an outside bud, and as the head gets larger, others may be left as occasion requires. All gross shoots in the centre of the head must be cut away to allow the smaller fruit-bearing wood to develope. Damsons grow best in an open position, and should never be planted among other fruit trees where they are likely to get crowded. The outside of an orchard is a very suitable place for them, and as the trees get up they will act as a shelter to the tenderer sorts.

Preparations for Grafting.—When the men cannot work out-of-doors, clay may be prepared for grafting by mixing two parts of cow-dung to three parts of clay; or heavy loam, and chaff, and horse-droppings instead of cow-dung. The clay or loam must be free from all stones, and be thoroughly beaten before use. I prefer cow-dung in preference to chaff, &c., as it not only helps to prevent cracking of the clay, but it retains moisture. Until the clay is required it should be kept in a cool, moist place, or be covered over with some wet material to prevent it from getting dry. *H. Markham, Mercworth Castle, Kent.*

The Kitchen Garden.

Hints in Season.—Globe Artichokes are much in request where French cooks preside over the kitchen. Coming from the Mediterranean region the plant is not quite hardy in this country, although in certain favoured localities in the British Isles it requires no protection from frost. It likes a deep light loamy soil full of rotten manure, and where sea-weed is procurable a slight dressing annually will improve the size of the heads. An open site fully exposed to the sun is needed for its successful cultivation. The soil should be trenched to a depth of about 2 feet 6 inches; and the manure should be mixed with the staple as it is being dug. In order to keep up a succession of heads as long as possible, a fresh plantation should be made every year, and three years is quite long enough to allow the plants to remain in one place. When the plants have made about 3 inches of growth the offsets for fresh plantations should be secured; remove these carefully with as much of the parent root as possible, and plant three in a clump a yard apart in the row, and 4 feet 6 inches between the rows. The older plants, which have stood more than one year, should have all the weaker shoots removed, in order to concentrate the flow of sap into five or six of the strongest. Artichoke plants can also be raised from seed, and fair heads cut from them the same season. The seed should be sown in heat, in February, planting out on well prepared ground, in May. I have, however, never been able to secure the true variety in good proportions in this way, most of the seedlings turning out to be small, prickly, and worthless. The sort best liked is the Green Globe.

Mushrooms.—After this date it is not advisable to grow these in the Mushroom-house proper, as the warmth rises to a degree which is inimical to the cultivation of fleshy Mushrooms, and after May they are liable to attacks from a maggot which renders them unfit for use. An open shed, with a northern aspect, will be found a more suitable place in which to make the beds, and failing a suitable shed they may be quite successfully grown in the open. Where beds are made under a roof they may be made flat on the top, about 15 to 18 inches deep, but in the open air the beds should take the form of a rounded ridge, with a base of 3 feet 6 inches, and height 3 feet. The materials must be beaten to a firm consistence as the work goes on, and some straw should be placed over the bed to defend it from rain. When the warmth of the bed has fallen to 85° it will be time to put the spawn into it, the soil being put on immediately afterwards. Maiden loam, rather heavy in its nature, is the best. This should be laid on evenly to a depth of 3 inches, and beaten smooth with a spade. *Wm. M. Baillie, Luton Hoo, Beds.*

Wheat in Great Britain.—The official report of the Agricultural Produce Statistics of Great Britain for 1888, says:—"Estimators report, in reference to the deficiency, that the outcome is due to the absence of sunshine and the excessive rainfall during the summer, and they almost unanimously refer to the indifferent quality of the grain, some of them adding that much of that grown on high lands was unfit for milling purposes, the best samples even, exhibiting very generally, poor condition. It is stated that in most districts the Wheat contained a large proportion of light Corn. The crop in some few districts was attacked also with mildew, and occasionally it was harvested in damp condition, with, in such instances, the ordinary results. Great variations are reported in yield, frequently in the same district, the deficiency being, it is generally said, in the average weight of the cereals.

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APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

TUESDAY,	Mar. 19	Manchester Royal Botanical and Horticultural.
WEDNESDAY,	Mar. 20	Royal Botanic Society First Spring Show. Preston and Fullwood (two days). Bath Bulb Show (two days).
THURSDAY,	Mar. 21	Richmond, Surrey (two days).
SATURDAY	Mar. 23	Crystal Palace.

MEETING.

THURSDAY,	Mar. 21	Linnean Society.

SALES.

MONDAY,	Mar. 18	Lilium auratum, and a large Assortment of other Lilies, at Protheroe & Morris' Rooms.
TUESDAY,	Mar. 19	Carnations, Picotees, Roses, Fruit Trees, &c., at the City Auction Rooms, 38 and 39, Gracechurch Street, by Protheroe & Morris'
WEDNESDAY,	Mar. 20	Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms. 10,000 Lilium auratum from Japan, at Stevens' Rooms (two days). Lilies, Irises, Carnations, and Picotees, at Protheroe & Morris' Rooms.
THURSDAY,	Mar. 21	Imported and Established Orchids, Stove and Greenhouse Plants, at Stevens' Rooms.
FRIDAY,	Mar. 22	Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—43°.2.

The Royal Horticultural Society.

The meeting on Tuesday last was an interesting one, not only on account of the exhibition then got together, but by reason of its presenting a welcome practical indication of the improvement in the organisation of the Society which has been inaugurated with so much success by the Council. An account of the objects exhibited at the meeting will be found in another column; in this place we may allude to some of the proceedings which gave special importance to the meeting. In the first place, we may note the proposal, which will, we believe, be carried into effect, of instituting a special sub-committee for the purpose of dealing with Orchids. The Floral Committee, it is felt, is too large and too heterogeneous in its composition to deal properly with the Orchids, which nowadays form so important a feature of the Society's work. A new section will, it is probable, be formed to deal with Orchids only—a proposal which will, as we think, be far more acceptable on general grounds than the institution of a special Society, of which there are already too many. A special feature of the meeting on Tuesday was the issue of the new number of the *Journal* now edited by Messrs. Morris and Wilks. We are so pleased to see this fresh evidence of the realisation of this item of the programme that we do not care to criticise what is virtually a first number. From long experience we know that first numbers, by reason of the difficulties in preparing them, are, as a rule, by no means equal to those that follow them. The publication of the *Journal* is specially important to those Fellows who, from their residence at a distance, are precluded from availing themselves fully of the privileges of the Society. Hitherto the *Journal* has only appeared at spasmodic intervals, and, although its contents have been such as any society might be proud of, yet its irregular issue has deprived it of the value it would otherwise have had. In former times the *Journal* was only delivered to those who cared to ask for it, and the result was that, with certain exceptions, very few took the trouble to avail themselves of their privileges. Now, we believe the *Journal* is to be sent to each of the Fellows—a far better arrangement, and one which, with the greatly enlarged number of Fellows, will become, let us hope, of great value to the Society. The regular publication and transmission of the *Journal* will keep the Fellows informed of the doings of the Society, and will relieve the ordinary horticultural journals of the necessity of reporting the proceedings of the Society at such length as heretofore—a matter which the pressure on their space will render not a little acceptable. For these reasons we shall devote but little space to the papers read at the last meeting by Mr. J. G. Baker and Mr. George Paul. We hail with great satisfaction the revival of these afternoon meetings, which are likely, if properly conducted, to conduce to the welfare of the Society. Mr. Baker is so willing and so ready to come to the aid of the horticulturist—so thoroughly imbued with that most important of great principles, that horticulture and botany should play into one another's hands and assist the one the other, that we are sure a hearty "Thank you!" will be as cordially given to him as it is thoroughly deserved. Having said so much, neither he nor the Society will think us guilty of ingratitude or of want of appreciation if we say that his paper on Tuesday last was one better fitted for the Scientific Committee than for the mixed audience to which it was delivered. As the paper in question will be published in the Society's *Journal*, we may limit ourselves here to a general outline of Mr. Baker's discourse. He started by sketching the geographical distribution of the genus in geological time as well as at present, pointing out the numbers of species which occur now in the different regions of the globe, and alluded to the probable but still speculative reasons for their presence in certain countries, and their absence from others. To obtain answers to the many questions thus brought under notice he sought the assistance of the horticulturists. They should be able to say why the London Pride, S. umbrosa, which in Nature is so restricted in its habitat, should yet have endurance enough to live even in the slums of Westminster within a few hundred yards of where he was then speaking. A problem of a similar character was raised by us only a week or two ago in speaking of the Ginkgo tree, and the remarks we then made are in a measure applicable also to that Saxifrage. Mr. Baker then proceeded to point out the groups into which this large genus of 180 species has been divided by botanists. In so doing, Mr. Baker adopted the classification of the species propounded by Professor Engler, and of which a synopsis was given in our columns as long ago as December 15, 1866.

Mr. Baker, by the aid of specimens and diagrams, explained the peculiarities upon which these groups are founded, peculiarities so obvious, that the veriest tyro would have no difficulty in understanding them. Unlike Primula, upon which Mr. Baker descanted upon a previous occasion, there are relatively few hybrids in this genus—a circumstance which again gave rise to a series of speculations difficult to substantiate, and to questions not easy to solve, though any one with an eye in his head may do good service by adding to our stores of information useful for these purposes.

Mr. George Paul's paper was of a more directly practical character. His competence to deal with it was attested by the excellent series of well-grown specimens with which, in spite of the season, he was enabled to illustrate his paper. We shall not attempt to forestall the *Journal*, in which Mr. Paul's paper will be printed in full, but we may say to all lovers of alpine plants, "look out for it."

These two papers fully occupied the hour allotted to them, so that little or no time was available for discussion, and Mr. Reuthe's paper was not read at all, although announced for publication. It is on these grounds that we suggest to the Council the propriety of requesting the authors of papers to prepare an abstract beforehand for publication in the ordinary weekly journals, and for circulation among those likely to take a part in the discussion, and to request the authors also to confine themselves to an abstract when addressing the Society, reserving the full text for the *Journal*. Mr. Baker's paper, for instance, as was noted by the Chairman (Mr. W. T. Thiselton Dyer), raised questions for which a whole week would be none too much for an adequate discussion.

The meeting of the Scientific Committee was remarkable for two things; first, the hour of meeting was changed to 4 p.m., to allow of the meeting being held in the library, occupied till that hour, and next for the number and scientific status of the members present. No Society of the same kind could, we are sure, bring together for a similar purpose, such a remarkable gathering. It would thus seem that apart from other considerations the later hour is preferable. The proceedings of this committee are, from no fault of its own, too much like those of a private club, and means should be taken to render the results of the decisions more useful to the Fellows at large. Here again the *Journal* will do good service. The work of the committee should be largely based on what is submitted to it as a committee of reference by the Fellows, and not be so dependent as it is on the good nature of individual members of the committee in bringing or forwarding matters for exhibition and discussion.

New plants (species) should be submitted to a sub-committee of this body with power to avail themselves of outside assistance, and questions of nomenclature should also be submitted to them, so that as far as possible no recognition should be given by the Society to a faulty name such as the application of a botanical name to a mere garden variety. In this way, also, to mention only one instance by way of illustration, the glaring anomaly of giving the same award to a garden variety of Primrose as to a newly introduced species from the Himalaya, never seen before in this country, might have been

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CONSERVATORY AT THE HENDRE, MONMOUTH.

avoided. We do not in the least wish to disparage the so-called Blue Primrose, but we do say the two things are not fairly comparable. In our opinion, the one should have had a Botanical Certificate awarded by the Scientific Committee in default of a New Plant Committee; the other an ordinary First-class Certificate from the Floral Committee, as being best qualified to act as judges. A little more time, and a little more judgment in arranging the work of the several Committees, would obviate these inconsistencies. The judgment is not lacking, but the time wherein to exercise it, is lamentably too short for the work that is to be done.

The Gardeners' Orphan Fund.—A largely attended meeting of standholders of the Wholesale Flower Market, Covent Garden, convened by the committee of the Fund, took place at the "Hummums" Hotel, Covent Garden, on Friday, the 8th inst., Mr. George Deal, Chairman of the committee, presiding, a considerable number of the executive being also present. The Hon. Secretary, Mr. A. F. Barron, having read the letter of His Grace the Duke of Bedford, giving his permission for holding a second Floral *Fête* in the Wholesale Market in aid of the funds, the Chairman thanked the growers for their attendance, and said their numbers afforded a striking instance that their interest in the Fund had not flagged. He had recently witnessed a satisfactory illustration of the value of the Fund when calling upon the mother of Kate Harriett Brooks, one of the children receiving benefit from the Fund. Her widowed mother had ten children, only two of whom were earning anything, and when he called upon her she appeared incapable of expressing her gratitude for the great assistance she received from the sum granted to her daughter.

Mr. Messer, Edmonton, then moved, and Mr. Hawkins, of Twickenham, seconded the following resolution:—"That this meeting, consisting mainly of standholders in the Wholesale Flower Market, Covent Garden, cordially endorses the proposal to hold a second evening floral *fête* in aid of the Gardeners' Orphan Fund; and having heard that His Grace the Duke of Bedford has kindly granted the use of the market for this purpose, hereby pledges itself to render the best assistance in its power to successfully carry out the same, and to co-operate in general with the Executive Committee of the Fund."

Proposed by Mr. Assbee, seconded by Mr. Stroud, Leyton; and carried unanimously—"That the following gentleman be appointed as a committee to represent the standholders for the purpose of co-operating with the officials of the Gardeners' Orphan Fund, in making the necessary arrangements for the *fête*." Messrs. Messer, Lewington, Hawkins, H. B. May, E. Rochford, T. A. Dickson, Geo. May, J. W. Baker, Cattaneo, and G. Poulton. It was resolved that the joint committee should meet at the "Caledonian" Hotel, Adelphi, on Friday, March 22, at 6 P.M. A cordial vote of thanks was passed to the chairman for presiding.

Journal of the Royal Horticultural Society.—The new number contains articles on Hungarian Grapes, Burmese Potatos, reports on the remarkable collection of Tomatos at Chiswick, on the China Asters, Rhubarb and Stocks grown for comparison and trial at Chiswick, together with an account of the keeping of fruit in cold chambers; the proceedings of the meetings since January of this year, and other matters of detail.

The Botanical Magazine.—An unfortunate accident, in consequence of which, although the numbering of text and of the plates in the March number is the same, there is no other relation of analogy or homology between them, has created a sensation, especially among some of its and our foreign readers. This in its way is flattering to our venerable contemporary, and to those who have addressed us on the subject we may reply that the requisite corrections and explanations will be made in the ensuing number. As it is, we seem to have the plates pertaining to one month associated with the text proper to another. We defer our usual notice till the error has been set straight.

Royal Botanic Society of Belgium.—At the last general meeting M. le Comte Oswald de Kerchove de Denterghem was elected President; MM. Errera, Gravis, and Wesmael, Vice-Presidents. It is a curious but very satisfactory coincidence that the Botanical Societies of France and of Belgium should now both be presided over by distinguished horticulturists.

Blenheim Palace Gardens, Woodstock.—His Grace the Duke of Marlborough has given his permission for the gardens of Blenheim Palace to be thrown open to the public for the two days upon which the County of Oxford Agricultural Show is to be held at Woodstock; and Mr. J. Williams, His Grace's gardener, informs Mr. A. F. Barron that a charge is to be made for admission, the proceeds to go to the Gardeners' Orphan Fund.

The "Book of the Farm."—The last "division" of this standard book, just published by Messrs. Blackwood & Sons, is devoted to the culture and preparation of food substances for stock, and to their most economical and judicious use. Manures are also treated of, as well as other matters of agricultural practice carried out in the winter season.

The Cultivation of Plants.—A lecture was delivered on Thursday, March 7, in the Providence Schoolroom, Uxbridge, by Mr. J. M. Jeffrey, of Field Heath Nursery. Illustrations of the different kinds of trees and plants referred to were exhibited, both in drawings expressly prepared, and by living specimens. It is a pity that many such lectures are not given in country towns and villages by competent persons.

Anthurium Andreanum—The *Gartenflora* for March contains a coloured plate with representations of Anthurium Grusoni ×, Kolbii ×, Wittmackii ×, Ortgiesii, and Allendorfii.

L'Horticulteur.—Though rather late—a circumstance for which we are not wholly responsible—it is our pleasant duty to welcome a new horticultural journal, published under the auspices of the Central Society of Horticulture of the district of Mons. The articles are chiefly cultural, but those interested in trees will be glad to learn that M. Wesmael has prepared an alphabetical list of the species and varieties of Maple (Acer). The form known as Acer colchicum rubrum is considered by M. Wesmael a hybrid between A. campestre and A. Lobelii. We do not know upon what authority this statement is made, our own impressions being that the plant in question was a form of the Oriental and Himalayan A. pictum, with which A. lætum is synonymous. M. Wesmael may thank us for reminding him of the articles on this genus by Mr. Nicholson, published in our columns 1881.

Rose Shows in 1889.—The Hon. Secretary of the National Rose Society, Mr. E. Mawley, has kindly furnished us with the following list of fixtures for the coming season:—

"June 24th, Ryde; 26th, Richmond (Surrey); 27th, Farningham; Winchester.

"July 2nd, National Rose Conference at Chiswick; Sutton. 3rd, National Rose Conference at Chiswick; Bagshot; Croydon; Maidstone. 4th, Bath; Canterbury; Hitchin; Norwich. 6th, Crystal Palace (National Rose Society). 9th, Diss; Hereford. 10th, Dursley; Ipswich; Tunbridge Wells. 11th, Gloucester. 16th, Birkenhead. 18th, Sheffield (National Rose Society); Helensburgh. 19th, Ulverston. 20th, Manchester. 23rd, Tibshelf.

"This preliminary list gives the dates of all the Rose shows that I have up to the present time been able to ascertain as having been definitely decided upon. I have also included in it the dates on which a National Rose Conference will be held by the Royal Horticultural Society in their Gardens at Chiswick, as this Conference, although differing in many respects from an ordinary Rose show, will, no doubt, be the leading event of the coming Rose season. For insertion in future lists I shall be glad to receive any Rose show fixtures not appearing above as soon as they are finally settled."

Stock-taking: February.—The subjoined table is extracted from a summary account of the imports into this country from British possessions and foreign States for the month of February last, compared with February, 1888. The increase in the imports for the two past months over those for January and February last year is placed at the large figure of £6,001,887—the increase being greatest in §II. (A.)—"raw materials for textile manufactures" taking next rank (food and work). The "summary" is as follows:—

	1888.	1889.	Difference.
	£.	£.	£.
Total value of imports	29,532,776	32,311,877	+2,779,101
§II.—(A.) Articles of food and drink — duty free	7,993,709	9,342,955	+1,349,246
(B.) — do., dutiable	1,859,615	1,842,832	—16,783
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	7,412,233	8,411,385	+999,152
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	2,120,470	2,353,142	+232,672
§IX. — Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,160,237	1,154,674	—5,563

The appended extracts from the complete returns possess their usual interest:—

	1888.	1889.	Difference
§ II. Fruit:—			
Apples, raw ... ... bush.	118,591	370,785	+252,194
Unenumerated, raw ... ,,	9,453	9,921	+468
Onions ... ... ,,	187,156	341,038	+153,882
Potatos ... ... cwt.	39,869	23,345	—16,524
Vegetables, raw, unenumerated ... ... Value	£37,194	£41,186	+£3,992

Agaves at the Paris Exhibition.—*Le Naturaliste* contains a notice of some Mexican Agaves which are to be sent to the approaching exhibition at Paris. Fifty-six Magueys have been chosen from the Calpulalpan district by M. José C. Segura. These Agaves are of unusual sizes. The diameter of each is more than 22 feet; they are about 11 feet high, and the leaves (there are 150 on each specimen) are more than 4 feet long. Each of these plants weighs nearly 6 tons.

Famous Horticulturists:—

"Haworth, Adrian Hardy (1768—1833): b. Hull, 1768; d. Queen's Elm, Chelsea, 24th Aug., 1833. Entomologist, F.L.S., 1798. Lived at Cottingham, near Hull, 1812—1817; at Little Chelsea, 1817—1833. A founder of Hull Bot. Garden. Discovered Cyperus fuscus at Chelsea. 'Observations on Mesembryanthemum,' 1794. 'Synops. pl. succulent,' 1817—1819. 'Saxifragarum Enumeratio,' 1821. Pritz., 138; Jacks., 556; *Mag. Nat. Hist.*, vi., 562; ix., 447; *Cott. Gard.*, vi., 157; *R. S. C.*, iii., 235; *Gent. Mag.*, 1833, ii. Faulkner, Chelsea, ii., 11. Litho. by Weld Taylor, from bust. Herbarium in Fielding's Herbarium at Oxford. Haworthia, Duval."

"Harpur Crewe, Rev. Henry (1830—1883): b.

1830; d. Drayton Beauchamp, Herts, 7th Sept., 1883. B.A., Camb., 1851. M.A., 1855. Rector of Drayton Beauchamp. Entomologist. Cultivated Crocuses ('the richest collection in Europe,' *Bot. Mag.*, t. 6168). *Entomol. Monthly Mag.*, 1883, 118; *Journ. Bot.*, 1883, 381. Crocus Crewei, Hook. f."

"Henderson, Joseph (d. 1866); d. Wentworth Woodhouse, Yorks., 22nd Nov., 1866. A.L.S., 1842. Superintendent of Earl Fitzwilliam's gardens. 'Germination of Ferns,' *Mag. Zool. Bot.*, i. (1837), 333. 'Stigma of Mimulus and Diplacus,' *Ann. and Mag.*, vi. (1841), 51. 'Equisetum,' *Linn. Trans.*, xviii., 1841, 567. Pritz., 140; *Proc. Lin. Soc.*, 1866-7, xxxv.; *R. S. C.*, iii., 273; *Gard. Chron.*, 1866, 1138. Hendersonia, Berkeley."

"Henshall, John (fl. 1845). Gardener to J. H. Schroder, Tooting. *Cultivation of Orchidaceous Plants*, 1845. Pritz., 141; Jacks., 138."

"Herbert, Hon. and Rev. William (1778—1847): b. 12th Jan., 1778; d. Hereford St., London, 28th May, 1847. B.A., 1798. M.A., 1802. D.C.L., 1808. B.D., 1840. M.P., 1806—1812. Rector of Spofforth, Yorks., 1814. Dean of Manchester, 1840. 'Amaryllidaceæ,' 1837, with plates by author. 'Crocorum Synopsis,' *Bot. Register*, 1843—1845. Pritz., 141; Jacks., 558; *R. S. C.*, iii., 305.; *Gard. Chron.*, 1847, 372; *Garden*, xxviii., p. 400; *Proc. Manch. Lit., Phil. Soc.*, xxv., 43. Herbertia, Sweet."

"Heward, Robert (1791—1877): b. 1791; d. Wokingham, Berks., 24th Oct., 1877. F.L.S., 1836. In Jamaica, 1823—1826. 'Ferns of Jamaica,' *Mag. Nat. Hist.*, 1838. Pritz., 143; Jacks., 370; *Journ. Bot.*, 1877, 380; *R. S. C.*, iii., 342: Lasègue, 266, &c.; *Gard. Chron.*, 1877, ii., 571. Herbarium at Kew. Hewardia, J. Sm. = Adiantum Hewardia, Hook. From 'Biographical Index of British and Irish Botanists.' By James Britten, F.L.S.; and G. S. Boulger, F.L.S., *The Journal of Botany*, March, 1889, p. 81, 82, 83.

The Coltsfoot.—The first Coltsfoot noticed in bloom near London was on March 9. Has anyone seen it earlier?

Linnean Society.—An evening meeting will be held on March 21, at 8 p.m., when the following papers will be read:—1, "On the Botanical Collections from the Christmas Island," by W. B. Hemsley, A.L.S.; 2, "On the Sexual Forms of Catasetum, with special reference to the Researches of Darwin, and others," by R. Allen Rolfe, A.L.S.; and, 3, "New Cape Plants," by Professor T. MacOwan, F.L.S.

Primula obconica as an Irritant.—The *Garden and Forest* of February 20 contains an account of severe irritation of the skin caused by handling Primula obconica. The correspondent, apparently a medical man, speaks confidently as to the cause of the irritation, but we are inclined to be sceptical as to the real cause of the malady. Has any one had any experience of the kind on this side of the water?

The "Canadian Horticulturist."—The excellent typography and more substantial quality of the articles in this publication afford an indication of the progress of horticulture, and especially of fruit culture in the Dominion of Canada. Both the Dominion and States have this season overdone the export of Apples, and are gaining little in consequence. The *Canadian Horticulturist* is published at Grimsby, Ontario.

Bromeliads.—M. Witte, the Curator of the Leyden Botanic Garden, has compiled an alphabetical list, with synonyms of the species cultivated in that garden. No fewer than 224 species are enumerated.

Publications Received.—*Proceedings of the Agricultural Research Association.* (Aberdeen: 173, Union Street).—*Revision of the North American Umbelliferæ.* By Coulter and Rose, Wabash College, Crawfordville, Ind.—*A Handbook of Cryptogomic Botany.* By A. W. Bennett, M.A., &c., and G. Murray, F.L.S. (London: Longmans, Green, & Co.)—*Villa and Cottage Gardening (for the North).* By A. Sweet. (London: Walter Scott, 24, Warwick Lane.)

CROCUSES.

No garden seems to be quite furnished for the late winter and early spring months if without the gay, cheerful, abundant blooms of early flowering species of Crocus. The late flowers come after one is satiated with the abundance of summer flowers, and although they are as fine as the early flowers, they are less thought of by all except the ardent amateur. Mr. J. Douglas, writing of Crocuses in his garden, says, "They are my favourite flowers. Quite in the open, and merely sheltered from north winds by a bank of grass, C. alatavicus is well in flower. It is a pretty thing. The flowers pure white, except where the outer surface of the outside segments are, is thickly marked with purplish-brown, this colour being quite dense at the base; the throat is yellow. Mr. Maw, in his monograph of the genus, says it flowers 'freely in cultivation during the latter half of February.' I find the time of flowering of Crocus varies much, especially those which expand in winter. Mr. Maw further says that, with the exception of C. Korolkowi, this is the only species that occurs east of the Caspian.

"C. biflorus and its varieties.—Mr. Maw gives March 10 as the dates of their flowering, these opened well with us before that; but they were grown in a cold pit. It is better known as Cloth of Silver. We have a form of it with clear, lilac-blue flowers—it is charming as a variety. C. banaticus is distinct and very pretty, the outer segments of the perianth are deep purple, the inner ones rather paler. It is difficult to get at the true form of this species, as it has had no less than nine different names, and it is here that the value of Mr. Maw's work is acknowledged, and the truthfulness of the coloured figures of the flowers of the greatest assistance. Here again the time at which our Crocus flowers does not agree with his, thus showing that there is something very exceptional in the present season. Mr. Maw says, 'C. banaticus is a valuable plant for garden decoration; it is of robust habit, and flowers freely in March, in the cold frame, and open border.' Ours are under glass. The same remark applies to C. imperati; this is recorded as having flowered on March 4, whereas our in the cold pit was open a month ago. The perianth segments of this species are of a lovely shade of purple; the outer surface of the outer segments only being buff, feathered-purple. This is an excellent garden plant.

"There are three very distinct yellow, or rather orange-coloured, species in flower. C. ancyrensis with self-coloured flowers, is rather weak in growth, and does not increase freely. Maw gives February 7 as its time of flowering, which is nearly in accord with my own experience. C. Balansæ I admire most of all, it is in about the same stage of development as the other, and yet Mr. Maw gives March 25 as its time of flowering. The colour is rich orange, and the outer perianth segments are richly chased with purplish-brown; the form of the flower, too, is exquisite. The other yellow form, C. chrysanthus fusco-lineatus of Baker, is quite distinct. The colour is golden-yellow, except on the outer surface of the exterior segments of the perianth, which are of a bronzy colour. There are lilac and sulphur-tinted forms, which in their way are distinct and pretty. Maw notes its time of flowering as on March 6, but states that C. chrysanthus in its wild state flowers from January to April; and that it produces its flowers as early as February in the open border. This shows that no definite week or even month can be given as the flowering time of these pretty border plants."

TRADE NOTICES.

Mr. James Cole, late Manager at Messrs. Ireland & Thomson's Craigleith, and New Golden Acre Nurseries, Edinburgh, has been appointed indoor Manager to Messrs. Standish & Co.'s Royal Nurseries, Ascot, Bucks.

The Late Charles Frazer.—We are requested to state that the business of the late Charles Frazer, Horticultural Builder, Norwich, is still being carried on as usual by the executors under the will.

CALANTHES AT THE HENDRE, MONMOUTH.

[See Supplementary Sheet.]

The view which is depicted in our supplementary illustration in the present number affords an idea of the manner in which Orchids—Calanthes in this particular instance—may be utilised in a natural way on rockeries under glass. Mr. T. Coomber, the gardener to J. A. Rolls, Esq., The Hendre, Monmouth, who kindly furnished us with the photograph of the conservatory, sent the following notes concerning the plants:—

Every one ought to grow the Calanthes, as they are of easy cultivation, and when well grown they blossom freely, and last in good condition for several weeks at a season of the year when flowers are scarce. Like many other subjects there are various ways of growing such species and varieties as C. Veitchii, C. vestita oculata rubra and C. v. o. lutea. Composts alone differ widely, and growers are not agreed as to what is essential for their well being, some preferring sphagnum and charcoal; others a mixture of loam, peat, and sand, and decayed cow manure; whilst I give my preference to a large proportion of fibry loam mixed with cow-dung. Position near the light is an important point in their culture, and I find they grow best when they are grown upon shelves near to the glass in the stove, and are duly shaded from bright sunshine, and liberally watered with some kind of liquid manure. Owing to their being deciduous they have a naked look when in bloom, unless associated with other plants with heavy leaves. During the late flowering season of Calanthes there was a house full of the plants here. The Calanthe plants upon the rockery in the conservatory are intermingled with the permanent occupants. No plant is better adapted for this purpose than are these. There were upwards of 150 flower-spikes with expanded flowers on them at the time of taking the photograph.

NURSERY NOTES.

CYPRIPEDIUMS AT MR. B. S. WILLIAMS'.

In the houses where Cypripediums are grown at the Victoria and Paradise Nurseries, Upper Holloway, amid the beautiful foliage of the well-grown plants the flowers of some very fine species and varieties of these plants were noticed on the occasion of a recent visit, and many more are in bud. Those in bloom were the handsome bizarre, C. Dauthierii marmoratum, C. Williamsii, C. Meirax, C. Fitchianum, C. Charles Canham, C. Measuresianum, C. Sedeni candidulum, C. Io grandis, C. politum, C. Sallierii aureum, C. Amesianum, C. Harrisianum superbum, C. selligerum rubrum, C. vernixium, C. grande (a noble specimen), and other fine hybrids, the species being represented by C. tonsum, C. hirsutissimum, C. Argus, C. javanicum, &c. In the same range are many Dendrobium Ainsworthii, D. Fytchianum roseum, D. luteolum, D. nobile nobilius, Aëranthes Leonis, Lycaste fulvescens, Phalænopsis Sanderiana, and Lælia albida bella.

Zygopetalum Clayi superbum.×

It is not clear to many what Z. Clayi really is, and often a bad variety of Z. Mackayi has to do duty for it. Those who would like to see this distinct and handsome plant, which was first distributed by Mr. B. S. Williams, will find a large plant of a superb variety of it in bloom in the Orchid-houses of the Victoria and Paradise Nurseries, Upper Holloway. It was raised by Colonel Clay, of Birkenhead, with whom it first flowered in 1877. Its flowers have much the form of those of Z. maxillare, which, with Z. crinitum, was one of its parents; sepals and petals purplish-brown, marked with green, lip deep violet, paler at the edges. The rare Odontoglossum Humeanum, O. facetum, O. lanceans baphicanthum, Reich. f.; O. mirandum, O. cuspi-

datum, and other rare Odontoglossums and other plants, will be found in bloom in the cool-houses.

Spring-flowering Calanthes.

In one of the fine groups of Orchids in flower which adorn the entrances to the Orchid-houses at Upper Holloway, these form a very fine feature, their arching sprays of flowers being very effective, curving over larger and more stiff-growing plants. They consist of the different varieties of C. Regnieri, white, with rose to purple eye, the variety C. R. fausta, introduced by Mr. Williams, being the best; C. nivalis is the finest pure white; C. Williamsii is a great beauty, with white and pink sepals and petals, and deep crimson lip; C. Stevensi is also very handsome, and the older C. Turnerii still a good plant. Coming in after the C. Veitchii and C. vestita varieties are done, the value of these spring flowers cannot be over-estimated. In the same group several strong plants of Cœlogyne cristata alba, C. Skinneri alba, Platycycnis glumacea, with twenty-one spikes; the large white Cymbidium eburneum, 2 feet across; C. Lowianum, with six spikes of 156 flowers, and others are in bloom. *J. O'Brien.*

PLANT PORTRAITS.

Berberis Thunbergii, *Garden and Forest*, January 30.

Billbergia thyrsoidea, *Gartenflora*, t. 1291.

Burlingtonia fragrans, *Orchid Album*, t. 363.

Cattleya Massaiana×, *Orchid Album*, t. 362.

Colocasia indica, *Gartenflora*, p. 67.

Irex Amelanchier, *Garden and Forest*, January 23.

Miltonia spectabilis, *Orchid Album*, t. 364.

Nymphæa marliacea chronoletta foliis marmoratis, *Le Jardin*, February 20.—Very pretty; but what are we to call it? It is alleged to be a seedling from N. alba with canary-yellow flowers and spotted leaves.

Saccolabium cœleste, *Orchid Album*, t. 361.

Scabiosa caucasica, *Garden*, February 9.

Susum anthelminticum, *Revue Horticole*, February 16.—A Sumatran plant of Dracæna-like habit with the inflorescence of Xerotes, and a profusion of small red berries. It is interesting as forming a link between numerous natural orders, and is not to be despised as an ornamental plant. It is figured from a plant flowering in the Jardin des Plantes.

Vanda tricolor, *Lindenia*, t. 567.

NOTICES OF BOOKS.

Cactus Culture for Amateurs, &c. By W. Watson. (Upcott Gill, 170, Strand.)

We hail this volume with the more pleasure in that it affords us a surprise. Cactuses had, as we thought, so far fallen out of favour that the publication of a book upon them might have been regarded as a Quixotic enterprise. Nevertheless, within a short time, two volumes on the subject have been issued, that of Mr. Castle, already noticed, and that of Mr. Watson now before us. The enterprise of the publisher is further shown by his not waiting for a demand, but creating one. Thinking that the general absence from gardens of these plants was due to the circumstance that their cultivation and management were little known, the publisher suggested to Mr. Watson that a series of articles on the subject in the *Bazaar* would be useful. That the publisher's forecast, extraordinary as it seems, was justified is shown by the publication of this volume, wherein the articles in question are republished with the requisite additions and modifications. "The whole is now offered as a thoroughly practical and descriptive work on the subject."

Botanical details are but slightly touched on, but a brief description of the most important genera and species is given, together with directions for their cultivation and propagation. The cultural requirements are, speaking broadly, full exposure to the light, moderate heat, an ample supply of water in the period of growth, and either none at all at other times, or only so much as may serve to keep the plants clean. The soil recommended by Mr. Watson is a rather stiff loam, mixed with a sixth part of small brick rubble. As to the admixture of lime rubbish, Mr. Watson tells us that its use has been discontinued as unnecessary, and then goes on to make the assertion that in good loam lime in the state of chalk is always present—a statement which limits the definition of good loam to that which overlies a chalky subsoil. Small pots well drained, and with the soil firmly pressed in, are recommended for these plants.

If we may judge from our own experience, the great difficulty with cultivators, professional as well as amateur, is to get them to flower. This absence of flower prejudices the cultivator against the plants which he begins to dislike for the persistent monotony of their appearance. Of course, if the grower has the *feu sacré* in him or her, these plants, with their quaintness and their extraordinary structure, are as full of interest (only more so!) as the grandest Tulip that ever expanded beneath a canvas awning, and the absence of flower is not so much felt. Nevertheless, for the benefit of the weak-kneed—and even Cactus lovers do like to see their plants bloom sometimes! we extract what Mr. Watson says on this subject, particularly as the blooms, when they do appear, are often of the most gorgeous character:—

"It is possible to preserve most Cactuses alive by keeping them constantly growing, but with very few exceptions, such treatment prevents the plants from flowering. The following is what is practised in the gardens where Cactuses are successfully cultivated:—For the genera Cereus, Echinopsis, Echinocactus, Mamillaria, Opuntia, and Melocactus, a moist, tropical house is provided, and in April the plants are freely watered at the root, and syringed overhead both morning and afternoon on all bright days. This treatment is continued till the end of July, when syringing is suspended, and the water supplied to the roots gradually reduced. By the end of August the plants are placed in a large light frame, with a south aspect, except the tall-growing kinds, which are too bulky to remove. In this frame the plants are kept till the summer is over, and are watered only about once a week should the sun be very powerful. The lights are removed on all bright, sunny days, but are kept on during wet or dull weather, and at night. Under this treatment many of the species assume a reddish appearance, and the thick, fleshy-stemmed kinds generally shrivel somewhat. There is no occasion for alarm in the coloured and shrivelled appearance of the plants—on the contrary, it may be hailed as a good sign for flowers.

"A common complaint in relation to Cacti as flowering plants is that they grow all right, but rarely or never flower. The explanation of this is shown by the fact that the plants must be properly ripened and rested before they can produce flowers. On the approach of cold weather, the plants which were removed to a frame to be ripened, should be brought back into the house for the winter, and kept quite dry at the roots till the return of spring, when their flowers will be developed either before or soon after the watering season again commences."

There are a certain number of species which may be grown out-of-doors, especially in the drier parts of the country. Our own experiments in this way have not been either numerous or extensive, but such as they are they have been rather depressing in their results, more, as we believe, from the moisture of the atmosphere than from any other cause. We shall do well therefore to cite what Mr. Watson says on this subject also, particularly as he bases his statements on the trials made for the past few years in the herbaceous ground at Kew.

"The most successful plan is that followed at Kew, where a collection of the hardier species is planted in a rockery composed of brick rubble and stones. During summer the plants are exposed but when cold weather and rains come, lights are placed permanently over the rockery, and in this way it is kept comparatively dry. No fire-heat or protection of any other kind is used, and the vigorous growth, robust health, and proliferousness of the several species are proofs of the fitness of the treatment for this class of plants.

"In any garden where a few square yards in a sunny well-drained position can be afforded for a raised rockery, the hardy Cactuses may be easily managed. To make a suitable rockery, proceed as follows:—Find a position against the south wall of a house, greenhouse, or shed, and against this wall construct a raised rockery of brick rubble, lime rubbish, stones (soft sandstone, if possible), and fibrous loam. The rockery when finished should be, say, 4 feet wide, and reach along the wall as far as required; the back of the rockery would extend about 2 feet above the ground level, and fall towards the front. Fix in the wall, 1 foot or so above the rockery, a number of hooks at intervals all along, to hold in position lights sufficiently long to cover the rockery from the wall to the front, where they could be supported by short posts driven in the ground. The lights should be removed during summer to some shed and brought out for use on the approach of winter. Treated in this manner the following hardy species could not fail to be a success:—

"Opuntia Rafinesquii and var. arkansana, O. vulgaris, O. brachyarthra, O. Picolominiana, O. missouriensis, O. humilis, Cereus Fendleri, C. Engelmanni, C. gonacanthus, C. phœniceus, Echinocactus Simpsoni, E. Pentlandi, Mamillaria vivipara."

We may add that the book is copiously illustrated with woodcuts mostly from well-known, though unacknowledged sources, and provided with a sufficient index.

VEGETABLES.

DR. HOGG PEA.

Although this variety was very favourably reported on at the Chiswick trial last spring for its earliness, it is not fit to take the place of the round-seeded early Peas. In order to give it a fair trial, I sowed some of it on November 10 by the side of our standard early varieties—Veitch's Extra Early, Laxton's Earliest of All, Carter's First Crop, Standard, and Ne Plus Ultra, and I notice that the frost has cut Dr. Hogg so severely that scarcely a live plant remains, while the other varieties have scarcely any plants killed; it is therefore a Pea with a tender constitution, and not adapted for autumn or early spring sowing. The other varieties named, now 2 inches high, are well protected with coal-ashes placed over the roots, and boughs of evergreens on the most exposed side, and weathered the severe frost well. *W. H. Divers.*

The Globe Artichoke.

Artichokes are in request as an adjunct to the dinner-table, and are to be found in most gardens. They grow best in a sandy loam, and in an open situation. The ground to be planted should be trenched to a depth of two spits or more, a liberal quantity of manure being put into the soil in the process. Where the natural soil is clayey it is a good plan to open trenches at 3 feet from centre to centre, 2 feet wide, and at least 18 inches deep, and to fill them with a mixture of manure, leaf-mould, and any waste soil at command. As soon in April as offsets having leaves 9 or 9 inches long can be obtained slip off two or three of these from stools which have the greatest number, securing them with a heel and a few roots. These should be at once planted in triangular clumps at from 7 to 9 inches from plant to plant, in rows at a distance of 3 feet apart, and at the same distance from clump to clump in the rows. Plant the suckers about 4 inches deep, and take care to make the soil firm about them with the hands. Water after planting if no rain fall, repeating the application at short intervals, according to the weather, until they have taken hold of the soil. The ground between the rows and plants should then be forked over, and a mulch of short dung be laid on.

New plantations yield a good supply of heads till late in the autumn, and long after those which have been planted a year or two, have cease to produce any. It is, therefore, a good plan to destroy a row or two of the old plants annually, planting an equal number of new ones. Any vacancies existing

in old rows may be filled up in the manner indicated with young suckers. In the South, Artichokes are fit to cut in ordinary seasons at the end of June, and in the North ten or fifteen days later. The heads should be cut while the scales remain closed, otherwise they will not be fit for table. When the Artichokes have been all cut, the stems may be cut down and all dead leaves removed. In early November a good thickness of stable litter should be wrapped round each stool from the ground to within a few inches of the top of the leaves, following this with a good surface-dressing of rotten dung between the rows as a protection from frost. *H. W. W.*

Scotland.

NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.

The monthly meeting of the members of this Association was held in the Christian Institute, Aberdeen, on Wednesday, the 6th inst. Mr. D. M. Smith, Vice-President, in the chair. The principal business was a paper on the "Cultivation of Hardy Fruit," by Mr. A. Chisholm, gardener, Duffus House. At the outset, Mr. Chisholm referred to complaints which had been made that the Apples now-a-days were inferior to those grown in former times. He stated that his employer, who had given special study to the subject for years, was of opinion that there was no falling off in the quantity, though some varieties had not ripened so readily. He thought that the want of attention to the growth of this kind of hardy fruit was attributed to the importation of large quantities annually from America and elsewhere. He also indicated that probably our forefathers in former days had not the disease of canker to contend with. Though he did not recommend the planting of extensive orchards in Aberdeenshire, it was not too much to expect that Apples and Pears could succeed in Aberdeenshire. He threw out the hint to those who were growing Apples for the market that, as that fruit was never in better perfection than in September and October, they might take that fact into consideration and get their fruit sold off before the foreign fruit glutted the markets. A model of a fruit protector, by Mr. Fairgreave, Dunkeld, was exhibited and created a good deal of interest. A Cultural Certificate was awarded to Mr. Auld, The Firs, Murtle, for beautiful specimens of Cinerarias and Cyclamens.

Glasgow: Messrs. Austin & McAsland's New Warehouse.

After the disastrous fire in Buchanan Street this firm has succeeded in finding new premises on a very large scale in Mitchell Street, fitted up with every modern convenience for the carrying on business on a large scale.

Honour to a Scottish Botanist.

The Senatus of Aberdeen University on Saturday resolved to confer the honorary degree of LL.D. on, among others, Mr. John Roy, headmaster, Dr. Brow's School, Aberdeen, and President of the Natural History Society of Aberdeen. The University Senatus conferred the LL.D. degree upon him mainly in respect of his scientific attainments. In connection with the Dunecht Observatory (near Aberdeen belonging to the Earl of Crauford and Balcarres), he did much valuable work which was only known at the time to a very limited circle, as the results were printed for private circulation, and did not have Mr. Roy's name attached to them. In Aberdeen he has long striven to promote and foster a taste for the study of natural history. It is understood that the results of his investigations into the general botany of the North-east of Scotland will very shortly appear in the form of a "Botanical Guide," the joint production of Mr. Roy and Rev. John Ferguson, formerly of New Pitsligo, Aberdeenshire, now parish minister of Fearn, Forfarshire. Mr. Roy has chiefly, though not exclusively, engaged himself in the examination of the Desmids of this and other countries.

Home Correspondence.

CANARINA CAMPANULA: THE CANARY BELL-FLOWER.—There is a figure of this plant in the *Bot. Mag.* t. 444, which is by no means overdone, as might have been judged from a few flowers exhibited at the meetings of the Royal Horticultural Society on the 12th inst. The plant is a greenhouse herbaceous perennial, of a semi-scandent habit, with a thick fleshy rootstock, from which the slender, much branched, annual stems arise. The leaves are fairly large for a Bellflower, hastate, heart-shaped, and light milky green, nearly white on the under side. The flowers are produced singly in the forks of the branches—or, rather, the flower terminates the branch, which then divides into two from the axillary bud so on, for a month or two in the early months of spring, thus giving a succession of flowers, each one of which lasts in perfection on the plant for a week or two. They are also useful for cutting where select single blossoms are appreciated. In form the flowers are distinctly bell-shaped, and their colour is reddish, yellow, or orange, with (in their earlier stages) a tinge of purple, the venation having a distinctly, well-marked, feathery appearance, and much deeper in colour. They have a drooping habit, and when well grown the plant is a pretty object. We are told that it was cultivated in Hampton Court Gardens as long since as 1696; it is, therefore, no new-comer, and its long existence in the country is proof that it has been deemed worthy of preservation, although it is not commonly met with now. Its cultivation is simple. At any time during growth it may be easily struck from cuttings, in the usual way, and these, in the second year, will make flowering plants. Division of the root-stock may also be practised. A rich and rather sandy, loamy soil answers well, but almost any compost will do if it is not too poor. The best time to part the roots is in early summer, soon after the growth has died down. They should then be plunged in a cool frame, but not shaded, and allowed to remain there until it is time to house them, in autumn, to protect from frost. At all times they should have abundance of air and light. As the plants rarely exceeds 4 feet in height it makes a nice subject to train up the front of the greenhouse, in which position the flowers are probably seen to the best advantage. After growth is completed very little water is required until growth is again well advanced, when liberal supplies should be given. *F. R.*

POULTRY MANURE.—As nearly every estate has a poultry-house, and the question is being frequently asked as to the value of manure, it may not be without interest to consider some recent analyses with which we have been furnished. The excrement of fowls is one of the most invigorating fertilisers, and is worthy of greater consideration than is often bestowed upon its collection. The difference between the excrements of fowls and that of cattle is that the former contains in solid form all the fertilising ingredients of the food except what is retained in the body for growth or goes into the eggs; while a very considerable portion of the fertilising value of the food of cattle is excreted in liquid form, and is easily lost even in the stalls and farm enclosures. The following table gives the comparative value of 1 ton of poultry manure and 1 ton of an average mixture of horse, cow, and pig manure, giving four of the most important manurial constituents:—

Selected Chemical Constituents in 1 ton of Poultry Manure and 1 ton of Cattle Manure, in Pounds.

	Nitrogen.	Potash.	Phosphoric Acid.	Lime.
	Lb.	Lb.	Lb.	Lb.
Poultry manure...	29	14	20	47
Cattle manure ...	12	11	8	16
Poultry in excess of cattle manure	17	3	12	31

These results show that poultry manure contains more than double as much nitrogen, two-and-a-half times as much phosphoric acid, a little more potash, and three times as much lime as cattle manure; and it is easy to see why the dung of fowls is the richer manure. The food of fowls is very concentrated, and consists chiefly of grain, insects, and worms, and the dung contains both the urinary and bowel excretions. On the other hand, cattle consume immense qualities of woody fibre in their food, and their excrements accordingly consist largely of undigested fibre, with what of the urine may have been absorbed and retained by it. Poultry manure, being so concentrated a fertiliser, and coming quickly into action as plant-food, should be applied only in moderate quantities at a time, and not be dug too deeply into the soil. It may be mixed with charcoal-dust, soot, or cinder-siftings, and applied with great advantage to Vine borders and Rose trees. It forms a capital dressing for lawns and pleasure-grounds, especially those infested with moss. In all cases it should be rendered small by breaking up and sifting previous to use. In France poultry manure is extensively used as a manurial dressing to Orange, Mulberry, and Olive trees; and in Belgium it is used as a manure for the Flax crop. *J. J. Willis, Harpenden.*

PASSIFLORA EYNESFORD GEM.—This new form, which is being distributed by Messrs. H. Cannell & Sons, and by them denominated a "perpetual flowering Passion-flower," is now in flower in one of their stoves, where it is an object of beauty. Of its parentage nothing appears to be known, except that it was raised near the sea-coast in Devonshire. It has been planted out in one of the stoves at Swanley for two years, and it has scarcely ever been out of bloom. The flowers are of the size of those of P. cœrulea, the ground colour red, shaded with rose; and it is a free bloomer. It appears to partake of the character of P. kermesina to some extent. Whatever its character, its persistency of bloom is a main recommendation. It is to be regretted that reliable information respecting its origin is not forthcoming; its characteristics could be better determined if something were known of its parentage. *R. D.*

PLANTS IN FLOWER IN MR. G. F. WILSON'S GARDEN.—At Oakwood there are many beautiful flowers in bloom notwithstanding the late very trying weather. Early Cyclamens have been in great beauty I am now sure that they thrive best in full sun; Narcissus minimus has been out for more than a month; a large Hoop Petticoat—I believe Corbularia sulphurea—is in fine flower, and also a smaller pretty one. Hybrid Hellebores of many shades of colour are finer than we ever had them before; these have some simple sort of shelter in hard frost, and in very rough weather. Some Helleborus niger I had from Bath, and planted late, continue to throw up good flowers. Scillas and Chinodoixas are beginning to bloom; some species of Snowdrops are out, Galanthus plicatus, G. imperati, G. Redoutei, G. Elwesii, and some others; some varieties I had given me before we learned the best places to grow them in, alas! are lost. Many of the species of Crocus are most beautiful—one a purple, much richer in colour than any of the garden varieties I know. Hepaticas are coming out well; some of our best are in a mossy bank, which adds to their beauty; the single pink and blue have endless shades of colour. Primroses of all shades have been beautiful, many of the descendants of Scott Wilson have beautiful shades of plum-blue and blue-purple, and some are of a pale greyish-blue, more like the colour of the old Blue Primrose. Iris reticulata cœrulea, a gem, is nearly over, but the type is in beauty; a few hardy Heaths, both pink and white, are out, and large plants of Andromeda floribunda. Petasites has not much beauty, but looks well in a mass [and is fragrant]; Snowflakes also are especially beautiful in large clumps. Anemone buds are slow in coming out. I have enumerated all the flowers I remember; but not writing on the spot some may have been left out. *George F. Wilson.*

SURFACE-ROOTING STOCKS.—Will Mr. Runyard kindly tell us how the wild Pear and the Crab stock (figs. 50 and 53, pp. 296 and 297) were propagated? Of course, it is not quite a fair test to take seedling Pears and Crabs, and compare their "anchor" roots with the "fibrous" roots of Quinces and Paradise

Apples increased by cuttings and layers, and I do not expect that such an experienced fruit cultivator as Mr. Bunyard is will have compared stocks raised in widely different ways, but it will be interesting to know the facts of the case. My own experience of Crab and Pear stocks is that, when increased from cuttings or hillock-layers, they do not produce the deep prong-like or "anchor" roots that seedlings do, and even seedlings properly lifted and root-pruned the season before they are grafted or budded have thick and bushy roots quite as numerous and as surface-rooting as the Quince and Paradise as figured, but of course neglected seedlings will not do so. We cannot be too careful of the manner in which our fruit tree stocks are prepared previous to their being "worked." *F. W, Burbidge.*

HYBRID ORCHIDS.—Some hybrids of Phaius grandifolius × Calanthe Veitchii have been raised here. The seed, which was very good as regarded intention to treat in this way. I have some Cattleyas whose flowers have been fertilised now some twelve months; also Cypripediums and Lælias. Moreover, I have Oncidium fertilised with Odontoglossum, the capsules being now ripe; and likewise Zygopetalum Mackayi and Calanthe vestita fertilised with Phaius grandifolius. These facts are alluded to to show that hybrids may be raised from seeds without having special treatment. *W. Smythe, Basing Park, Alton.*

CLAY DRESSINGS FOR LIGHT SOILS.—Few who have to do with light soils exclusively have any idea what good a dressing of clay does, especially if put on during the winter at a time of hard frost, when it can be got on the land easily, and the frost shivers it into powder. In the garden here we are able to tell to a yard, by the look of the crops, where the clay was put; and one quarter that has had several dressings always carries better Strawberries and culinary vegetables than either of the others, which have will bring it up on their roots. For mixing with light loam for potting Strawberries, clay is of great value, and so it is used, in the same way with manure or leaf-mould for growing Melons, which like stiff soils, but in either case it should be such of it as has become ameliorated by exposure to the weather. Some gardeners, no doubt, have too stiff and unworkable a kind of clay, and long for the lighter material, but the remedy in their case lies the other way, and road scrapings, leaf-rakings, and rubbish-heap ingredients, properly and continuously employed, will soon effect an improvement in the staple. *J. S.*

CLIANTHUS PUNICEUS.—This fine old plant has been in bloom here for six weeks past, at the eastern end of the conservatory, where it covers a large trellis. The plants may continue to bloom for six weeks longer. It is about 30 feet high, is a very free grower, a most abundant bloomer always, and is well suited to train over and round the window-openings, or on any bare place, the foliage being



Fig. 64.—Saxifraga pyrenaica var. superba. (see p. 330.)

vitality, grew quickly on being sown. P. grandifolius, which was the seed-parent, was fertilised on January 1, 1888, and the seed capsule was ripe on June 1, and was at once sown. A nice lot of young plants came up about the end of September, and some of the plants are now 1½ inch high, and look promising. The foliage is very much more like that of Calanthe Veitchii than of Phaius grandifolius. I may mention that the seed was sown on the soil in which the plant of Phaius was growing; and before sowing the seed the soil was loosened on the surface, and the old plant placed on a shelf in the stove, where the treatment adopted was that usual with Phaius. I think that this is by far the easiest and most certain way to raise any seedling Orchids, and I feel quite sure that seeds of many of our best Orchids, if they can be obtained, would come up well, and grow much better thus raised than if they are specially treated. I have proved that Odontoglossums and Cypripediums will succeed in this way. I have several other Orchids which have seed capsules upon them that will soon be ripe, and these seeds it is my not had any. The land on the first-named quarter is more holding of moisture, the clay taking in moisture from dew and rain, and which it retains better, and absorbs more of the juices of the manures used than the undressed land. This winter I have dressed a large piece of ground with stiff blue clay, that is at this moment crumbled all to pieces. I wait for drying winds to render it less sticky, and render it fit to tread on and dig. Some years ago the Pear trees were in a bad state, and I treated them to about eighty cartloads of clay; and this was done by removing a commensurate portion of the gravelly subsoil, and trenching in the former, the trees being left standing on a base of about 3 feet square, and the roots were laid into the fresh mixture as the work went on. By so managing the work the trees were not disturbed sufficiently to check them much, and there was soon a great improvement visible in their appearance; and to-day they bear fine crops of clear-skinned fruit, where before, all of it used to crack, and be scarcely worth the gathering. Roses like it, too, as I have found on lifting them that they neat and elegant, and its scarlet-crimson, pendent, pea-like flower hangs like drapery round the windows. I received the seed from Australia about eight years ago. The plant was planted in the conservatory border in turfy loam and leaf-mould, with a liberal quantity of sand. In the summer months it gets abundant water and much syringing—three times a week—and it is always thoroughly syringed after the flowering period is over. It is pruned at that time, and tobacco-powder is well shaken all over it whilst wet from syringing. Cuttings will root in any light soil, if placed under glass. I have seen it doing well, on a south wall, in warm situations out-of-doors, but it needs protection in winter. This is the best species of Clianthus I have hitherto seen, it growing and flowering much more freely than some other seedlings. *Wm. Smythe, Basing Park, Alton, Hants.*

WHITE ARUM.—My experience with this plant coincides with that of Mr. T. Coomber, and, like him, I think that a season such as the last one

was is just what suits the plant. My practice is to plant out the the roots in June in trenches 3 feet apart, prepared as for Celery. Last season after planting out and giving a good soaking of water no further attention was required until the beginning of September, when with a sharp spade the roots were cut round about the size required. In about a fortnight afterwards the roots were potted in 10 and 11-inch pots, and placed on the north side of a wall till the commencement of October, when they were removed to a warm greenhouse, and by the end of October they had begun to throw up many fine spathes, which they have continued to do up to the present time, and will continue to do so for some time yet. Periodical dressings of Standen's manure are afforded the plants, and a copious supply of water to the roots at all times; light fumigations are given often to kill aphides. Some of the spathes measured from 5—9 inches across. It is well known to gardeners that a mode of treatment that may be satisfactory in one district will be just the reverse in another, and it is only by observation that the gardener will find out the requirements of the plant in different localities and in diverse seasons. *B. Ashton, Glossop Hall, Derbyshire.*

SOCIETIES.

ROYAL HORTICULTURAL.

Tuesday, March 12.—"A very interesting gathering," was the verdict of those who were present at the Drill Hall, James Street, Westminster, on Tuesday last. Narcissi were abundant, but not excessively so. A few Orchids, some of them new and choice, put in an appearance. Primula sinensis, P. Polyanthus, trade groups of Cyclamen in pots, and of Camellias and miniature Roses were met with in quantity, and a fine group of Nepenthes from Messrs. Veitch.

Floral Committee.

Present: J. Marshall, Esq., in the chair; and Messrs. R. Dean, H. Herbst, B. Wynne, W. C. Leach, G. Nicholson, J. Walker, F. Ross, W. Holmes, L. Castle, G. Paul, J. Laing, J. Fraser, P. Blair, T. Baines, E. Hill, H. M. Pollett, R. B. Noble, J. O'Brien, J. Douglas, J. Dominy, H. Turner, T. W. Girdlestone, E. Mawley, Shirley Hibberd, M. T. Masters.

The showy novelty, Cypripedium Rothschildianum, described in these columns on April 14, 1888, and imported by Messrs. Sander last season, was exhibited by Mr. E. Hill, gr. to Lord Rothschild, Tring Park. It is a singular and beautiful flower. The leaves were broad and long, bright green in colour, and the plant bore one spike with two flowers, that is one less than the normal.

Cypripedium Elliottianum, by the same introducer as the first-named, was shown by Mr. Williams, gr. to the Duke of Marlborough, Blenheim. The plant carried only one flower. A description by Professor Reichenbach and a figure of it may be found in our issue for November 10 last year. The flower resembles more the Selenepediums in the lengthy tails of the petals, and is altogether a remarkable acquisition.

A magnificent plant of Dendrobium nobile Wallichi was sent by Mr. C. Beckett, gr. to T. B. Bryant, Esq., Juniper Hill, Dorking. The whole was a mass about 4 feet through, and laden with finely-coloured blooms.

Messrs. Heath & Sons, Cheltenham, showed a vigorous specimen of Odontoglossum luteo-purpureum var. crispata, with three good spikes of blooms, heavily marked with coffee-brown on a yellow ground. The segments were prettily undulated and the lip fringed. From the same firm there was Masdevallia Heathii, stated to be a hybrid between Veitchii and ignea rubescens. The flower was of good size, rich scarlet, with lines of scarlet purple.

Messrs. J. Veitch & Sons, Chelsea, showed Dendrobium Schneiderianum, whose flowers measured 3 inches across, and are semi-transparent white with pink suffusions at the extremities of the petals and the lip; the throat is of orange colour, with purple stains at the base. Also Cymbidium eburneo × Lowianum, a three-flowered spike; colour of the flowers pale fawn, set off by a crimson line at a short distance from the edge of the sepals and petals. Messrs. Veitch's other exhibits consisted of well-grown Nepenthes, which included the striped variety of N. Veitchii, in which the voluted edge of the pitcher is green with red-brown stripes crossing it at an acute angle; the lid is green, much striped with red, and is greatly larger than in the ordinary form of Veitchii, and the sinus is smaller and less hairy. N. Dicksoniana is a fine red pitcher. A few beautiful Hippeastrums (Amaryllis) came from this nursery—John Ruskin, an immense deep crimson trumpet, excels anything yet produced for size combined with regularity of outline; A. Acquisition is a bright scarlet-coloured variety, with white lines and reticulation within the flower.

Mr. B. S. Williams, Paradise Nursery, Upper Holloway, showed a mixed group of plants in flower, amongst which we noted small examples of Odontoglossum Humeanum, O. baphcanthum, Lycaste Skinneri alba, Cypripedium melanopthalmum, a three-flowered plant; C. Sallieri, C. hirsutum, C. Measuresianum, C. Argus, Lælia albida bella, Azalea indica Princess of Teck, a beautiful and large double variety, white; Ochna multiflora, and cut blooms of Sparmannia africana, fl.-pl.

A plant of Genista Oweniana (Everestiana × elegans) was exhibited by Mr. R. Owen, nurseries, Maidenhead. The plant, which was 2 feet in diameter, was robust of habit and was covered with spikes of bright deep yellow flowers. Primula sinensis fl.-pl. Imperial shown by him, is one of the best double Primulas ever raised—the petals are such as to give a circular form to the bloom, and are numerous enough to constitute a fairly double one; they are dentate at the edge and mostly flat. It is a French-white, and the foliage is of the usual character. Primula sinensis blooms in considerable variety and fine quality; and a mauve-coloured Chrysanthemum of the Japanese section, Mrs. J. N. Gerrard, originating in the United States were comprised in the exhibit.

Some boxes of excellently grown Violets came from W. C. Leach, gr. Albury Park, Guildford, the exhibit consisted of De Parme, Neapolitan, Marie Louise, and Swanley White, the latter looking very like Comte de Brazza.

Mr. J. Douglas, gr. to Mrs. Whitbourne, Great Gearies, Ilford, showed Hyacinthus azureus (Baker), a cœrulean blue flower-spike, standing on a footstalk 3 inches high, a pretty thing planted thickly in a pot, and useful for jardinieres. He also exhibited Iris Rosenbachiana, a dwarf species of some merit.

Primulas were shown by Mr. K. Manning, gr. Manor House, Gunnersbury, and by Mr. Coleman, gr. Camella Lacey, Dorking.

A magnificent Clivia miniata var. Lady Wolverton, a seedling shown by Mr. P. Davidson, Iwerne Minster, Dorset. The truss was of great size, as were the flowers individually, which were cinnabar-red, with the throat a vivid golden yellow colour; Primula Blue Gem, which, if we err not, has been shown recently under another name, came again from Mr. R. Dean, and this time it received its Certificate. The colour is blue-purple, nicely set off by the yellow eye. Hardy Primroses, cardinal-crimson, and Lady Sandhurst maroon-purple, were shown by the same florist.

Many show-boxes, filled with cut-blooms of Camellias, came from Messrs. W. Paul & Son's nursery, Waltham Cross. The exhibit consisted of the cream of the old and new varieties, and well showed what a wealth of colour and variety of form exist in the Camellia.

The St. George's Nursery Company, Hanwell, W., made an excellent show with Cyclamen giganteum in variety. The plants, which were growing in 48's, were of comparatively large size, and very well bloomed—the colours pure, and the blooms above the average in size.

Some hybrids of Polyanthus, consisting mainly of yellow flowers, came from the nursery of Mr. H. B. May, Dyson's Lane, Lower Edmonton, useful decorative greenhouse plants at this season.

Messrs. Paul & Son, Cheshunt, exhibited a small collection of fairy and polyantha Roses chiefly as dwarfs, although there were a few standards. The new Roses also shown were The Bride and Puritan, white flowers; in Lady Castlereagh, pink; Colonel Felix Breton, very dark, a nice full flower; and Lady Alice, pink. Rosa rugosa was shown in bloom. The collection of Saxifrages in pots shown by this firm was very extensive, and among the miscellaneous plants shown were Galanthus plicatus, Androsace Laggeri, Chionodoxa sardensis, Iris reticulta, Iberis stylosa, Hepatica triloba, Ranunculus anemonoides.

Two pots of the pretty Saxifraga Burseriana in full flower were shown from the Society's Gardens, Chiswick; and a single plant of Primula petiolaris, from Professor M. Foster, Cambridge. This is a low-growing plant with large flowers, lilac, with a white tube.

Mr. F. Ross, Pendell Court Gardens, Bletchingley, contributed four interesting plants in cut specimens; they were Mutisia clematitis, a scarlet Composite, with a long tube. It is of a trailing nature, and its large bright flowers and light green leafage make it a very desirable plant for training along rafters, &c. Calliandra Tweediana, which, with its crimson flowers makes a very conspicuous object; Canarina campanula, an old plant rarely seen, but which is most worthy of cultivation. The bell-like flowers are large, about 1 inch or more across, purplish-orange, veined with a deeper hue. It does well with Mr. Ross in a cool greenhouse. The last to be named is Hardenbergia Comptoniana, the violet and white flowers of which are very freely produced.

An extensive collection of cut Daffodils was staged by Mr. T. S. Ware, Hale Farm Nurseries, Tottenham. The display consisted of the generally popular varieties as Horsfieldi, ornatus, Golden Spur, moschatus tortuosus, Telamonius, &c., relieved by bunches of Anemone fulgens, and Cyclamen Atkinsii, in red and white forms.

A collection of Narcissi, in pots, was sent by Messrs. Barr & Son, who also had a good selection of Crocuses, with Chionodoxas and Irises. Among the last-named Iris Rosenbachiana was to be seen. This has a flower of a generally pale dull-blue colour, which is very pleasing, the falls purplish-blue at the lips, with a bright yellow crest, and lined white and blue below. The growth is about 6 inches in height.

Of the Crocuses shown by Messrs. Barr, C. Sieberi var. versicolor is deserving of notice; it has the outer face of the outer segments prettily marked with a maroon feathing on white, and the rest of the flower is quite white, with a zone of golden-yellow at the base of the perianth. C. biflorus Weldoni, white, with the outer segments coloured, with a purple-grey exteriorly, was also prominent.

From Mr. A. J. Manda, 139, Barry Road, East Dulwich, was a painting of the American new feathered Chrysanthemum, Mrs. Alpheus Hardy. We have heard and read much about this novelty, and shall be glad when the time arrives when it is to be seen.

Awards.

First-class Certificates.

Amaryllis John Ruskin, from Messrs. J. Veitch & Sons.

Clivea Lady Wolverton, from Mr. Davidson.

Cymbidium eburneo × Lowianum, from Messrs. J. Veitch & Sons.

Cypripedium Rothschildianum, from Mr. E. Hill.

Iris Rosenbachiana, from Messrs. Barr & Son.

Iris Rosenbachiana, from Mr. J. Douglas (9—5 votes).

Primrose Blue Gem, from R. Dean (12—11 votes).

Primula (double) Imperial White (to the strain), from Mr. Owen (15—3 votes).

Award of Merit.

Primula petiolaris, from Professor Foster (13—6 votes).

Amaryllis Acquisition, from Messrs. J. Veitch & Sons (10—4 votes).

Cyclamen Prince of Wales (to the strain), from St. George's Nursery Co.

Medals.

Small Silver.—Mr. C. Beckett, for Dendrobium nobile Wallacei.

Silver Banksian.—Messrs. W. Paul & Son, for cut Camellias; Mr. T. S. Ware, for a collection of Daffodils; Messrs. J. Veitch & Sons, for a collection of Nepenthes.

Bronze Banksian.—Messrs. Barr & Son, for a collection of Daffodils; St. George's Nursery Co., for Cyclamens.

Fruit Committee.

Present: R. D. Blackmore, Esq., in the chair; and Messrs. W. Bates, H. J. Veitch, J. Cheal, G. Cliffe, G. W. Cummins, P. Barr, C. Ross, J. Smith, W. Warren, J. Willard, J. Roberts, G. Wythes, J. Burnett, W. Denning, P. Crowley, F. Q. Lane, W. Wildsmith, W. Coleman, and H. Weir.

The exhibits here were very small. Mr. Blair, gr. to the Duke of Sutherland, Trentham Gardens, Stoke, had a dish of wonderfully fine Calville Blanche Apples from trees grown in 11-inch pots. The fruits were very large, clean, and of generally fine appearance,

Mr. Divers, Wierton House Gardens, Maidstone, had about a dozen dishes of Apples, some of which were well kept. King of the Pippins, Winter Queening, Ribston, Winter Hawthornden, and Northern Greening were the finest.

LINNEAN.

March 7.—A papar was read by the Rev. Professor Henslow, M.A., F.L.S., "On the Vascular Systems of Floral Organs, and their Importance in the Interpretation of the Morphology of Flowers." The author drew attention to the importance of this class of observations, as supplementing development and teratology; for by referring all organs back to their "axial traces," their real origins could generally be discovered. Taking the words metaphorically as "floral units," he explained how they can, as it were, give rise to axes as well as to all kinds of floral appendages. Quoting Van Tieghem's definitions of axial and foliar characters, the former was shown to be subject to exceptions. After describing the arrangements of the cords in peduncles and pedicels, in which endogens often have the cords as regularly placed as in exogens, the author explained the different ways by which pedicels of umbels are formed in each c'aw respectively. The "chorisis" and union of cords were illustrated, and the effects produced. Considerable light was thrown upon the cohesion and adhesion of organs, and the interpretation of the "receptacular tube" and "inferior ovary" was shown to depend upon the undifferentiated state of the organs when in congenital union. The true nature of axile and free central placentas was revealed, so that in the case of the former, with scarcely any exception, the axis takes no part in the structure, all "carpophores," "stylopods," &c., being simply the coherent and hypertrophied margins of carpels. Similarly the free central placenta of Primula received its interpretation as consisting of the coherent and ovuliferous bases of five carpels which have the upper parts of their margins coherent in a parietal manner. Illustrative diagrams were exhibited of nearly seventy genera typical of about thirty orders. The paper was favourably criticised by Dr. D. H. Scott, Mr. A. W. Bennett, and Professor Marshall Ward.

Obituary.

The Earl of Radnor.—In the death of the Earl of Radnor, at noon, on Monday, March 11, in his seventy-fourth year, his dependents have lost a kind and just master, the poor a kind and generous friend, and horticulture a liberal patron. He was a Fellow of the Royal Horticultural and Royal Botanic Societies of London, and President of the Wilts Horticultural Society. He took a great interest in the latter, and subscribed liberally to its funds. He spent a good deal of his leisure time in his gardens at Longford Castle, visiting them almost every day. He was a very good judge of all kinds of fruits and flowers. He is succeeded in the title and estates by a most worthy son.

W. H. O. Sankey, M.D. — We regret to announce the death of William Henry Octavius Sankey, M.D., at Boreatton Park, Shrewsbury, on the 8th inst. The deceased gentleman was an enthusiastic horticulturist, much devoted to florists' flowers and the raising of seedlings.

The Weather.

THE PAST WEEK.

The following summary record of the weather for the week ending March 11, is furnished from the Meteorological Office:—

"The *weather* has varied considerably at different times during this period. On some days the sky was comparatively clear clear, but on others it was densely overcast, and rain, sleet, or snow were experienced. During the 6th, 7th, and 8th, the rainfall was unusually heavy over the south-western parts of the kingdom; on the 8th very large amounts were also measured in some parts of central England.

"The *temperature* has continued below the mean, but the deficit has been much less than that of last week. The highest of the maxima (which were recorded on somewhat irregular dates), ranged from 47° in 'Scotland, W.,' to 54° in 'England, S.,' 'Ireland, S.,' and the 'Channel Islands.' The lowest of the minima were generally registered on the 5th, when the thermometer fell to 10° in 'Scotland, E.' at (Aberdeen and Braemar), and to between 15° and 23° in the other 'Wheat producing' districts in the western parts of the kingdom. The minima ranged from 24° to 26°, while in the 'Channel Islands' the lowest reading was 29°.

"The *Rainfall* has been more than the mean over English, but less in Ireland and Scotland; in the north-east and south-west of England the amount has been nearly three times as much as the mean, and in the 'Midland Counties' almost four times. The largest amount recorded at any of our stations during twenty-four hours was 2·06 inches, at Loughborough on the 8th.

"*Bright sunshine* shows an excess on that of last week in most districts. The percentage of the possible amount of duration ranged from 30 to 38 over Great Britain, and from 43 to 53 in Ireland."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Accumulated. Above (+) or below (−) the Mean for the week ending March 11.	Above 42°, for the Week.	Below 42°, for the Week.	Above 42°, difference from Mean since Jan. 1, 1889.	Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1889.	Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Deg-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	2 —	1	39	— 24	+ 67	2 —	53	10.9	33	19
2	3 —	2	45	— 40	+ 62	3 —	42	3.8	30	25
3	4 —	0	42	— 64	+ 73	7 +	37	3.6	31	22
4	3 —	9	41	— 89	+ 155	3 +	37	3.2	34	22
5	4 —	4	42	— 94	+ 126	14 +	34	4.7	30	19
6	3 —	11	29	— 95	+ 118		36	4.3	32	19
7	3 —	4	31	— 29	+ 37	2 —	43	8.9	38	23
8	4 —	3	31	— 58	+ 45	1 +	37	4.6	31	22
9	4 —	12	29	— 90	+ 106	12 +	37	8.0	37	25
10	2 -	14	30	— 28	+ 26	2 —	50	6.8	43	21
11	3	18	35	— 38	+ 35	2 —	44	7.6	53	27
12	1 -	25	7	— 38	— 5	8 +	47	6.0	39	29

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

Markets.

COVENT GARDEN, March 14.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. Ed.]

Now we are in Lent our market is very quiet, and hothouse goods are dull, with the exception of well-kept Grapes, which maintain their value. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2 0	4 0	Lemons, per case	12 0	21 0
— Canada and Nova Scotia, per barrel	7 0	17 0	Pine-apples, Eng., lb.	1 6	2 0
Grapes, per lb.	1 6	4 6	— St. Michael, each	2 0	8 0
			Strawberries, per lb.	8 0	12 0

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	12 0	...	Mustard and Cress, punnet	0 4	...
— French, bundle	21 0	...	Onions, per bunch	0 5	...
Beans, Jersey French, per lb.	3 6	...	Parsley, per lb.	1 0	...
Beet, red, per dozen	1 0	2 0	Peas, French, per lb.	1 0	...
Carrots, per bunch	0 6	...	Potatos, per cwt.	4 0	5 0
Cauliflowers, each	0 3	...	— kidney, per cwt.	4 0	5 0
Celery, per bundle	1 6	2 0	— new French, lb.	0 6	...
Cucumbers, each	1 0	...	Rhubarb, bundle	0 6	...
Endive, per dozen	3 0	...	Seakale, punnet	2 6	...
Green Mint, bunch	1 0	...	Shallots, per lb.	0 6	...
Herbs, per bunch	0 6	...	Spinach, per bushel	5 0	...
Leeks, per bunch	0 4	...	Tomatos, per lb.	2 0	...
Lettuce, per dozen	1 6	...	Turnips, per bunch, new	0 5	...
Mushrooms, punnet	1 6	...			

Potatos.—Beauty of Hebron, 70s. to 100s.; Imperators, 75s.; Magnum Bonums, 130s.; and Dunbar Regents, 120s. per ton.

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Foliage plants, various, each	2 0	10 0
Arum Lilies, p. doz.	9 0	15 0	Ficus elastica, each	1 6	7 0
Azaleas, dozen	24 0	42 0	Genista, dozen	8 0	12 0
Cineraria, per dozen	8 0	12 0	Hyacinths, dozen	6 0	9 0
Cyperus, per dozen	4 0	12 0	Lily-of-Val., doz. pts.	10 0	18 0
Dracæna terminalis, per dozen	30 0	60 0	Marguerites, doz.	6 0	12 0
— viridis, per doz.	12 0	24 0	Palms in var., each	2 6	21 0
Erica, various, doz.	12 0	30 0	Pelargoniums, scarlet, per dozen	6 0	9 0
Euonymus, in var., per dozen	6 0	18 0	Primulas, per dozen	4 0	6 0
Evergreens, in var., per dozen	6 0	24 0	Solanums, dozen	6 0	12 0
Ferns, in var., doz.	4 0	18 0	Tulips, dozen pots	6 0	9 0

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	3 0	6 0	Narcis., paper-white, (French), 12 bun.	2 0	6 0
Anemone, Fr., 12 bun.	2 0	6 0	— double, 12 bun.	1 6	3 0
Arum Lilies, 12 blooms	3 0	6 0	Pelargoniums, 12 spr.	1 0	1 6
Azaleas, 12 sprays	0 6	1 0	— scarlet, 12 spr.	0 6	0 9
Bouvardias, per bun.	0 9	1 0	Primroses, 12 bun.	1 0	1 6
Camellias, white, 12 blooms	2 0	4 0	Primulas, dbl., 12 sp.	1 0	1 6
— red, 12 blooms	0 9	2 0	Roses, Tea, per doz.	2 0	6 0
Carnations, 12 blms.	2 0	3 0	— coloured, dozen.	2 0	4 0
Daffodils, dbl. 12 bun.	4 0	9 0	— red, per dozen	6 0	9 0
— single, 12 bun.	6 0	12 0	— Safrano, dozen	2 0	4 0
— French, 12 bun.	2 6	4 0	Safrano (Fr.), doz.	1 0	3 0
Eucharis, per dozen	3 0	6 0	Snowdrops, 12 bun.	1 0	3 0
Gardenias, 12 blooms	9 0	15 0	Tuberoses, 12 blms.	2 0	4 0
Heliotropes, 12 spr.	0 6	1 0	Tulips, 12 blooms	0 8	1 0
Lilac, white Fr., bun.	4 0	6 0	Violets, 12 bunches	1 0	1 6
— lilac-coloured, p. bunch	3 0	5 0	— dark, Fr., bunch	1 0	2 0
Lily-of-Val., 12 spr.	0 6	1 0	— Parme, Fr., bun.	2 6	3 6
Marguerites, 12 bun.	3 0	6 0	Wallflowers, 12 bun.	4 0	6 0
Mignonette, 12 bun.	2 0	4 0	— French, 12 bun.	1 0	2 0

SEEDS.

London: *March* 13.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, write that the saturated state of the land still limits the sowing demand for field seeds, values in the meantime remaining without any alteration, white stocks are moderate and arrivals light. Rather more inquiry for Peas, Haricots neglected; Rape seed moves upward; Mustard remains unchanged; Scarlet Runners continue in brisk request, but seeds meet with a meagre sale.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending March 9:—Wheat, 30*s.* 1*d.*; Barley, 26*s.*; Oats, 16*s.* 10*d.* For the corresponding week in 1888:—Wheat, 30*s.* 6*d.*; Barley, 29*s.* 7*d.*; Oats, 10*s.* 4*d.*

FRUIT AND VEGETABLES.

Spitalfields, *March* 13.—American Apples, 9*s.* 6*d.* to 15*s.* per barrel; English, do., 3*s.* 6*d.* to 7*s.* per bushel; do., 1*s.* 6*d.* to 3*s.* per half-bushel; Cauliflowers, 8*d.* to 1*s.* 6*d.* per dozen; Sprouting Broccoli, 1*s.* 3*d.* to 1*s.* 9*d.* per sack; Brussels Sprouts, 1*s.* 3*d.* to 1*s.* 9*d.* per half-sieve; Turnip-tops, 1*s.* 9*d.* to 2*s.* 3*d.* per sack; Spinach, 1*s.* 6*d.* to 2*s.* per bushel; Parsnips, 9*d.* to 1*s.* per score; Beetroots, 9*d.* to 1*s.* per dozen; Seakale, 1*s.* 3*d.* to 1*s.* 6*d.* per punnet; Turnips, 1*s.* 6*d.* to 2*s.* per dozen bunches; Carrots, 1*s.* 9*d.* to 2*s* 6*d.* do.; Radishes, 4*d.* to 9*d.* do.; Parsley, 7*s.* to 9*s.* do.; Rhubarb (forced), 1*s.* 9*d.* to 2*s.* 3*d.* per dozen bundles; do. (natural), 2*s.* 6*d.* to 3*s.* do.; Celery, 10*s.* to 13*s.* do.; Horseradish, 1*s.* to 1*s.* 3*d.* per bundle; English Onions, 6*s.* to 7*s.* per cwt.; Spanish do., 5*s.* 6*d.* to 7*s.* per case; Bordeaux do., 4*s.* 6*d.* to 5*s.* do.; Dutch do., 2*s.* 6*d.* to 2*s.* 9*d.* per bag; Belgian do., 3*s.* to 4*s.* do.; Carrots, 20*s.* to 26*s.* per ton; Mangels, 16*s.* 6*d.* to 19*s.* do.

Stratford: *March* 12.—Supply has been good during the past week, and a brisk trade was done at the undermentioned prices:—Cabbages, 2*s.* to 3*s.* per tally; Savoys, 2*s.* 6*d.* to 3*s.* do.; Greens, 1*s.* to 1*s.* 6*d.* per dozen; Cauliflowers, 1*s.* 9*d.* to 2*s.* 3*d.* do.; Turnips, 2*s.* to 3*s.* do.; Carrots, household, 20*s.* to 35*s.* per ton; do., cattle feeding, 18*s.* to 20*s.* do.; Parsnips, 40*s.* to 60*s.*, do.; Mangels, 12*s.* to 18*s.* do.; Swedes, 12*s.* to 17*s.* do.; Onions, English, 120*s.* to 140*s.* per ton; do., Dutch, 3*s.* 9*d.* to 4*s.* 6*d.* per bag; do., Bordeaux, 5*s.* to 6*s.* per case; Apples, English, 3*s.* to 6*s.* per bushel; Watercress, 6*d.* per dozen; Rhubarb, 1*s.* 6*d.* to 2*s.* per dozen bundles; Cress, 2*s.* per dozen baskets; Celery, 6*d.* to 1*s.* per roll; Carrots, 2*s.* to 2*s.* 6*d.* per dozen bunches.

POTATOS.

Borough and Spitalfields: *March* 12.—Fair supply and slow trade, prices about steady. Scotch Regents, 80*s.* to 120*s.*; English, 65*s.* to 100*s.*; Hebrons, 70*s.* to 100*s.*; Magnum Bonums, 65*s.* to 100*s.*; Scotch, do., 90*s.* to 120*s.*; other varieties, 60*s.* to 90*s.* per ton.

Spitalfields: *March* 13.—Quotations:—Champions, 55*s.* to 65*s.*; Imperators, 65*s.* to 80*s.*; Regents, 75*s.* to 110*s.*; Hebrons, 55*s.* to 70*s.*; Magnums, 50*s.* to 80*s.*; Scotch do., 70*s.* to 100*s.* per ton.

Stratford: *March* 12.—Quotations:—Scotch Magnums, 70*s.* to 105*s.*; do., Regents, 80*s.* to 110*s.*; English do. 60*s.* to 80*s.*; do. Magnums (light), 60*s.* to 90*s.*; do. (dark), 60*s.* to 65*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, old prime, 126*s.* to 144*s.*; do., best second, 86*s.* to 120*s.*; do., inferior, 36*s.* to 70*s.*; prime old Hay, 108*s.* to 126*s.*; new, 90*s.* to 105*s.*; inferior, 50*s.* to 70*s.*; old straw, 42*s.* to 48*s.*; new, 28*s.* to 40*s.* per load.

NOTICES TO CORRESPONDENTS.

Intelligent Readers, *do* please Note *that letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the* Publisher, and not to the Editor, but that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Apple Seeds Rattling: *E. C. C. D.* 1, some do so, but not all; 2, it is a question of ripeness.

Books: *F. V. D. Elementary Lessons in Botanical Geography*, by J. G. Baker (London: Lovell, Reeve & Co.); *Cape Flora* (Harvey & Sonder); *Flora Capensis*, unhappily incomplete; *Australian Flora*; and Bentham's *Flora Australiensis*, in seven volumes.—*W. S.* The only book under the title *Practical Gardener* that is worthy of the name is Jas. Anderson's, published by Mackenzie, 22, Paternoster Row. It may now only be met with at the old book-stalls.

Camellias: *A Subscriber.* Please do not mix up four different inquiries on one sheet of paper. Probably the buds have fallen from excessive watering and too high a temperature.

Corrections.—In report of Scottish Horticultural Association, p. 306, col. 1, line 3, read £350 for £250; and at line 6 read Mr. Calder, of Calderbank, for Carter, of Carterbank.

Cupressus torulosa: *B.* The figure in the *Garden* is the same that was given in Paxton's *Flower Garden*, 205. It represents C. macrocarpa, rather than torulosa.

Cypripedium Lawrenceanum: *O. S. W.* The finest flowers of this species which we have seen for a considerable time.

Double-flowered Cineraria: *R. R.* As good as could be wished.

Names of Plants: *B. S.* 1, Pernettya mucronata; 2, Prunus serotina; 3, Ceanothus azureus; 4, Pedilanthus tithymaloides; 5, Lysimachia nummularia; 6, Thuia (Biota) orientalis.—*W. B.* Valeriana Phu.—*G. H. G.* 1, Ruscus racemosus; 2, Rubus rosæflorus; 3, Æschynanthus grandiflorus. We cannot explain the appearance of your Yew in the absence of further particulars.—*H. D.* 1, 2, 3, Helleborus seedlings; 4, Miltonia cuneata.—*A Subscriber.* Anthericum lineare variegatum, Oncidium volvox. Odontoglossum pulchellum has a thin, erect spike, bearing from two to seven white, wax-like, flat flowers.—*E. C.* 1, Pteris cretica albo-lineata; 2, Adiantum pubescens; 3, A. hispidulum; 4, A. Capillus-veneris; 5 and 6, Pteris serrulata; 7, Doodia caudata.

Nomenclature of Garden Varieties: *X.* The rule adopted at the International Congress in 1867 runs as follows:—"Art. 40. Among cultivated plants, seedlings, metis [crosses] of doubtful origin, and sports [bud variations], receive fancy [arbitrary] names in the vernacular, and as different as possible from the Latin names of species and varieties." Garden varieties of any kind should not be confused with wild or newly introduced species or varieties, as they inevitably are if the nomenclature proper to the latter class is applied to garden varieties. No one questions the propriety of the law, but unfortunately, owing to mere thoughtlessness, it is oftener observed in the breach than in the observance by horticulturists.

Odontoglossum Roezlii: *F. S. M.* The many changes of temperature to which the plant has been subjected, are no doubt accountable for the appearances seen.

Snowdrop: *H. Frank, Leipzig.* The common form; not Galanthus imperati.

Strawberries and Soot: *A. W. G.* If you put 1 inch of soot at the bottom of the pots, the result will be disastrous. A sprinkling of the soot is all that is necessary.

Vine Leaves: *Vinum.* The leaves are covered on the under-surface with warts, an indication of a want of proper balance between heat, moisture, and ventilation. Probably enough attention has not been paid to the ventilation.

CATALOGUES RECEIVED.

Ketten Brothers, Luxemburg—New Roses.
Thibaut & Keteleer, 107, Rue Houdan, Sceaux—General Plant Catalogue.
Harrison & Sons, Leicester—Farm Seeds.
J. R. Pearson & Sons, Chilwell, Notts—New Zonal Pelargoniums.
Dobie & Mason, 66, Queensgate, and 22 Oak Street, Manchester—Farm Seeds.
W. P. Laird & Sinclair, 73, Nethergate, Dundee—Farm Seeds.
R. W. Proctor, Ashgate Road, Chesterfield—Florists' Flowers.
Kent & Brydon, Darlington—Farm Seeds.
Hogg & Wood, Coldstream, N.B.—Grasses, Clovers, and Manures.
H. W. Hales, Ridgewood Floral Nursery, Ridgewood, New Jersey, U.S.A.—New Chrysanthemums.
J. M. Jeffrey, 16, High Street, Uxbridge—Seeds.

Communications Received.—C. B. S.—Gardener.—L. Pabst. W. W.—H. Pike.—W. Ley.—R. R.—G. Dauks.—W. Downes (many thanks; no).—J. C. W.—Arthur Fry.—G. Brumell—W. B. and W. W. (next week)—F. Ashton.—N. E. B.—C. B. G.—J. R.—J. S.—G. B. B.—J. C.—E.—B. A.—G. B.—J. C. E.—J. F. D.—W. Moody—J. D.—W. G. S.—R. A. Rolfe.—J. R.—J. Veitch & Sons.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquiries in the current week.*

DIED, on the 2nd inst., Jessie, wife of Phil. Garcia, of Covent Garden, respected by all who knew her.

—— On the 28th ult., Charles Frazer, of The Horticultural Works, Palace Plain, Norwich.

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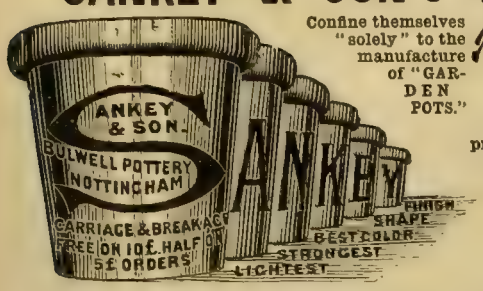
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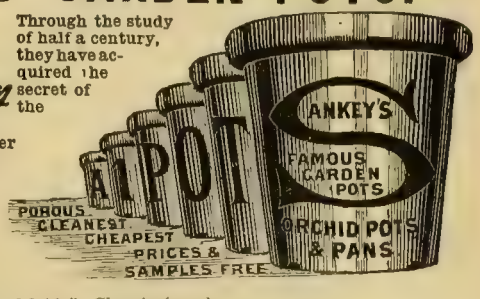


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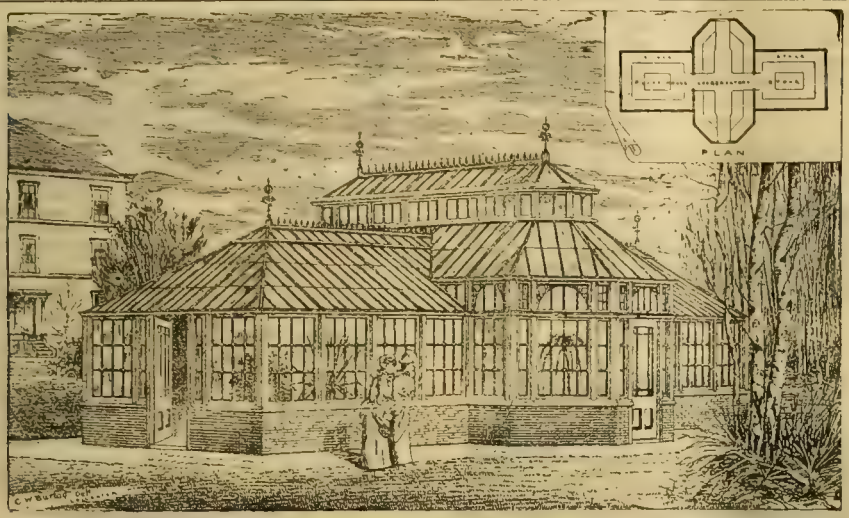
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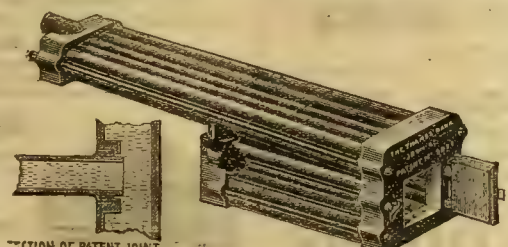
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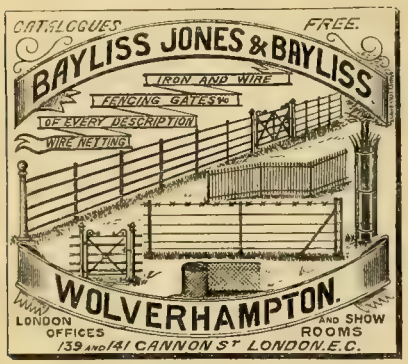
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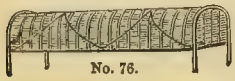
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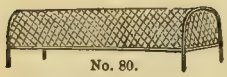


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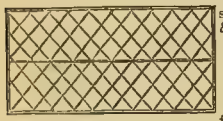
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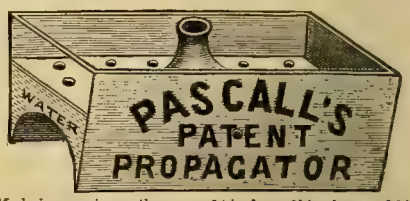
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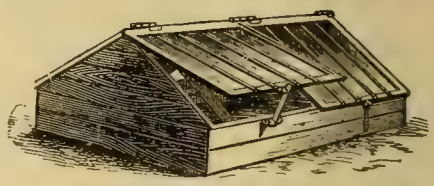


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GARDENER (Head), where two are kept.—Age 26; married when suited. Twelve years' practical experience; Grapes especially. Satisfactory reasons for wishing to leave. Six and a half years' previous.—GARDENER, Wynnstay, Burgess Hill.

GARDENER (Head).—Age 42, married; many years Head Gardener where every branch has been thoroughly carried out. Twenty years' reference. Four years' in present situation.—T. DEACON, Fern Cottage, Hersham, Walton-on-Thames.

GARDENER (Head), where others are kept; single.—Advertiser, a Farmer's Son, seeks re-engagement as above; twelve years' practical experience in all branches. Understands Management of Poultry, &c. Highest references. Abstainer.—H. G., 36, Bell Street, Edgware Road, W.

GARDENER (Head); age 34, married.—A Gentleman giving up his garden wishes to highly recommend a thoroughly practical, trustworthy, energetic man; first-class Fruit, Vegetable, and Plant Grower. Twenty years' experience in good establishments.—G. WARRINGTON, 135, Dulwich Road, Herne Hill, S.E.

GARDENER (Head), where Gardening is carried on in all its branches.—Late Gardener to Sir J. H. H. Amory, Bart., Knightshayes, Tiverton, for five years; previous, Mrs. Ellice, Invergarry, Inverness, seven and a half years. Highest testimonials.—J. PEEBLES, 4, Richmond Terrace, Dalry Road, Edinburgh.

GARDENER (Head); age 35.—Should this meet the eye of any Lady or Gentleman who is in want of a thoroughly competent man, they can be accommodated by applying to Mr. R. GILBERT, Burghley Gardens, Stamford.

GARDENER (Head); age 32, married, two children.—A. Gooden, Offchurch, Bury, Leamington, would be pleased to engage with any Lady or Gentleman requiring a good all-round Gardener. Seventeen years' experience in some of the best establishments. Can be highly recommended.

GARDENER (Head), where a thorough practical man is required.—Age 35, one boy (age 9); thoroughly understands the profession in all its branches, Land and Stock. Twenty years' experience in good establishments. First-class character for honesty and sobriety.—Please state wages to A. A., 35, Dartrey Road, Chelsea, S.W.

GARDENER (Head); age 30.—Advertiser desires to meet with Lady or Gentleman taking interest in Garden. Good knowledge of Orchids, Stove, Greenhouse, and Herbaceous Plants, and Fruit Culture. Five years in present place as General Foreman; six previous at Pendell Court.—W. RUSSELL, The Gardens, South Lodge, Horsham, Sussex.

GARDENER (Head); age 31, married.—Thomas Stacey, Foreman in the Gardens at Bearwood, Wokingham, during the last five years, and three years previously in the Gardens of the late Viscount Eversley, Heckfield, Winchfield, seeks a situation as above; unexceptional testimonials from Mr. Tegg, Gardener at Bearwood; and also from Mr. Wildsmith, Gardener at Heckfield Place, Winchfield.—T. STACEY, The Gardens, Bearwood, Wokingham.

GARDENER (Head Working).—Age 30; fifteen years' practical experience in all branches. Highest references.—W. L., Buckland Filleigh, Highampton, North Devon.

GARDENER (Head Working).—Twenty years' experience in all branches of the profession. Excellent testimonial.—W. TURNELL, 9, Constance Road, East Dulwich, S.E.

GARDENER (Head Working).—Age 42, married, no incumbrance; thoroughly experienced in all branches of the profession; also Land and Stock. Wife Poultry.—S. C., Broomfields, Matlock Lane, Ealing Dean.

GARDENER (Head Working).—Age 25, single; nine years' experience in all branches. Understands Beekeeping. Abstainer. Excellent references.—R. E. RICHARDSON, Hardriding, Bardon Mill, *vid* Carlisle.

GARDENER (Head Working).—Age 28, single; thoroughly experienced in the Growing of all kinds of Flowers, Plants, Fruit, and Vegetables. Abstainer. Four years' character.—HAMMOND, Dunmow.

GARDENER (Head Working).—In the prime of life; single, and an abstainer. Trustworthy, and thoroughly competent to undertake the Management of a good Garden. High character. Town or country.—M. M., 283, King's Road, Chelsea, S.W.

GARDENER (Head Working).—Married when suited; sixteen years' experience in Vines, Pines, Peaches, Stove and Greenhouse Plants, Flower and Kitchen Gardens, Early and Late Forcing.—G. McLEOD, 6, Glen Cottages, Holly Road, Hounslow.

GARDENER (Head Working).—Age 44; thoroughly experienced. Fruit, Plant, Vegetable Grower and Forcer, Land and Stock. Highly recommended; excellent character. — Please address RAWLE, Crosspark, Shephay, Torquay, Devon.

GARDENER (Head Working), where three or more are kept.—Age 28, married, no family; well-experienced in Fruit, Plants, Flower and Kitchen Garden. Good references.—E. RYMAN, 66, Lime Walk, Headington, Oxford.

GARDENER (Head Working); age 32.—The Hon. A. Talbot can highly recommend his Head Gardener, as well qualified in every way for the above. First-class references.—H. D., Little Gaddesden House, Berkhampstead.

GARDENER (Head Working); age 28.—W. Holah, Redleaf Gardens, Penshurst, Kent, strongly recommends H. Bickerstaff as above, who has been at Redleaf six years; thoroughly understands Orchids, Early and Late Forcing, Kitchen Garden, &c.—Apply as above.

GARDENER (Head Working), where three or more are kept.—The Advertiser seeks re-engagement in a good establishment, where a thorough practical man and good management are required throughout. Good references. —L., Mr. Perkins' Nursery, Kingsthorpe, Northamptonshire.

GARDENER (Head Working), where several are kept.—Married, no family; twenty-five years' experience in all branches in well-kept gardens. Land and Stock. Testimonials from former, good character from last employer.—GARDENER, 25, Highgate Hill, London, N.

GARDENER (Head Working); married when suited.—J. W. Pearse, for the past two and a half years Foreman at Oak Lodge, Kensington; thoroughly practical man in all branches; thirteen years' experience. Excellent references. Abstainer.—5, Laura Place, Holland Park Road, Kensington, W.

GARDENER (Head Working).—Age 36, married; thorough good practical Gardener. Twenty years' experience in Grapes, Peaches, Melons, Cucumbers, Tomatos, Stove and Greenhouse Plants, Flower and Kitchen Gardening. Abstainer. Highly recommended. Please state full particulars of place.—GARDENER, 3, Albert Terrace, Castle Hill, Ealing, W.

GARDENER (Head Working), where two or more are kept.—Age 29; two years' character from the Marquis of Lansdowne, previous two and a half years with Viscount Eversley. Mr. Wildsmith, The Gardener, would answer any enquiries respecting character and ability.—S. K., 14, Belsize Terrace, Hampstead, N.W.

GARDENER (Head Working or good Single-handed).—Age 27, married; highest references. Exemplary character. Churchman.—W. WILKS, 5, St. James' Terrace, Muswell Hill, N.

GARDENER (Head Working), or good FOREMAN.—Age 33, married. Wife experienced Laundress, could undertake laundry if desired.—GEORGE HICKS, Birkett Green, Maidenhead.

To Noblemen and Gentlemen.

GARDENER (Head), or WORKING MANAGER.—Age 42, married, no family; successful Grower of Grapes, Wall Fruits, Tomatos, Vegetables, Stove and Greenhouse Plants, Orchids, Ferns, &c.—S. C., Broomfield's, Mattock Lane, Ealing Dean, W.

GARDENER (Head), or MARKET GROWER.—Age 46, married, with family; well up for London Markets. Four years' experience in Jersey.—Good references.—L. L., 2, Millbrook, St. Aubin's Road, Jersey.

GARDENER.—Age 24; total abstainer. Experienced in Flower and Kitchen Garden. Three years' good character.—F. TANT, Potter's Bar, Middlesex.

GARDENER.—Age 31; experienced in all branches. Good references. Last five years at Waddesdon Gardens, Baron de Rothschild. M.P.—M. C., Gordon Villa, Woking Station.

GARDENER; age 41.—A Gentleman wishes to recommend his late Gardener. Thoroughly experienced in all branches. Six years' good character.—C. FILMER, Henley Cottage, Silver Hill, Tenterden, near Ashford, Kent.

GARDENER (Single-handed). — Understands Vines, Cucumbers, Melons, and Flower and Kitchen Gardening. Good character.—A. T., 56, Regent's Road, Herne Hill, S.E.

GARDENER (Single-handed). — Experienced in all branches. Excellent Testimonials. Five and a half years in last place.—GARDENIA, 60, St. James Street, Piccadilly, W.

GARDENER (Single-handed or Second). —Age 25, single; ten years' experience. Three and a half years in present situation. Good character.—E. REFFOLD, Stone Park, Greenhithe, Kent.

GARDENER (Single or Under).—Age 33; twelve years' Inside and Out in Private Gardens. Total abstainer. Distance no object. Good references.—C. SUTTON, 9A, Beech Road, Sevenoaks.

GARDENER (Second, or Single-handed).—Age 24; nine years' experience Inside and Out. Three years' good character from last employer.—W. VINE, Potter's Bar, near Barnet.

GARDENER (Second), where four or five are kept, or good (Single-handed).—Age 26; thorough good all round. General experience both Inside and Out. Sober and trustworthy. Good character, and well recommended. —Please address, stating wages, to W. G., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

GARDENER (Second), Indoors and Out.—Age 23, single; seven years' experience. Good character. —J. H., 13, Queen Street, Hemel Hempstead, Herts.

GARDENER (Second), where three or four are kept.—Age 23; eight years' experience. Abstainer. Three years' under present employer, R. H. Measures, Esq., The Woodlands, Streatham, and can be well recommended by him.—N. E., 84, Sunnyhill Road, Streatham, S.E.

GARDENER (Second), no objection to Market Work.—Age 25; understands Vines, Melons, Cucumbers, and Ferns, Tomatos, Chrysanthemums. Quick at Potting and Tying. Good Grape Thinner. Two years' good character.—W. HEWITT, Capel Lodge, Dorking.

GARDENER (Second).—Age 22; has had nine years' experience Inside and Out; has Grown Tomatos, Cucumbers, Mushrooms, and Cut Flowers, for Market; understands modern Bee-keeping. Excellent reference.—J. FRANKLIN, 10, Vespan Road, Shepherd's Bush, W.

GARDENER (Under), or Second in medium establishment.—Age 21; highest references from present employer.—W. MASON, Lodgefield, Tittentor, Stoke-on-Trent.

GARDENER (Under), where two or three more are kept.—Age 20; six years' experience. One year's good character.—A. B., Staines Road, Upper Sunbury.

GARDENER (Under).—Age 20; five years' experience, Inside and Out. Good character.—W., 44, Archbishop's Place, Brixton Hill, S.W.

GARDENER (Under), where he can improve himself.—Age 18; six years' experience. Good character. Total abstainer.—W. RACEY, Upwell, Wisbech.

GARDENER (Under).—Age 24; steady and willing. Good character.—T. BRINKLOW, Horn Hill, Chalfont St. Peter's, Bucks.

GARDENER (Under), where two or more are kept.—Age 20; has had six years' experience. Good character. Abstainer.—S. M., 13, Farm Avenue, Streatham, Surrey, S.W.

GARDENER (Under); age 18.—W. Croker, The Gardens, Lawn Lodge, Isleworth, wants a situation for his son, a strong, healthy lad, in a good Gardening Establishment. Four years' good character.

GARDENER (Under).—Age 20; used to Indoor and Outdoor Work. Good reference. Two years in present situation.—W. PEARSON, The Gardens, The Hall, Knottingly, Yorkshire.

GARDENER (Under), Indoors or Out.—Age 22; seven years' experience. Two years' good character from last place.—J. KEEN MAYWOOD, Kenilworth Road, Leamington.

GARDENER (Under).—In 19th year; fair knowledge of Vines, Tomatos, &c. Five years' good references from present situation.—S. SKAN, Spring Road, Acock's Green, Birmingham.

GARDENER (Under), where three or four are kept.—Personal character if desired. Bothy preferred.—JOHN POWELL, 21, Thomas Street, St. John's, Tunbridge Wells.

GARDENER (Under), where others are kept.—Age 23; eight years' experience, Inside and Out. Good character. State wages, &c.—BENNETT, 64, Mount Street, Reading.

GARDENER (Under), in a Gentleman's establishment or IMPROVER in a Nursery.—Good character.—JOHN BYWELL, Roger Street, Peterborough.

FOREMAN, in the Houses in a good establishment.—Age 25; good character.—A. B., The Gardens, Kempshott Park, near Basingstoke, Hants.

FOREMAN, in a good Private Establishment. Age 28; well up in all branches. Good references.—A. BAXTER, Coleshill, Highworth, Wilts.

FOREMAN.—Mr. E. Bland, Scaber House, Fordham, Soham, can with confidence recommend his late Foreman, F. Hopkinson, where Orchids, Fruit, and Choice Cut Flowers are in request.

FOREMAN, in a good establishment.—Age 29; six years previous as Foreman. First-class testimonials. Furnishing.—B., Rock View, Chillaton, Lew Down, Devon.

FOREMAN, where two or three are kept; age 24.—T. Goldring, The Gardens, Chilgrove, Chichester, can confidently recommend a young man, as above, who has lived with me five and a half years. Table Decoration.

FOREMAN, in the Houses, where two or three are kept.—Eleven years' experience; five years in present situation. Good references.—C. BROWN, Syon Gardens, Brentford, Middlesex.

FOREMAN, In or Out-of-doors.—Age 25; two and a half years Foreman in present situation. First-class testimonials from present and former employers.—GEO. W. MAY, Erdington, Warwick.

FOREMAN, First-class.—Age 30; has been as above in several large and good places, extending to eighteen years. Highest testimonials as to character and abilities.—X. M., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOREMAN.—Age 25; eleven years' experience in good establishments, including nearly two years as Foreman in present place. Excellent references from present and previous employers.—F. CUBBERLEY, The Gardens, Mulgrave Castle, Whitby, Yorks.

FOREMAN; age 24.—Mr. James Douglas will recommend Henry Lane as above. Five years' character from present situation. Knowledge of Orchids, Stove and Greenhouse, Fruit Forcing, and Florists' Flowers.—HENRY LANE, The Gardens, Great Gearies, Ilford, Essex.

FOREMAN; age 25.—G. Yearnsley, Gardener to Sir Henry Bessemer, Denmark Hill, S.E., can with confidence recommend his present Foreman, who has been with him two years, to any Gardener requiring a trustworty man.

FOREMAN, in the Houses, where two or three are kept.—Mr. W. Stevens would be pleased to recommend J. Jones as above.—The Gardens, Stanage Park, Brampton Brian, Herefordshire.

Trade.

FOREMAN (Working), or MANAGER.—Age 33, married; abstainer. Experienced in Plants, Cut Flowers, Fruit, Wreaths, Bouquets, Sprays, and General Decoration. Good Private Trade or Market. Six years in present place.—FOREMAN, 25, Catherine Street, Gloucester.

FOREMAN (Working).—Thoroughly experienced in all branches of Outdoor Nursery Work. First-class references.—T. HARDWICK, 13, Lowesmood Terrace, Worcester.

FOREMAN (Working), in Nursery.—Age 35, married; abstainer. Thoroughly understands Management of Fruit Trees, well up in Roses, good Budder and Grafter. Highly recommended.—Please state wages given to G. O. 21, Paddock Street, Nottingham.

To Nurserymen.

FOREMAN, GROWER, or SALESMAN.—Age 30; thoroughly experienced. Well up in Crosses, Wreaths, and Bouquets. Good references.—T. WARES, 4, Zuriel Place, Old London Road, Hastings.

FOREMAN, or SECOND, in a good establishment.—Age 24; eight years' experience, two years in present situation.—C. BEST, The Gardens, Norman Court, Dean, near Salisbury.

To Nurserymen.

GROWER of Ferns, Foliage, and Soft-wooded Stuff.—Twenty years' experience. Eight years in present place.—J. SOLOMON, 10, Blyth Street, Mapperley, Nottingham.

GROWER, of Stove and Soft-wooded Stuff.—Young man requires situation as above. Best references from previous employers in England and France.—R. IVENS, 11, Mead Road, Uxbridge, Middlesex.

JOURNEYMAN (First), in the Houses.—Age 22; seven years' experience; good character.—A. SMITH, Testwood Park Gardens, Totton, Hants, wishes to recommend a young man as above.

JOURNEYMAN (First).—Age 24, married: good experience in Palms, Ferns, Tomatos, and Soft-wooded Stuff.—ADVT., 69, North Street, Mare Street, Hackney, E.

JOURNEYMAN (First), in the Houses, or Inside and Out.—J. Knight can highly recommend a young man (age 21) as above, and having a thorough taste for Gardening.—The Oaks, near Epsom.

JOURNEYMAN, in the Houses.—Age 19; five years' practice in Flower and Kitchen Gardens and Glass Department.—S. A. JAMES, Coed Coch, near Abergele.

JOURNEYMAN, in the Houses, in a good establishment.—Age 22; six years' good character.—W. DAVIS, The Gardens, Dinham House, Ludlow, Shropshire.

JOURNEYMAN, in the Houses.—Age 20; good experience. Bothy preferred. Four and a half years' good character.—Apply, stating wages, &c., to E. LACEY, Hayes Place Gardens, Hayes, Kent.

JOURNEYMAN, in the Houses.—Willing to Assist Outside if required. Four years' good character. Bothy preferred.—H. SARGEANT, Cedar Cottages, Ashurst Wood, East Grinstead.

JOURNEYMAN, in the Houses.—Age 23; has good knowledge of Fruit, Orchids, Stove and Greenhouse Plants. Now in large establishment. Good references. A. B., 98, Rhodeswell, Salmon's Lane, Limehouse, E.

JOURNEYMAN, in the Houses; age 19.—Mr. Ward, Stoke Edith Gardens, Hereford, would be pleased to recommend a young man as above. Three years' good character.

JOURNEYMAN, in the Houses.—Age 19; good knowledge of Stove and Greenhouse Plants and Fruit Houses. Good recommendation.—H. DAVIES, Langford Park Gardens, Maldon, Essex.

JOURNEYMAN; age 20.—C. Fulcher, The Gardens, Little Heath Road, Potter's Bar, wishes to recommend a strong active young man as above. Bothy preferred.

JOURNEYMAN, in the Houses.—Age 21; abstainer. Five years' character from previous and three from present employer. Knowledge of Vines, Melons, Cucumbers.—J. SHERLOCK, Adhurst Gardens, Petersfield.

JOURNEYMAN, in the Houses; age 19.—A. McRobie, The Gardens, Goldwell House, Newbury, Berks, can highly recommend a young man, as above. Bothy preferred.

JOURNEYMAN, Indoors, in a good establishment.—Age 19; bothy preferred. Can be well recommended.—F. FRANCIES, Stanage Park, Brampton Bryan, Herefordshire.

JOURNEYMAN, in the Houses.—Age 21; height 5 feet 5 inches. Can be strongly recommended by present employer. Six years' character. Abstainer.—S. H. COWPER-COLES, Estate Agent, Builth.

JOURNEYMAN, in the Houses.—Age 23; seven years' experience. Two years' good character from present place.—C. W., The Gardens, Oakley Hall, Basingstoke, Hants.

JOURNEYMAN, in the Houses.—Age 22; seven and a half years' experience, four and a half years' last place. Good character.—F. BENGOUGH, Harpton Lodge, Kington, Herefordshire.

JOURNEYMAN; age 22.—Mr. Jaques can highly recommend W. Dodwell to any Gardener requiring the services of a good Journeyman. Seven years' experience.—W. DODWELL, Waddesdon, Aylesbury.

JOURNEYMAN.—Age 21; good knowledge of Inside and Out. Five years' good character from present employer. Total abstainer.—H. W., St. Mary's, Wallingford, Berks.

JOURNEYMAN (Good), in the Houses.—Nine years' experience; can be highly recommended by present and previous employers.—J. HURN, Catton Park Gardens, Norwich, Norfolk.

JOURNEYMAN, Inside, or Inside and Out.—Age 21; highly recommended by present Gardener. Three years' excellent character. Abstainer.—WM. COLEMAN, The Priory, St. Helen's, Ryde.

JOURNEYMAN, Inside and Out, if required.—Age 24; good reference. Good experience among Plants and Outside Gardening.—F. B., 13, Tylney Road, Widmore, Bromley, Kent.

JOURNEYMAN, in the Houses, or SECOND, where three or four are kept.—Age 23; seven years' experience—four years last place. Good character.—TOM CROOK, 16, Hampton Street, Leamington.

IMPROVER, Indoor and Out.—Age 18; three years' experience. Good character. Small Premium offered.—C. A., R. Barford, Greengrocer, Twickenham Common, Middlesex.

IMPROVER.—Age 21; willing and active, and anxious to learn. Good references.—T. SIMPSON, Ravenswood, Westcliffe Road, Southport.

IMPROVER; age 18.—H. Parrish, Head Gardener, Frampton Gardens, Dorchester, can recommend a young man as above Indoors. Four years' experience. Bothy preferred. Total abstainer.

IMPROVER, Indoors and Out.—Age 20; strong and active man. Two years' good character from present place. Bothy.—MANAGER, Freythesden Gardens, Berkhampstead.

To Head Gardeners.

IMPROVER, Indoors and Out; age 18.—J. Stuart, Gardener, Offington, Worthing, Sussex, would be pleased to recommend a Lad as above; four and a half years' experience. Small Premium offered.

KNIFEMAN.—Single; good Budder, Grafter, and Tree Trainer. Used to Pruning, Wall Nailing, and General Nursery Work. Could Manage Fruit Department. Abstainer.—72, Ash Grove, Ilkley.

WILLIAM ALLEN, Gardener to Lord Brassey, will be pleased to recommend his Foreman, James Barnard, to any Lady or Gentleman requiring a good Gardener. Eight years' good character, with good testimonials from present place.—Normanhurst Court, Battle, Sussex.

TO ORCHID GROWERS, &c.—A young man (age 20) seeks a situation in Orchid or other Glass Department; six years' experience. Good testimonials.—W. ASKEW, 7, Hospital Road, Lepden Road, Colchester, Essex.

TO NURSERYMEN.—Situation wanted by a young man (age 26), understands Budding, Grafting, and General Routine of Outdoor Work. Ten years good reference.—J. JOHNSON, 65, Tamworth Street, Lichfield.

TO NURSERYMEN.—Wanted, a situation under Glass; used to General Nursery Work. Age 22. Seven years' experience.—E. H., 6, Princess Terrace, Linkfield Road, Isleworth, Middlesex.

TO GENTLEMEN and GARDENERS.—Situation required by a young man (age 21) to work in the Houses under a Foreman, or Inside and Out. Three years' good character. Abstainer.—C. HEAD, London Hill, Harrow, Middlesex.

TO NURSERYMEN.—A young man wants a situation in Nursery, used to Ericas, Palms, Cucumbers, and Tomatos. Well acquainted with Book-keeping. Good references.—A. B., 8, Wood's Villas, Swanley Junction, Kent.

TO FOREMEN.—Wanted by young man (age 24), a situation under a Foreman in the Houses, or Inside and Out. Two years and eight months' character in present situation. Abstainer.—W. S., The Gardens, Shawfield, Bromley, Kent.

TO FOREMEN.—Wanted by young man (age 22) a situation under a Foreman in the Houses, or Inside and Out. Two years' good character.—J. TAYLOR, Woodside, Horley.

TO GARDENERS.—Wanted, by a Youth, a situation in a Gentleman's Garden. Age 17½ years. One and a half year's good character and experience.—W. H. BOTTING, Swavesey Road, Billinghurst, Sussex.

TO GARDENERS.—Wanted, for a strong, active youth of 18, a situation in the Garden. Under a Journeyman preferred.—GARDENER, Esher House, Esher, Surrey.

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SHOPMAN, in Corn and Seed Trade.—Married; eighteen years' experience. Groom and Gardener, Caretaker, or any place of trust.—A. BOXALL, Little London, Chichester.

SECRETARY, CASHIER, or ACCOUNTANT.—Advertiser is open to engage as above. Thirteen years' good experience. Excellent testimonials. Total abstainer.—G. N., Hurst & Son, Houndsditch, E.C.

SEED TRADE.—A respectable young man requires a situation as Junior Assistant in the above.—W. T. W., E. Rush, Seedsman, Chester.

PACKER.—Thoroughly experienced. Nearly twenty years in the Nursery Trade, with good character.—J. T., 18, Brook Lane, Chester.

SITUATION WANTED, by Nurseryman's Daughter.—Age 27; eleven years' experience in Seeds, Wreaths, Bouquets, Sprays, &c. Good references.—H. M. STEVENS, The Nurseries, Coventry.

HOLLOWAY'S OINTMENT and PILLS.—Colds, Coughs, Shortness of Breath.—These maladies require early and unremitting attention, for if neglected they often end in Asthma, Bronchitis, or Consumption. The Ointment well rubbed upon the chest and back, penetrating the skin, is absorbed and carried directly to the lungs, whence it dispels all impurities. All the blood in the body is perpetually passing through the lungs, and there all noxious particles tending to disease can be quickly, thoroughly, and permanently neutralised, rendered harmless, or ejected from the system. Holloway's Ointment and Pills perfectly accomplish this purification; and through the blood thus cleansed, the influence of these wonderful medicaments reaches the remotest part of the human body, and thus cures all diseased action, whether internal or external.

GREEN'S PATENT "SILENS MESSOR" AND OTHER LAWN-MOWING, ROLLING AND COLLECTING MACHINES FOR 1889.

The Winners of every First Prize in all cases of competition, and they are the only Mowers in **constant** *use at all the Royal Gardens and at the Royal Horticultural Society's Gardens, South Kensington.*

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HER MOST GRACIOUS MAJESTY THE QUEEN on many occasions,
HIS ROYAL HIGHNESS THE PRINCE OF WALES,
THE KING OF THE BELGIANS,
The Late EMPEROR OF THE FRENCH. The EMPEROR OF RUSSIA,
And most of the Nobility, Clergy, and Gentry of the United Kingdom.

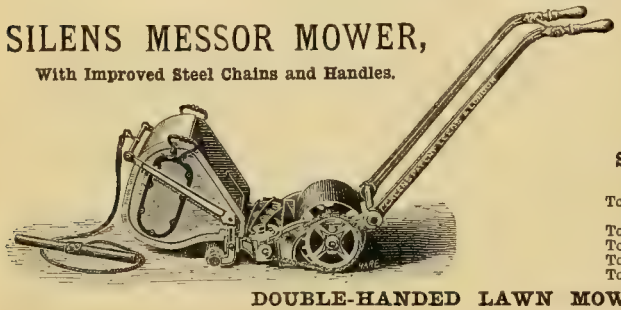
Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "*Journal of Horticulture*," *of June 9, says:*—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. GREEN & SON, of Leeds and London. As the Machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

Upwards of 145,000 of these Machines have been Sold since they were first introduced in the year 1856,
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SINGLE-HANDED LAWN MOWER.

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To cut 6 in., can be worked by a Lady ...	£1 15 0
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To cut 10 in., do. by a strong youth	3 10 0
To cut 12 in., do. by a man ...	4 10 0
To cut 14 in., do. do.	5 10 0

DOUBLE-HANDED LAWN MOWER.

To cut 16 inches, can be worked by one man on even lawn ...	£6 10 0
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* If made stronger, suitable for Donkey, 30s. extra.

These Mowers are the "Ne Plus Ultra" and "Acme" of perfection of all Lawn Mowers extant.

GREEN'S PATENT GRASS EDGE CLIPPER

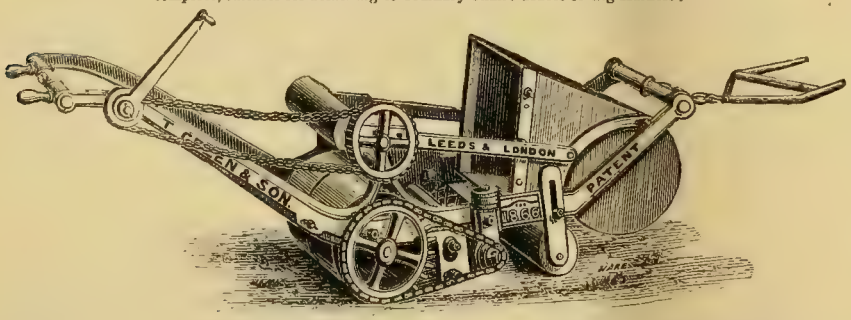


Size and Price, 7 inches wide, 7 ins. diam., **£1 16s.** Packing Case, 3*s.*

Specially designed to meet a want which has long been felt in cutting the overhanging grass on the edges of walks, borders, flower-beds, &c., and do away with the tedious operation of cutting with shears.

☞ **A very useful and serviceable Machine.**

Prices of Donkey, Pony, and Horse Machines, including Patent Self Delivery Box, or Side Delivery, with Cross-stay complete, suitable for attaching to Ordinary Chaise Traces or Gig Harness:—



DONKEY and PONY MACHINES.

To cut 26 inches	£14 0 0
To cut 28 inches	16 0 0
To cut 30 inches	18 0 0
Leather Boots for Donkey	1 0 0
Leather Boots for Pony	1 4 0

HORSE MACHINES.

To cut 30 inches	£22 0 0
To cut 36 inches	26 0 0
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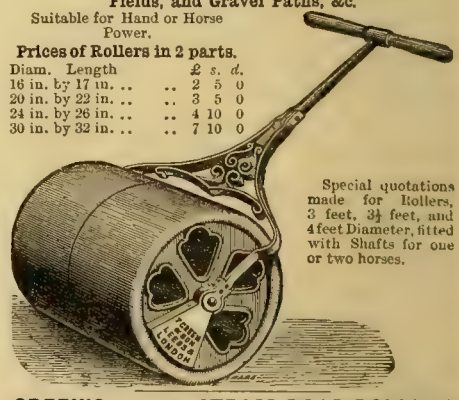
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Suitable for Hand or Horse Power.

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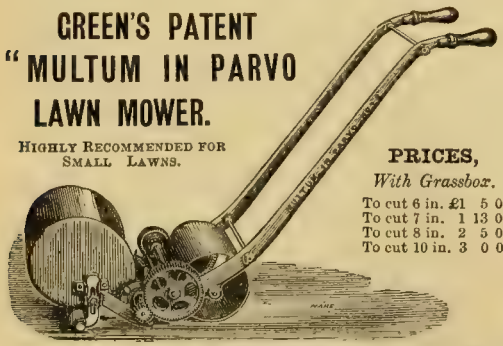
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20 in. by 22 in.	3 5 0
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HIGHLY RECOMMENDED FOR SMALL LAWNS.



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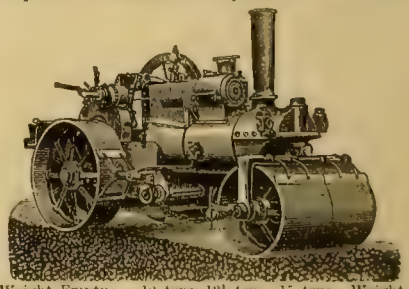
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Weight Empty:—10 tons, 12½ tons, 15 tons. Weight in Working Trim with Water and Fuel:—12½ tons, 15 tons, 18 tons.

Delivered Carriage Free at all the principal Railway Stations and Shipping Ports in England, Scotland, and Ireland.

The largest stock of Mowers kept by any manufacturer is to be found at our London Establishment, SURREY WORKS, BLACKFRIARS ROAD, where Purchasers can make selection out of several hundred Machines of Hand, Pony, and Horse Power, and have their Orders supplied the same day as they are received.

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GARDEN SEATS AND CHAIRS, AND HORTICULTURAL IMPLEMENTS OF EVERY DESCRIPTION, WIRE NETTING, &c., &c.

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THOMAS GREEN & SON, LIMITED, SMITHFIELD IRONWORKS, LEEDS; AND SURREY WORKS, BLACKFRIARS ROAD, LONDON;

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THE GARDENERS' CHRONICLE, Vol. IV., Third Series, JULY to DEC., 1888.
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NEWCASTLE-UPON-TYNE SPRING FLOWER SHOW.
APRIL 10 and 11, 1889. For Schedule apply to
JAS. J. GILLESPIE, Secretary.

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A FEW GOOD CATTLEYAS.—Three or four flowering growths; Crispa, Eldorado, Amethystina, Amethystoglossa, 10s. 6d., Lælia × anthina, Limpophyllia, &c. Some other Orchids.—Address, North Lodge, Addiscombe.

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SEEDS.—RICHARD SMITH & Co., Worcester, beg to draw attention to the Low Prices of individual articles (Peas especially), and the liberality of the Collections at Fixed Prices as set forth in their Illustrated SEED LIST, which will be sent Free on application. All Seeds, &c., are of the *best possible* quality.

FOR SALE, or EXCHANGE for cool ORCHIDS, the lot:—3 Crotons Weismanni, in 7-inch pots; 1 Croton variegatum, in 7-inch; 3 ditto in 48's; 1 Pandanus Veitchii, in 9-inch; 12 Draecena Cooperi, in 48's; 12 Dracæna indivisa, in 48's; 6 Eucharis amazonica, in 8-inch, free from mite; 1 Franciscea calycina major, in 9-inch.
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State price, &c, to
G. A., Ash Tree Cottage, The Mount, Sydenham Hill, S.E.

To Gardeners.

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SEND FOR New Illustrated CATALOGUE of Conservatories, Greenhouses, Garden Frames, Propagators, and Hand-lights, post-free, for 6 stamps, to be deducted from first order.—CHARLES FRAZER, Palace Plain Works, Norwich. Great Reduction in Prices.

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J. B. THOMAS, Covent Garden Market. Telegraph Address, "THOMASES, London." Telephone, No. 2822. See large Advertisement, p. 359.

SALES BY AUCTION.

Wednesday Next.—(Sale No. 7898.)

An extensive collection of choice LILIES, comprising some of the rarest varieties in cultivation; 1000 first-class named Standard and Dwarf ROSES, from French and English Growers; Pyramid, Standard, and Dwarf-trained FRUIT TREES to name; Ornamental SHRUBS and CONIFERS; CARNATIONS, PICOTEES, and other BORDER PLANTS in great variety; Hardy JAPANESE IRIS, SPIRÆA JAPONICA, LILY of the VALLEY Crowns, NARCISSUS, and other Roots.

MR. J. C. STEVENS will SELL the above by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 27, at half-past 12 o'Clock precisely.

Thursday Next.—(Sale No. 7899.)

CHOICE ESTABLISHED ORCHIDS, comprising Odontoglossum nævium majus in 9-inch pot, with nearly 30 bulbs and 6 growths; O. Alexandræ, a magnificent variety; Dendrobium Brymerianum, Cattleya Schroderæ, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 28.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7899).

10,000 grand Bulbs of LILIUM AURATUM, in splendid condition, just received from Japan; also 300 fine Clumps of CYPRIPEDIUM SPECTABILE from New Jersey.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 28.

On view morning of Sale, and Catalogues had.

Thursday Next.—(No. 7899.)

IMPORTATIONS of ORCHIDS received direct.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 28, fine imported plants of:—

CATTLEYA MOSSIÆ, C. LIBIATA, C. MENDELII, C. GASKELLIANA, C. SANDERIANA, C. CRISPA, RODRIGUEZIA, SECUNDA, DENDROBIUMS, EPIDENDRUMS, ONCIDIUM ROGERSII, O. CRISPUM, LÆLIA PURPURATA, L. PERRINII, &c.

On view morning of Sale, and Catalogues had.

The Valuable Collection of Orchids formed by H. J. BUCHAN, Esq.

MR. J. C. STEVENS has received instructions from H. J. Buchan, Esq., of Wilton House, Southampton (in consequence of the land having been bought for building), to offer for SALE, without the least Reserve, on WEDNESDAY and THURSDAY, April 10 and 11, at half-past 12 o'Clock precisely each day, his celebrated COLLECTION of ORCHIDS, comprising, amongst other fine things:—

Cypripedium caudatum roseum
" Sanderianum
" Spicerianum
" Druryi
Lælia flava
" autumnalis Buchanii
" anceps alba
" elegans
" " Schilleriana
" " alba
Odontoglossum × Ruckeriana
" pyxanthum
" cispitatum platyglossum
Dendrobium stratiotes
" Lowii
" nobile nobilius
Cattleya Schroderii
Epidendrum prismatocarpum
Angræcum sesquipedale
" Dubuyssonii
Cœlogyne cristata alba
Trichopilia crispa marginata (true)
" suavis alba
Maxillaria Sanderiana
" Hubshii
Masdevallia Bull's Blood

Besides all the leading varieties of other things.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SPECIAL SALE of ORCHIDS in FLOWER and BUD, will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 17, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS for this SALE will SEND LISTS AS SOON AS POSSIBLE.

***Re* Tomkins, St. Albans.**

MR. W. DORANT will SELL by AUCTION, on THURSDAY, March 28, 1889, at 12 noon, upon the Premises, 20, George Street, St. Albans, Herts, the valuable large Stock-in-Trade of SEEDS (FLOWER and VEGETABLES), all in choicest varieties, ready for immediate sowing, also Bales of Raffia, Sacks, Bags, Cases of Flower Sticks, Labels, Tallies, Pockets, Weighing Machine, new Seed Winnower, Sieves, Measures, Barrows, Trade Fixtures, Mahogany Counters and Nests of Drawers, Show Cases, Shelves, Gas Fittings, Pulley Chains, Office Furniture, and other items, together with the valuable Lease of the above extensive Premises.

On view four days previous, and on morning of Sale. Catalogues obtained of the Trustee, F. C. GOODCHILD, Esq., 25, Old Jewry, E.C.; of A. EWEN, Esq., Official Receiver, Luton, Beds; or of W. DORANT, Auctioneer, Victoria Street, St. Albans.

For Sale, the Large Conservatory,

240 feet long, 60 feet wide, and 75 feet high, on the south side of the Albert Hall, South Kensington, with glazed span roof adjoining.

MESSRS. HORNE, SON, AND EVERSFIELD are instructed to prepare for SALE by AUCTION, in MAY, the whole of the BUILDINGS in the Grounds formerly occupied by the Royal Horticultural Society at South Kensington, including the magnificent Conservatory, well adapted for a Winter Garden, and suitable for any public Pleasure Grounds, and which may be treated for by Private Contract previous to the Sale.

The valuable PALMS and ORNAMENTAL SHRUBS and PLANTS and out-door effects will be sold on the Premises on APRIL 9.

On view one week previous by Catalogues only, to be obtained of Messrs. HORNE, SON AND EVERSFIELD, 17, Great George Street, and 84, Basinghall Street, E.C.

Monday Next.

IMPORTANT SALE of HARDY PLANTS, BULBS, and LILIES, consisting of the new Convallaria prolificans, 500 Iris species and varieties, 1000 choice Lilies, including colchicum, Humboldtii, giganteum, Washingtonianum, Wallichianum, speciosum and many others; 1000 Hardy Plants, comprising Carnations, Picotees, Phlox and Pæonies, Chrysanthemums and Dahlias in great variety, Begonias, Gloxinias, Gladiolus, 500 choice Double Hollyhocks; Cypripedium spectabilis, Disa grandiflora, Sarracenia purpurea, together with 2000 Lilium auratum from Japan.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, March 25, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Monday Next.

Named CARNATIONS and PICOTEES in pots, Standard and Dwarf ROSES, FRUIT TREES, EVERGREENS, CAMELLIAS, and AZALEAS, from an English Nursery.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on MONDAY NEXT, March 25, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Tuesday Next.—Orchids in Flower.

SPECIAL and IMPORTANT SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, March 26, at half-past 12 o'Clock precisely, about 300 lots of ORCHIDS in FLOWER—the larger portion from private collections. Amongst the numerous lots will be found fine plants of Cypripedium vermixum, Cymbridium Lowianum (large specimens), C. eburneum, Denbrobium Wardianum (grand varieties), D. Ainsworthii, and D. a. roseum, D. nobile nobilius, D. n. Cooksoni, Masdevallia cucullata, Pleurathallis Roezlii, Cœlogyne cristata alba, Cattleya Wagnerii, C. Reichenhiana superba, C. Arnoldiana, Oncidium Brunbesianum, Odontoglossum Alexandræ and Pescatorea (fine varieties), Cattleys, &c.

On view morning of Sale, and Cattalogues had.

Wednesday Next.

5000 LILIUM AURATUM, fine bulbs, from Japan; a large assortment of English-grown LILIES, choice FERNS, PALMS, and other Plants; Dwarf ROSES, named FRUIT TREES, and a great variety of Hardy BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, March 27, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next, March 28.

IMPORTANT to the TRADE and PRIVATE BUYERS.

SALE of NURSERY STOCK and GREENHOUSE PLANTS, from Sample, HARDY BULBS, LILIUM AURATUM, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on THURSDAY NEXT, March 28, at half-past 12 o'Clock precisely, large quantities of NURSERY STOCK and GREENHOUSE PLANTS from Sample; 5000 LILIUM AURATUM, from Japan, and a great variety of HARDY BULBS.

Samples will be on view the morning of the Sale. Catalogues may be had of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday Next.

ANGRÆCUM PALLIDUM (REICH.).

MESSRS. PROTHEROE AND MORRIS will include in their SALE, on FRIDAY NEXT, March 29, by order of Messrs. Horsman & Co., a fine importation, just to hand, of ANGRÆCUM PALLIDUM, a truly handsome species, producing drooping spikes of flowers 18 inches to 2 feet in length, with as many as 50 flowers on a spike. Also other ANGRÆCUMS and CRINUM species, the latter probably new.

On view morning of Sale and Catalogues had.

Friday Next.

LÆLIA GRANDIS, LÆLIA ELEGANS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY, March 29, 1889, at half-past 12 o'Clock precisely, a large Importation of the grand and showy golden-flowered LÆLIA GRANDIS, all of which are offered. Also a very fine lot of CYMBIDIUM EBURNEUM, in splendid condition. A small consignment of LÆLIA ELEGANS, coming from the same district whence we have obtained those marvellous varieties as prasiata, Turnerii, &c. A quantity of Brazilian ORCHIDS, the whole in splendid condition, including some fine masses of Cattleya intermedia and Lælia purpurata. Indian ORCHIDS, in fine order, comprising the rare Dendrobium Gibsonii, D. ludyosmum, D. Dearii, D. Freemanii, D. Purardii, Pleione maculata and P. Wallichiana, and many other rare imported Orchids; with 50 lots of rare and beautiful ORCHIDS in FLOWER. Also a few selected Established ORCHIDS from a private collection.

On view morning of Sale, and Catalogues had.

Friday Next, March 29.

EPIDENDRUM INDIVISUM, all in grand order, with sound unstarted buds for growth. A grand species, never before introduced, Cattleya-like in growth, and with stout sprays of about 20 large snow-white, wax-like flowers, with small yellow spot in the centre. Unique grand floriferous plant for Cattleya-house. Splendid masses of 12 to 50 bulbs.

EPIDENDRUM BICORNUTUM, immense compact leafy masses, collected in trees, some with over 100 bulbs.

ONCIDIUM PAPILIO MAJUS, the best type; and a fine IONOPSIS and ONCIDIUM LANCEANUM of the free-flowering type.

MESSRS. PROTHEROE AND MORRIS will include the above in their ORCHID SALE on FRIDAY NEXT, March 29.

On view morning of Sale, and Catalogues had.

Barnet.

In the High Court of Justice: Chancery Division, Cornwell *v.* Cornwell.

IMPORTANT TO BEGINNERS.

At a Nominal Reserve to close accounts—the old-established NURSERY BUSINESS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Hadley Nursery, High Street, Barnet, on TUESDAY, April 2, at 1 o'Clock precisely, in two lots, the Beneficial Interest in the Lease of the NURSERY, known as the Hadley Nursery, High Street, Barnet, comprising 5 Acres of capital Land, 8 Greenhouses, Dwelling-House, and Seed Shop, held for 11 Years at a Nominal Rent, also a Valuable Plot of Freehold Building Land fronting the High Street.

Particulars obtained on the Premises; of Messrs. HOUGHTONS AND BYFIELD, Solicitors, 85, Gracechurch Street, E.C., and Barnet; of Messrs. SCOTT AND BAKER, Solicitors, 10, Grays Inn Square, W.C., and Hatfield; and of the Auctioneers, 67 and 68, Cheapside, E.C.

The Sunbury House Collection of Orchids.

SECOND and REMAINING PORTION, by order of Major Lendy, who is relinquishing their cultivation in consequence of ill-health.

IMPORTANT UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, April 2, 1889, at half-past 12 o'Clock precisely, without reserve, the SECOND and REMAINING PORTION of this well-known Collection of ESTABLISHED ORCHIDS, including a large number of fine Cattleyas, in variety; Lælia elegans Warnerii, Odontoglossums, including several very strong pieces of Alexandræ, Cattleya Skinneri alba, C. aurea grandiflora, Cymbidium Lowianum, Cypripediums, Maxillaria Sanderiana, Oncidiums, Vandas, and many other ORCHIDS.

On view morning of Sale, and Catalogues had.

Preliminary Notice.

By order of the Executors of the late Mr. J. H. Bath, of Manor Farm, North Cray.

8000 ESTABLISHED ORCHIDS.

For Sale without Reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, April 9, the whole of this extensive Collection of ORCHIDS, comprising 5000 Odontoglossum Alexandræ, Pescatorei, and triumphans, mostly unflowered; 3000 Cattleyas, Cypripediums, Dendrobium, &c.

Highly Important Sale.

The Unrivalled Collection of SUCCULENT PLANTS, formed by the late J. T. Peacock, Esq., and enjoying a reputation probably unequalled in Europe.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executors to SELL by AUCTION, on the Premises, Sudbury House, Hammersmith, W., on WEDNESDAY and THURSDAY, May 1 and 2, at 11 for 12 o'Clock precisely each day, Without Reserve, the whole of the Valuable COLLECTION of SUCCULENT PLANTS, including many speciesthat are unique, and others of extreme rarity, including the Entire Stock of the beautiful new Cereus, J. T. Peacock, Gasterias, Hawarthias, Agaves, Phyllocactus, Sempervivums, Mesembryanthemums, Opantiantias, Yuccas, Echinocactus, &c.

Also 120 fine plants of Todea superba, several large Camellias, Lapageria alba and rosea, and other plants.

No plants will be sold privately prior to the Auction.

Catalogues may shortly be obtained of Mr. VICKERY, Head Gardener, on the Premises; and of the Auctioneers and Estate Agents, 67 and 66, Cheapside, London, E.C.

Preliminary Notice.

The far-famed SUDBURY HOUSE COLLECTION of ESTABLISHED ORCHIDS,

Formed by the late J. T. Peacock, Esq.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Executors of the late J. T. Peacock, Esq., to SELL by AUCTION, without reserve, on the Premises, Sudbury House, Hammersmith, W., on MONDAY, May 13, and four following days, at half-past 12 o'Clock each day, the ENTIRE COLLECTION of ESTABLISHED ORCHIDS, being the contents of twenty-three Greenhouses, comprising:—

308 Odontoglossum vexillariem, mostly specimen plants, in splendid health.
102 Cypripedium insigne, comprising a large number of specimens useful for cut flowers.
100 " Syicerienum, mostly large healthy plants.
100 Cœlogyne cristata, chiefly specimen plants.
50 Cymbidium eburneum, fine large pieces.
250 Odontoglossum Roezli and Phalænopsis.
350 Phalænopsis Schilleriana, amabilis, Stuartiana, grandiflora, and tetraspis.
240 Lælia autumnalis and majalis, fine pieces.
5300 Odontoglossum Alexandræ and Pescatorei.
120 Oncidium macranthum and Edwardii, including several grand pieces.
1000 Cattleyas, principally Mendelii, Gaskelliana, Mossiæ, Trianæ, nobilior, Warnerii, and citrina.
75 Odontoglossum citrosmum, beautifully-grown plants.
8000 other Orchids in great variety.

No Plants will be sold privately prior to the Auction.

The Collection may be inspected any time by cards, to be obtained of the Auctioneers.

Catalogues may shortly be obtained of Mr. VICKERY, Head Gardener, on the Premises; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

WANTED, TO PURCHASE, a SEED and NURSERY BUSINESS. Nursery not to exceed 6 acres in extent, or a good Seed Business, with or without Nursery. Good connection indispensible.

Full particulars to P. F., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, TO RENT or PURCHASE, Small NURSERY, not less than 300 feet of Glass. W. R., 133, Grandison Road, New Wandsworth, S.W.

To Grape Growers. Rare Opportunity.

TO BE SOLD, on exceptionally favourable terms (most satisfactory reasons for Disposal) thoroughly genuine and compact PROPERTY, numerous VINERIES, substantially built and stocked with the best Vines. Every facility. Good returns have been obtained.

Full particulars on application to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

Yorkshire, West Riding.

On the confines of an important and thriving Market Town.

TO BE SOLD, as a going concern, and at a great sacrifice, to ensure an early Sale, a very Old established NURSERY and FLORIST'S BUSINESS. The Premises comprise about 5½ Acres of capital Land, held at a very moderate rental and well stocked with useful Stuff. With Foreman's Cottage, Packing Barn, 3-stall Stable and Coach-house, Stone-built Offices and Store room. The Glass Erections comprise 6 useful Greenhouses, efficiently heated with Hot Water, also numerous Cold Frames, mostly covered with movable Glass Lights. Well supplied with Water. The Nursery is situate about 2 miles from the Town, and within 1 mile of a Railway Station. Satisfactory reasons will be given for Disposal. A splendid opportunity for acquiring a Genuine Business on exceedingly reasonable terms. The Vendor will be open to consider any reasonable offer to effect an early Sale.

For further particulars apply to Mr. F. CARTER, Accountant, &c., Nelson Chambers, Cloth Hall Street, Huddersfield.

To Nurserymen.

TO LET, at Midsummer, Brighton Road NURSERY, near the Station; Six Houses, 1 large front Show House, Potting Shed, and Ground.

Apply, 22, Great Charles Street, Birmingham.

Buckhurst Hill, Essex.

TO LET, an eligible plot of LAND, of nearly an acre, with southern aspect. Good comfortable House within two minutes' walk of Railway Station. Suitable for Florist. Capital soil for Rose Growing.

For particulars, apply to DALWHINNIE, Norwich Road, Forest Gate, Essex.

CUT FLOWERS, BULBS, PLANTS, &c.—Best class of customers in district for good flowers. Sales, WEDNESDAY and FRIDAY Night all the year round. Daily, when required. Largest and most centrally situated Horticultural Sale Rooms in Birmingham.—POPE AND SONS, 6, Phillip's Street (close to Market Hall), Birmingham.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received fine importations of the following, and many other ORCHIDS:—

CATTLEYA TRIANÆ.
ODONTOGLOSSUM ALEXANDRÆ (Pacho type).
LÆLIA ANCEPS (White), distinct-looking type.
„ ANCEPS MORADA.
CATTLEYA GUTTATA LEOPOLDI.
MILTONIA MORELLIANA.
DENDROBIUMS and other ORCHIDS, in quantity, from the East Indies.

Full particulars, Post-free, on application to

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

A BIG SALE.

UNDER NOTICE TO QUIT,

FROM ST. JOHN'S COLLEGE, CAMBRIDGE,

AFTER TWENTY-FOUR YEARS' TENANCY.

RENTS REGULARLY PAID.

THE ABOVE ACTION HAVING BEEN TAKEN BY ST. JOHN'S COLLEGE,

CHARLES NOBLE

Has no alternative but to offer the Nursery Stock at Half Price.

Buyers must book to Sunningdale Station, S.W.R.

CHARLES NOBLE, BAGSHOT.

SUTTON'S SEEDS GENUINE ONLY DIRECT FROM SUTTON AND SONS, READING. Orders value 20s., carriage free.

SUTTON'S FLOWER SEEDS for PRESENT SOWING. — Asters, Balsams, Carnation, Hardy Annuals, Lobelias, Mignonette, Pansy, Phlox Drummondii, Poppies, Stocks, Sunflowers, Zinnias, and others. For full particulars see SUTTON'S AMATEUR'S GUIDE, Price 1s., post-free.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

LILIUM AURATAM, good bulbs, 2*d.* each, 4½*d.*, post free—2s. per dozen. 2s. 9*d.* post free.

FIELD JAMES FIELD, Upper Market, Norwich.

CHRYSANTHEMUMS, true to Name, Buyer's Selection, plants from 2s. 6*d.* per doz., 16s. per 100; cuttings, 1s. 6*d.* per doz., 10s. per 100. W. E.'s Selection, plants, 11s. per 100, 2s. per doz., post-free. Catalogue 2 stamps, of WM. ETHERINGTON, Chrysanthemum Grower, Swancombe, Kent.

CORNER'S SWEDE.—For Sale, about 300 bushels. The finest Swede in cultivation. Selected and grown by Advertiser for many years. Noted prize-winner whenever exhibited.

Address SWEDE, 6, Victoria Street, Bristol.

IVIES.—Irish Ivy, very fine, in pots, neatly staked and tied, 5 feet, 6 feet, and 7 feet high.

FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey, and Flower Market, Covent Garden, W.C.

ASPARAGUS.—This delicious Vegetable does not require half the expense often incurred. For direction see Illustrated Seed List, free. Strong Roots, 2s. 6d. per 100.—RICHARD SMITH AND CO., Worcester.

SMALL SHRUBS and CONIFERÆ.—Araucaria imbricata, 10 to 12 inches, 50s. per 100; Abies Douglasii, 1-yr., 4s. per 100; A. orientalis, 1-yr., 30s. per 1000; American Arbor-vitæ, 1½ foot, 60s. per 1000; Sweet Bay, 1-yr., 30s. per 1000; Scarlet Chestnut, 1-yr., 8s. per 100; Cupressus macrocarpa, 1-yr., 30s. per 1000; Lawsoni, 18 inches, 60s. per 1000; erecta viridis, 4 inches, 30s. per 1000; do., 1 foot, 12s. per 100; stricta, 1 to 1½ foot, 12s. per 100; Allumii, 1 foot, 14s. per 100; Cedrus atlantica, 1-yr., 1-yr. transplanted, 10s. per 100; C. Deodara, 1-yr., 7s. per 100; Escallonia macrantha, pots, 14s. per 100; Portugal Laurel, 1-yr. transplanted, 20s. per 1000; Colchic Laurel, 1-yr., 25s. per 1000; Laurel rotundifolia, 1-yr., 25s. per 1000; Limes, 1-yr. transplanted, 16s. per 1000; Pinus Cembra, 3-yr., extra, 16s. per 1000; P. insignis, 1-yr., 3s. 6d. per 100; P. excelsa, 1-yr., 4s. per 100; P. Nordmanniana, 1-yr., 30s. per 1000; P. Jeffreyii, 1-yr., 8s. per 100; P. Strobus, 2-yr., 2s. per 100; Scarlet Oak, 1-yr., 3s. per 100; Privet ovalifolium, 8 to 9 inches, 10s. per 1000; Retinospora plumosa, 10 to 12 inches, 10s. per 100; R. squarrosa, 8 to 9 inches, 8s. per 100; do., 1 foot, 12s. per 100. Thuia dolobrata, 8 to 9 inches, 80s. per 1000; do., 10 inches, fine, 12s. per 100. T. Ellwangeriana, 6 to 8 inches, 6s. per 100; Veronica Traversii, 6 to 8 inches, fine, 6s. per 100; English Yew, 1-yr., 1-yr. transplanted, 20s. per 1000; do., 8 to 10 inches, 7s. per 100. Irish Yew, 6 to 9 inches, 10s. per 100.

GARLIES MITCHELL, Nurseryman, Stranraer.

STRAWBERRY PLANTS, in small pots. Splendid stuff of all best kinds, and true to name. Price List on application.

FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2s. 6d. each; Beauty of Worcester, a magnificent purple, excellent for bedding, recently sent out by us, reduced price 2s. 6d. each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

100 CONIFERS in 50 distinct varieties ... ... for 50s.
100 ORNAMENTAL TREES, in 50 distinct varieties, including many variegated, golden, and purple varieties ... ... for 50s.
100 DECIDUOUS SHRUBS in 50 distinct varieties ... ... for 20s.
100 EVERGREEN SHRUBS, in 50 distinct varieties ... ... for 30s.
100 ROSES, in 50 distinct varieties, of H.P., Moss, Tea, &c. ... ... for 35s.
100 RHODODENDRONS, in 50 distinct varieties ... for 100s.
100 HERBACEOUS PLANTS, in 50 fine varieties ... for 20s.
100 PRIMULAS, in 50 distinct varieties ... ... for 50s.

CATALOGUE of Names free on application.
MORRISON BROTHERS, Nurseries, Aberdeen.

EUONYMUS (Green).—50,000, all nice bushy well-grown Specimens, 9 to 36 inches, £1 to £10 per 100.

J. J. CLARK,
Goldstone Farm, Brighton.

HARTLAND'S DOUBLE PERENNIAL SUNFLOWERS, varieties "Anemonæflora" and "Soleil d'Or," the former having a yellow Anemone-flowered flat and frilled centre, with the outer florets or guard-petals extended, and known in English gardens as *multiflorus plenus*. Plants, each 9*d.*; post-free, 3*d.* extra. The new plant, or "Quilled form," is bright orange, and the outline that of a Cactus Dahlia, the A. W. Tait type; and, to prevent confusion in the term "plenus," designated by me as "Soleil d'Or," or the Irish Quilled flower. Each, 1s. 6*d.*; extra size, 2s. 6*d.*, *post-free*. Illustrations of both forms, as drawn by Gertrude Hartland, can be had for a stamped envelope. I have been instrumental in getting distinctions for the first time observed by English florists in their Catalogues. Trade price on application.

WM. BAYLOR HARTLAND, Old Established Garden Seed Warehouse, 24, Patrick Street, Cork.

New Tea Rose.

SOUVENIR DE S. A. PRINCE.

A pure white sport from Souvenir d'un Ami.

This is undoubtedly the finest white Tea Rose that has been offered to the public of late years. It has all the good qualities of Souvenir d'un Ami, in addition to which it is of more robust habit, the foliage being of a dark glossy green. As an exhibition variety, Souvenir de S. A. Prince will supersede Niphetos, it always being of good shape, and not having the latter's bad tendency of opening quartered and green-centered. Three First-class Certificates.

Grafted Plants, ready in June, price 10s. 6d. each.
GEORGE PRINCE, Rose Grower, Oxford.

ENGLISH YEWS, 3, 4, 5, and 6 feet.
BOX, Green, 3, 4, 5, and 6 feet.
„ Variegated, 3, 4, 5, and 6 feet.
PINUS AUSTRIACA, 3, 4, 5, and 6 feet.
All well furnished, and finely rooted. Many thousands.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

SPECIMEN CONIFERS.—Trees for Avenues, Evergreens, and Forest Trees in great variety. CATALOGUE free on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL,

AT

The "ALBION," Aldersgate Street,

JUNE 13, 1889,

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Donations and Collections already promised or sent towards the Jubilee Collection of 1889:—

	£	s.	d.
LEOPOLD DE ROTHSCHILD, Esq., Chairman ...	105	0	0
The DUKE of WESTMINSTER, K.G., President ...	100	0	0
The DUKE of BEDFORD, K.G.	100	0	0
The EARL of DERBY, K.G.	21	0	0
Baron HENRY SCHRODER, Vice-President ...	105	0	0
Lord REVELSTOKE	52	10	0
JAMES McINTOSH, Esq., Vice-President	52	10	0
N. N. SHERWOOD, Esq. (Hurst & Son), Trustee ...	52	10	0
H. B. MILDMAY, Esq., Berkeley Square	52	10	0
HERBERT J. ADAMS, Esq., Vice-President ...	26	5	0
HARRY J. VEITCH, Esq., Treasurer	26	5	0
C. CZARNIKOW, Esq., Effingham Hall, Dorking ...	21	0	0
A. A. SILLEM, Esq., Sydenham	10	10	0
J. F. TIARCK, Esq., Chislehurst	10	10	0
JOHN LEE, Esq., Kensington (Trustee)	10	10	0
THAMES BANK IRON CO., Upper Ground Street	10	10	0
J. H. VEITCH, Esq., Chelsea	10	10	0
ARTHUR J. VEITCH, Esq., Chelsea	10	10	0
THOMAS MANNING, Esq., Chelsea	10	10	0
Mrs. H. J. VEITCH, Redcliff Gardens, S.W. ...	10	10	0
B. S. WILLIAMS, Esq., Upper Holloway, N. ...	10	10	0
Mr. C. W. BUCK, Covent Garden	5	5	0
Mr. E. R. CUTLER, Secretary	10	10	0
Messrs. JOHN LAING AND SON, Forest Hill ...	5	5	0
Messrs. WEBBER AND CO., Covent Garden ...	5	5	0
Mr. A. PLUMMER, Seedsman, Staines	4	4	0
Mr. R. H. ROBINSON, The Gardens, Heversham, Milnthorp	7	7	0
Mr. JOHN CROOK, Gardener, Farnborough ...	8	5	0
Mr. EDWARD MITCHELL, Gr., Bolton Lodge, Leeds	10	10	0
Mr. W. R. HODGES, Gardener, Copley Dene, Highgate	10	10	0
Mr. E. GILBERT, The Gardens, Old Charlton, Kent	1	15	0
Mrs. VINCENT NICHOLL, Red Hill	2	2	0
W. J. BROWN, Esq.	1	1	0
Miss CATTLEY, Clayden, Edenbridge, Kent ...	2	2	0
ROBERT HOGG, Esq., LL.D., Vice-President ...	10	10	0
RICHARD CHRIMES, Esq., Rotherham	21	0	0
Messrs. NUTTING AND SON, Southwark Street ...	10	10	0
Mr. WM. COLLINS, Gr., Chios House, Clapham Park	10	10	0
Mr. WM. WILDSMITH, Heckfield Gardens ...	1	1	0
Messrs. WATKINS AND SIMPSON, Exeter Street ...	5	5	0
Mr. H. E. TILLMAN, Covent Garden	3	3	0
Mr. S. E. KAY, Finchley	2	2	0
Messrs. DICKSON, The Nurseries, Chester	10	10	0
Mr. GEORGE MONRO, Covent Garden	10	10	0
Messrs. BARR AND SON, King Street, Covent Garden	2	2	0
Mr. W. S. JOHNSON, St. Martin's Lane	5	5	0
Mr. J. C. STEVENS, King Street, Covent Garden ...	5	5	0
Messrs. CUTBUSH AND SON, Nurseries, Highgate...	5	5	0
Mr. J. ROBERTS, The Gardens, Gunnersbury ...	10	10	0
Mr. B. WADDS, Birdsall Gardens, York	1	1	0
Mr. G. WYTHES, Syon Gardens, Brentford	1	1	0
Mr. W. DENNING, Nurseries, Hampton	1	1	0
Mr. J. WALKER, Whitton, Hounslow	2	2	0
Mr. PETER BLAIR, The Gardens, Trentham ...	1	1	0
Messrs. H. & A. TURNER, Royal Nurseries, Slough	10	10	0
Mr. W. C. LEECH, Albury Gardens, Guildford (annual)...	1	1	0
Miss OSBORN, Streatham	3	3	0
Mr. W. BROWN, Merivale Gardens, Atherstone ...	2	2	0
Mr. THOS. S. WARE, Hale Farm Nurseries, Tottenham	2	2	0
Mr. PEARMAN, Salmon's Garden, Chiselhurst ...	10	10	0
Messrs. JACOB WRENCH AND SONS, London Bridge	5	5	0
Messrs. HOWCROFT AND WATKINS, Hart Street, Covent Garden...	5		
Messrs. THOMSON AND SONS, Nurseries, Wimbledon	2		
Mr. H. J. CLAYTON, Grimston Gardens, Tadcaster	1		

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THE PENNY PACKET SEED COMPANY'S
SEEDS AND PLANTS,

And you will pronounce them the Best in the Market, as none but genuine, good, new season's seeds are supplied.

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Has been pronounced the most **complete** and **economical** system of supplying seeds.

3000 VARIETIES CATALOGUED

of Vegetable and Flower Seeds in **Penny Packets**; also by weight and measure at lowest prices.

Also a Select List of

HARDY PLANTS.

Catalogue (500 *Illustrations*) *gratis and post-free.*

BIDDLES & CO.,

The PENNY PACKET SEED COMPANY,

LOUGHBOROUGH, LEICESTERSHIRE.

SPECIAL CULTURE OF

FRUIT TREES AND ROSES.

A Large and Select Stock is now offered for Sale.

The Illustrated and Descriptive Catalogue of Fruits post-free.

The Descriptive Catalogue of Roses post-free.

THOMAS RIVERS & SON,

THE NURSERIES, SAWBRIDGEWORTH HERTS.

THE REAL WHITE ELEPHANT

OR IMPROVED WHITE ELEPHANT POTATO.

This is a sport from Daniels' White Elephant Potato, but has the great advantage of having a pure white skin. It is one of the heaviest croppers grown. Cooks splendidly.

PINK PERFECTION.

The handsomest coloured round yet raised. A sure prize-taker. SEED POTATOS.

All the best of the old and new varieties in commerce. Over 200 varieties to select from, at moderate prices. Send for Descriptive CATALOGUE, containing lists for various purposes and other useful information. The most complete in the Trade.

JOHN WATKINS, Potato Grower, Pomona Farm, Withington, Hereford.

FERNS A SPECIALTY.

The finest, most varied, choice, and interesting Collection in the Trade.

1400 species and varieties of Stove, Greenhouse, & Hardy Ferns.

Partially descriptive CATALOGUE free on application.

Illustrated CATALOGUE (No. 21), containing 120 Illustrations, and much valuable information on the Cultivation of Ferns, 1*s.* 6*d.* post-free.

W. & J. BIRKENHEAD,

FERN NURSERY,

SALE, MANCHESTER.

ROSES, grand robust plants, thousands to select from. Special PRICES on application.

DICKSONS, The Nurseries, **CHESTER.**

(Limited.)

CHEALS'
DAHLIAS.

CELEBRATED STRAIN OF

SINGLES,

CACTUS, POMPON, and SHOW varieties, &c.

NEW DESCRIPTIVE CATALOGUE,

now ready, containing a beautiful Coloured Plate of new varieties, post-free.

J. CHEAL & SONS,

CRAWLEY.

JAPANESE LILIES.—EIGHT LOVELY KINDS.—Carters' Case of 50 fine Bulbs, as imported from the Japanese Bulb Farms. Price 25*s.*, sent packing and carriage free to any Railway Station in England and Wales on receipt of Postal Order for 23*s.* 9*d.* Full names of the eight varieties on application to

CARTERS', Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

ISAAC DAVIES & SON

Have still on hand some of the SURPLUS STOCK (offered cheap, to clear ground), of

RHODODENDRONS, HOLLIES, &c., advertised last week.

Also a fine stock of their

SWEET-SCENTED GREENHOUSE RHODODENDRONS, covered with flower-buds.

CATALOGUE of General NURSERY STOCK on application.

ORMSKIRK, LANCASHIRE.

ROSES—20 ACRES,

Well-rooted, many-shooted, truly named, of matured vigorous growth, and of the best kinds. Bushes, R. S. & Co.'s selection, 8*s.* per dozen; 60*s.* per 100. Packing and carriage free for cash with order.

These World-famed ROSES cannot fail to give the greatest satisfaction.

ROSES IN POTS;

all the best New and Old English and Foreign sorts, from 18*s.* to 36*s.* per dozen.

Descriptive List free on application.

RICHARD SMITH & CO.,

Nurserymen and Seed Merchants,

WORCESTER.

FRUITING VINES & FIGS.

Thoroughly ripened Canes and Trees, to fruit this year.

PARTICULARS ON APPLICATION.

DICKSONS Royal Nurseries, CHESTER.

(Limited).

A GRAND EARLY POTATO.

EARLY WHITE HEBRON.

A white sport from the well-known Beauty of Hebron, the finest First Early Potato in the world. Very early, enormously productive, and of splendid cooking quality.

This is a most valuable variety for Market Growers.

Price, 2*s.* 6*d.* per peck, 8*s.* 6*d.* bushel, 14*s.* cwt., £10 ton.

Orders value 20*s.* carriage free.

Illustrated POTATO CATALOGUE gratis to all applicants.

DANIELS BROS., Seed Growers, **NORWICH.**

SEEDS,

Vegetable, Flower, and Farm,

CAREFULLY SELECTED,

AND FROM WHICH MAY BE EXPECTED

THE BEST RESULTS

EVER YET ATTAINED.

ILLUSTRATED LIST,

Containing Copious, Interesting, and Reliable Information, Free.

RICHARD SMITH & CO.,

SEED MERCHANTS & NURSERYMEN,

WORCESTER.



CUTBUSH'S MILL-TRACK MUSHROOM SPAWN.—Too well known to require description. Price, 6*s.* per bushel (1*s.* extra per bushel for package), or 6*d.* per cake; free by parcel post, 1*s.*

None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.

WM. CUTBUSH AND SON, Nurserymen and Seed Merchants, Highgate Nurseries, N.

TO THE TRADE & MARKET GROWERS.

OAKSHOTT & MILLARD

Have a Surplus of the following to offer on advantageous terms:—

CANADIAN WONDER BEANS,
AMERICAN WONDER PEAS,
IMPROVED PRINCESS ROYAL PEAS,
ROBERT FENN PEAS,
Dr. McLEAN PEAS,
FORTYFOLD PEAS,
BRITISH QUEEN PEAS,
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GARDENERS' CHRONICLE
FOR
Next Week, March 30,
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Published an Ink Photograph
OF A
VIEW IN THE GARDEN
OF
H. H. HUNNEWELL, Esq., Boston, U.S.

In the same number will be published an Illustrated Report of the Hyacinth Show and Lecture at the Royal Horticultural Society's Rooms on March 26.



THE
Gardeners' Chronicle.

SATURDAY, MARCH 23, 1889.

ARE TEA ROSES HARDY?

THE increasing popularity of this very lovely tribe of Roses (about which there is no need of sentimental vapouring) has more than once brought up the question as to whether they are to be regarded as hardy or not; and in this, as in all matters connected with the Rose, and, indeed, with anything, there are diverse opinions. While some declare that they are as hardy as any Rose can be, others state that they must be protected if they are to be allowed to remain in their present position, and not lifted at the approach of winter, and elaborate plans are put forward for giving them this protection. It may then be worth while to look a little closer into the matter, and see if we can arrive at any conclusion.

And what is first of all meant by a plant being hardy? Generally the term seems to apply to one that can resist intense cold, and is none the worse for a hard winter; but I rather fancy some people would consider that when a plant is killed outright then only can it be considered as half-hardy; while others think that, even if it should not be quite killed, it becomes so crippled by severe weather as to be practically half-hardy; but there are other things to be considered. Hardiness, or the power to pass through the winter unscathed, may be affected by other causes, notably in the case of real alpine (not subalpine) plants; the alternations of wet and dry weather—one day mild and moist, with heavy rainfall, and the next with severe frosts and cold, searching winds—prevent one successfully cultivating many alpine gems, and the advice which is often given to place pieces of glass over such, shows that it is not merely frost that militates against their successful cultivation, and I am quite sure that the same considerations ought to be taken into account with regard to Tea Roses.

I do not see why, *à priori*, Tea Roses should be considered tender; they are the produce of the blush China Rose crossed with the yellow

China, and Mr. Rivers calls them in his *Rose Amateurs' Guide* the Tea-scented China Rose. The China Rose, is, we know, perfectly hardy, and there is no more need of covering the tender kinds than in the case of many of the hybrid perpetuals; I do not see, therefore, why its wood should be less able to endure frost than they are. It is true that they bloom and grow on very late in the autumn, and unquestionably those portions of the tree suffer, but so they do in any hybrid perpetuals which endeavour to earn their name as such. There are doubtless some kinds that are tender, and growers say, "Oh, how many have I lost?" And the same is true of some hybrids. What has become of François Lacharme, Madame Furtado, and others? They were very beautiful Roses, but they were delicate, and so they have passed out of cultivation, as have done Vicomtesse de Cazes and other Teas. And then, as to the roots, they are now nearly all grown on the seedling Brier and Brier cutting, which are both equally hardy.

But, it may be said, it is all very well to talk and write about what things ought to be, or what we suppose they ought to be, but that is a very different thing from what they are; but my contention is that they are hardy under certain conditions of climate—for that is, I believe the point—not so much the soil; and I think that where the climate is dry the Tea Rose will bear a greater amount of cold that any other, and that without any protection.

We are all accustomed to regard East Anglia as a cold east-wind-swept country, and so it is, but it is about the driest part of England, and its character as a Tea-growing district has been fully established by the success of such growers as the Rev. Page Roberts, the Rev. R. H. Berens, the Messrs. Cant, of Colchester, and others. The first of these has recorded his experience in the *Rosarian's Year Book* for 1889, where he has distinctly stated that, "I grow mine well. It can't be soil at all; it has to be well mulched to keep it from being blown away. My neighbour, 'Duckwing' (a very successful grower), grows his on—well, it isn't soil either, for after a shower of rain you can't walk on it for a week; it's either bricks or mortar. Mine is sand with a gravelly subsoil, his clay with a clayeyer subsoil; and yet Tea Roses grow well on both. Therefore, we must conclude that our success is not due to our peculiar soil or to our favourite stock, nor to the protection we give in winter (dwarfs are only mulched with earth); it must be attributed, in fact, to our much-maligned climate, to our dry bracing air, and to our small rainfall (the smallest in England)." This view is entirely borne out by the experience of my good friend, the Rev. H. B. Biron: his garden at Lymne Vicarage, Kent, stands high up; he is so much exposed to the high winds which so often sweep in from the Channel, that he has to put up fences to keep them off his garden, and yet he never protects his Teas. Most of the gardens around Bath, where the Teas flourish so well, are on the hills which surround the "Queen of the West." My friend, Mr. A. Hill Gray, has told us how he has made his; while Dr. Budd has also chosen high ground for his garden. I have had the pleasure of receiving blooms of Tea Roses from a lady at Forres, in Scotland, at Christmas-time; while Messrs. Cocker, of Aberdeen, inform me that their Tea Roses in that far "North Countrie" are left unprotected during the winter, the weaker kinds have bracken thrown over them.

There is, however, one part of England which seems to tell a different tale—the Midlands; and yet even here the matter is not quite so certain. I remember how Mr. Hill Gray went to see the Roses at Caunton, and how he left word with the gardener to tell his master that he had seen dead Roses, but although the foliage and wood were hit hard by a severe winter yet the deeply mulched beds had preserved the roots and the junction of scion and stock; and the bushes were in the following season as free and vigorous as ever; and in truth much that has been written on the subject of the tenderness of Tea Roses had reference to those when they were grown as standards or half standards (a form in which many growers contend you still obtain the finest flowers), they were the more exposed to the action of frost, and after a severe winter the death roll was a very heavy one, but the same was true with regard to hybrid perpetuals. In the terrible winter of 1879-1880 the destruction of standards at Brie Comte Robert was overwhelming. Millions perished, and the neighbourhood has never as yet recovered the terrible losses of that time. I remember seeing in the plantations at Bourg La Reine, near Paris, one of the most even and beautiful lots of standard Roses I ever saw, with Jules Margottin, every one of which succumbed to the severe winter.

We have not had a severe winter, although we have lately had some sharp "snaps" of frost, which, had they continued, would no doubt have wrought great havoc; but happily it did not continue, and one night of 20° of frost was quite enough. I have to-day (March 9) been looking through my Roses, and find the wood of the Teas quite uninjured, except where autumn growth has left "lishy" and unripened wood, this has naturally felt the frost, but as it would all have to be cut away that is of no consequence, and the same is true of any autumn growth of the hybrid perpetuals.

On the whole, then, my belief is, that the Teas are many of them as hardy as the hybrid perpetuals, and that in most parts of England, where a dry climate can be had, they can be safely grown; in valleys and damp places, especially where the soil is heavy, they will most probably fail, but so would many hybrid perpetuals; and we all know what a difference there is in the effect of severe weather on plants on high and dry positions, and those which are grown near water, or on damp ground, and the same holds good for the Tea Rose.

Care will have to be taken in selecting sorts, to choose those which have a good constitution, of which there are now many in almost every colour which is found in Tea Roses. Such sorts as Madame Lambard, Marie Van Houtte, Rubens, Perle des Jardins, Catherine Mermet, and her daughter, The Bride, Edith Gifford, Souvenir de Thérèse Levet, are of good constitution, and may safely be used as a commencement, and it will be found that many others may be added afterwards, when the prejudice about their tenderness has been overcome by the "stern logic of facts."

Short distances make a good deal of difference; thus, I find in a contemporary that a writer relates how he saw at Taunton rows of trees destroyed; but 3 miles from Taunton, in the garden of my friend, Mr. Newton, of Barton Grange, I saw one of the finest plants of Marie Van Houtte I ever saw; but then I read in the *Times* of to-day (March 9) that there is in some of the streets of Taunton 9 feet of water. *Wild Rose.*

New or Noteworthy Plants.

DISA TRIPETALOIDES, *N. E. Br.*

Although new to cultivation, this is an old plant, and yet the above name is now published for the first time. The species was discovered by Thunberg over a hundred years ago, and was described by the younger Linnæus as Orchis tripetaloides. Thunberg, however, in his *Flora Capensis*, and also in his Herbarium, has confused this plant with his Disa excelsa, having compounded his description from the leaves of this plant, and the stem and flowers of a totally different plant, of which full particulars will be given in my paper on Thunberg's Cape Orchids. Lindley, on the other hand, erroneously considered this plant to be the Disa venosa, Swartz, under which name it has, up to the present, remained in the various herbaria. But Disa venosa, as I have elsewhere shown, is a plant that had been confused with D. racemosa by Lindley, Reichenbach, &c. Therefore it becomes necessary to apply some other name to the present plant, and as the specific name Linnæus gave it is very applicable, I here retain it.

Disa tripetaloides was brought to me by Mr. James O'Brien, who has it in cultivation. It has thick fleshy roots, and is stoloniferous, and therefore easily propagated by division. The leaves are 2 to 3 inches long, lanceolate, acute or acuminate, bright green, glabrous, and somewhat coriaceous in texture; they are all placed in a rosette at the base of the stem, on which they almost immediately pass into acuminate sheaths, of which there are several on each stem. In strong individuals the flower-stem attains a foot or more in height, and bears from twelve to twenty flowers in a moderately lax spike. The flowers are about an inch in expanse; they are white, tinged with pink, and more or less dotted with rose-purple; the dorsal, helmet-shaped sepal has a short conical spur; the lateral sepals are proportionately very large, elliptic-oblong obtuse; the petals are falcate-oblong, and the lip linear.

This beautiful Disa is likely to become a general favourite when better known, especially as it requires for its welfare, but little more heat than is sufficient to keep the frost away. It is very free-flowering, and easily cultivated; and as it increases rapidly by means of its stolons, is not likely to die out when once obtained. Mr. O'Brien writes to me the following concerning this plant:—"It is not only the freest growing and most profuse flowering Disa I ever saw, but also the most easily grown of South African terrestrial Orchids. One of my correspondents writes:—'A charming and elegant Disa, with sprays bearing often twenty to thirty flowers, each from 1 to 1¼ inch across, varying from white to creamy-white, suffused with pink, the two lower segments and inside of the hood spotted with rose or crimson. It lasts in flower a wonderful time, and would be a very prolific plant to grow for cut flowers.' Another correspondent says that 'It is like an elegant small example of Disa crassicornis, white, spotted with red; an exquisitely pretty species.'" *N. E. Brown, Herbarium, Kew.*

PINUS JEFFREYI.*

Professor Sargent says this species, of which we give an illustration at p. 369, may be distinguished from P. ponderosa by its more deeply cleft bark, glaucous branchlets and leaves, much larger cones, and by the strong, pungent odour of orange of the freshly-cut branches; but whether this be distinct from or merely a variety of Pinus ponderosa, and what are its botanical characteristics, are questions which we may pass over on this occasion, as they are duly treated of in readily accessible works, and were moreover considered by Sir Joseph Hooker in the interesting articles (the result of personal observation in the Californian forests), published in our columns in 1884—5. Sir Joseph concludes his article on this species by saying, that as an object of cultivation in England, P. Jeffreyi is in every way inferior to its near ally, and that "whereas a well-grown P. ponderosa is a very handsome object, the best Jeffreyi that I have seen is scarcely an ornament." The figure on p. 361 is a reproduction of a sketch of a native specimen by Sir J. D. Hooker.

It must be admitted that many Pines lose their good looks with advancing age; nevertheless, they are handsome and distinct when young, and so much that is beautiful and useful, must be left by planters to posterity that they are not likely to grudge their predecessors the enjoyment of a tree whose beauty has become so much a thing of the past that the successors cannot appreciate.

Pinus Jeffreyi, as we know it in cultivation, is of loose, open habit, with distant branches. The old bark is brown or dark grey, according to age

* *Pinus Jeffreyi*,—Balfour, in *Report of Oregon Commission*, 1853, p. 2 c. ic. !; Murray in *Pinetum Britannicum*, part 5, c. ic. !; Parlatore in *DC. Prod.*, xvi., ii., p. 393; Veitch, *Manual*, p. 165; Sargent, *Forest Trees of N. America, Tenth Census Report*, p. 193, where the full synonymy is given = P. ponderosa var. Jeffreyi, Engelmann in *Bot. Calif.*, ii., 126.

and locality: the herbaceous shoots are glaucous or bluish-grey, with prominent pulvini. The buds are ovoid-conic in shape, pinkish-brown, and start into growth late in the spring. The bud-scales are eventually bent downwards, lanceolate, serrulate. The shoots are naked at the base—that is, the development of the true leaves or needles takes place near the points of the shoots only, one of the circumstances which contributes to give the open habit to the tree. The leaves are three in a sheath 7—8 inches long; in section (see diagram) they are three-sided, with one convex, and two concave sides. The hypoderm, or woody layer, beneath the skin is double; the ground-tissue of the leaf is made up of cells with wavy outline (not circular, as shown in the diagram), with an inner bark (endoderm), of oval cells only indicated in the figure, surrounding a double vascular bundle, the divisions of which are separated by woody tissue. The resin canals are in the substance of the leaf between the outer and inner bark, and each one is surrounded by a row of strengthening cells. Coulter and Rose (*Botanical Gazette*, vol. xi., November, 1886, p. 306), describe the leaf-structure as much like that of ponderosa, . . . but "very distinct in the absence of the subepidermal thin-walled layer," and we may add by the thicker or at least more uniformly distributed hypoderm.

The male flowers, now described and figured for the first time, are in clusters, each flower (catkin) being about 1 inch long, a quarter of an inch broad, ovate-oblong, cylindric, orange-pink. Anther crest roundish, lacerated at the edge, though shown as entire in the sketch. The cones are deflexed, 7 inches long by 3 in breadth, oblong-cylindric, obtuse, of a brown colour, each scale with a thickened extremity or "apophysis" traversed horizontally in the centre by a sharp ridge, from the middle of which projects a well marked triangular or pyramidal point.

The flowers and cones from which these notes and illustrations were taken were obligingly communicated by Mr. Shingles from Lord Ducie's Pinetum at Tortworth, and other specimens have been received from the Royal Botanic Garden, Edinburgh, Mr. George Paul, and others. It is a native of the eastern slopes of the Californian Sierra Nevada, where it is stated to attain a height of 30—31 metres, and its timber is largely used for ordinary purposes. Fowler speaks of it doing best on good warm rich loams; certainly on poorer soil it does not thrive. *M. T. M.*



Fig. 65.—Pinus Jeffreyi: from a sketch of a Californian specimen by Sir Joseph Hooker. (See p. 360.)

Nursery Notes.

Amaryllis at Messrs. J. Veitch & Sons.

The two fine varieties, John Ruskin and Acquisition, shown by Messrs. Veitch at the meeting of the Royal Horticultural Society on the 12th inst. were, in fact, an indication that large numbers of flowers of equal or superior merit might be found in bloom at their Chelsea nursery, and this a recent visit fully confirmed. The same house which has been set apart as a flower-house for several years past was filled in all parts with plants in two different stages of growth—those which had been repotted in January and at once plunged in the bed which occupies the centre portion of the house, and a lot of bulbs which was started a fortnight later. The forwarder bulbs would number 1800 flower-spikes, with flowers open, or soon to do so; whilst the later ones showed only here and there the point of a flower-spike pushing up from the side of the bulb. The sight of these enormous flowers of crimson-scarlet, white, and various combinations of these colours, is always one that strikes the observer as being remarkable, no matter how often he may have seen them before. This year Mr. Heale can show flowers which approach his ideal of a perfect flower nearer than any he has yet obtained. His idea is not that of the artist of cultured tastes, but it hits the popular fancy for rich vivid colours harmoniously blended with white and green and great regularity of form. Some of these flowers, by having increased breadth of petal and more bluntness of tip, overlap each other and partake more of the form of an Ipomœa bloom, but on an enormous scale, the limb of the flower being short. These various points are sedulously sought for by the raiser through a long series of careful experiments duly noted and extending over many years, and are to be found in some of the newest crosses, as, for instance, in John Ruskin, of which there are now in bloom several which it would be hard to differentiate, and which sprung from the same capsule of seed; in Champion, a glowing crimson; Admirable, deep crimson, with green tube at the bottom; Conquest, scarlet, &c. Mr. Heale thinks that in these, and some others whose names will follow later, the extreme limit of size of flower has been reached, and that any further improvement will be in colour and form only. Indeed, it would seem that, if the flowers become any larger, there will arise a disadvantage from the mouth of the flower inclining downwards owing to the increase of weight. He opines that the fine colour observable in the more modern hybrids is traceable to the species Hippeastrum Gravinæ and H. Johnsoni, and which first became very marked in such flowers as Empress of India and Leopoldi.

Other fine flowers of the year are Mirabelle, the ground colour creamy-white, reticulated, and striped with crimson, but mainly a white flower; Felicia, also with a similar ground colour, but with scarlet markings confined to the upper portions of the bloom, the side petals having little colour, whilst the lip or narrow lower petal is greenish; Meto, is creamy-white with a greenish suffusion; it has crimson dottings in the throat; Galicia has the same kind of ground tint, and is reticulated and striped with crimson; Harbinger is brilliant scarlet with longitudinal bands of white—it is a very large flower; Virgilius is like Felicia, but is less marked with a shade of crimson; Optima is excellent as regards form. It is one of the J. Ruskin type, being indeed from the same seed-pod. The colour is crimson, with a considerable amount of green colour at the base of the throat. A flower measured 9 inches across.

A large number of the bulbs have still to open their blossoms, and as each day reveals new beauties, to which new names are attached if thought deserving or desirable, a visit to the house during March, April, and May, cannot fail to be of interest to lovers of the Amaryllis.

The Orchid Houses.

The Cattleya-house.—The Orchid-houses are fairly gay with blossoms for the season, 500 at least being observed of Cattleyas, chiefly of the C. Trianæ section, in the large Cattleya-house. There were great complaints of the havoc the fog had wrought amongst the flowers, but it was apparent only to those who see the contents of the houses every day. C. Skinneri oculata is a very pretty form, the purple stripe just inside the throat being a very noticeable feature; C. Schroderi, a variety of C. Trianæ, delicate, with a fine crisped lip; C. Trianæ rosea is like the above, but it has purple markings in the throat; plants of C. amethystoglossa were nicely in bloom. Abundance of flower-spikes were showing, which, now that the dreaded fogs are less prevalent within the London area, are likely to develope into a full harvest of beauty presently. A notable improvement has been made at the northern end of this house, which is now made to terminate in a square bay of somewhat greater width than the house to which it is really an addition. This bay is bordered by very naturally arranged rockwork of tufa, and the central part is also occupied by a mass of the same, over which water from a little fountain is dispersed in tiny streams. The "rocks" are sometimes made into pockets, into which Orchids in pots, or any other plants, Ferns, Palms, and what not, may be dropped, with an effect that is very charming.

Our illustration of the Calanthes at The Hendre, Monmouth, did not give so good an idea of the possibilities of arranging Orchids naturally as does this one.

A glorious piece of Phalænopsis Schilleriana occupied the post of honour—the centre; and all around were Cymbidiums, Dendrobes, Cœlogynes, and Calanthes.

The Cypripedium-houses contain many plants in flower, viz., C. biflorum, with really two blooms on a stalk—a rare occurrence; C. barbatum superbum, a grand specimen of a very fine variety; C. Schroderi, with beautiful pink-coloured pouch, lateral petals, white, with a purplish suffusion: it is a most continuous bloomer.

C. Boxalli superbum has a wonderfully fine dorsal sepal; this, with the waxy look of the whole flower,

*

are the chief characteristics of the variety. The dorsal sepal is mainly white, with almost confluent purple-brown spots distributed all over it.

Two or three forms were observed of C. Schlimii, differing in the more or less intense rose-pink colour of the upper portions of the small globular pouch, and which contrast prettily with the white petals. The flower has the downy covering and pink complexion of some Peaches when ripe. Among many other Cypripeds noticed in bloom were C. politum, C. villosum, and C. vernixium.

Miscellaneous. — Odontoglossums, Phalænopsis of many species, Dendrobiums and Epidendrums, a few; Angræcum citratum, and Cœlogyne hololeuca, &c., were observed in the various houses. The Pitcher-house was exceedingly well furnished with pitcher-bearing plants.

The flower-house at this nursery is very gay with all kinds of everybody's plants. Lilacs, Staphylea, colchica, Dutch bulbs, Lachenalia pendula, Lily of the Valley, Cytisus, Hoteia japonica, Roses, Erica perspicua and E. p. nana (both neat-growing, charming species with light pink club-shaped blossoms, freely shown); Rhododendron Early Gem, Azalea obtusa alba (one of Maries' "finds" in Japan, and which flowers early naturally); A. amœna Colvilli is another small flowered early kind.

Mr. H. B. May, Edmonton, N.

Reineckia carnea variegata is a pretty plant, introduced nearly a hundred years ago under the name of Sanseviera, or Sanseviella, carnea. The plant comes from China and Japan, and is hardy in favoured localities, but it is better when grown indoors, as a batch of it in this nursery showed. It has a decumbent root-stock, from which rise tufts of green-white striped grassy leaves, about half-an-inch broad and 12 inches long, when fully grown, and gracefully recurved. I may compare it, as regards habit, with the well-known Ophiopogon Jaburan variegata, to which it forms a good companion. The spikes of flesh-coloured flowers are not attractive, but when these are in contrast with the variegated leaves their effect is pleasing as a whole. Propagation is by division. It succeeds in any porous loamy soil, and is equally at home in the greenhouse frame, in all cases enjoying abundance of light and moisture.

Another variegated leaved hardy plant, which is here forced in large quantities for use in ordinary bouquets, is the common Ribbon-grass, Phalaris arundinacea variegata, the cream-white and green of the leaves coming out clearly when the plant is forced. It is a cause for wonder that this species of Grass is not more grown for cutting, as clumps of it taken in from the outside scarcely require to be forced, the warmth found in a greenhouse being sufficient.

Tree Perpetuals, or winter-flowering Carnations, are now grown here in enormous numbers, and presently will outnumber the Ferns, for which this nursery is almost unrivalled. These Carnations are struck and grown as freely as Ageratums, and the great number of 5-inch pots full of pipings in all stages of growth showed that the percentage of loss in propagation was very low, it being rare that a blank was observed in a pot. When potted off into thumbs and 60's, the Carnations occupy many ranges of long low-roofed pits, and when the plants are shifted into 48's and 32's they are brought into roomy span-roofed houses. Judging from the quantities of flowers found of certain colours, it would seem that some sorts are greater favourites than others; for instance, Miss Joliffe, a rich salmon-coloured flower, was conspicuous. This is, without doubt, one of the best of its class. Then, of the dwarf-growing, pure white Mdlle. Carle was very fine; and the good old variety, Andalusia, with its large fringed yellow flowers. Others noted in large numbers were Pride of Penshurst, Lucifer, Dr. Raymond, and Mrs. Keynes, these well representing the scarlet section. There was also a large stock of Empress of Germany, a pale rose-and-red striped; La Zouave, White Swan (a robust grower), Indian Chief, A. Alegatière, Vulcan, Pink Pearl, and many other good and useful Carnations, all in the best condition, and growing in all sizes, from the cutting to the full-sized flowering specimen.

Hardy Primroses are now in fine condition, mostly selected seedlings of elatior or officinalis. They vary in colour from yellow in various shades to scarlet-purple, purple-brown, maroon, lilac, and some other almost indescribable shades. Of those called the Calycanthema section, or those in which the calyx is of the same colour as the corolla, there were many fine forms, and as seen in the mass they gave a good idea of the value of these early spring flowers for decorative work. *F. R.*

PLANT PORTRAITS.

Aster Stracheyi, *Garden*, March 16.—A creeping species, with glaucous oblong leaves, and violet flower-heads on erect stalks, 3—4 inches high. A little gem for the rockwork.

Fendlera rupicola, *Garden and Forest*, March 6.—Saxifrageæ; hardy shrub, 2—4 feet; flowers 4-petalled, white, 1 in. in diameter.

Louryana campanulata, *Revue Horticole*, March 16.—Very like Tupistra, but constituting a distinct genus, according to M. Baillon. A stove plant from Cochin China.

Mormodes luxatum, *Revue Horticole*, March 16.

THE MADRESFIELD GRAPE.*

In this paper, it is my intention to confine myself to results, practically worked out, by my own close observation and experimental study, plain practical facts, proved beyond doubt, or question, in my own mind. It will be sufficient for our purpose to deal with Vines and Grapes, as we find them developed about the year 1860. The earliest recorded attempt at artificial heating was at Belvoir Castle, by means of hollow-flued walls, about 1718.

Now the Madresfield Court Grape is a cross, the result of crossing White Muscat of Alexandria with Black Morocco (the Kempsey Alicante of some), and which was performed at Madresfield Court Garden, by the late Mr. W. Cox, then gardener at that place. It was awarded a First-class Certificate by the Royal Horticultural Society in 1868, and was introduced to commerce by Messrs. Lee, of Hammersmith. Naturally, seeing that both parents were late kinds, everybody assumed that the new comer would be late also, a most unfortunate incident for its reputation, and great was the disappointment caused by its being treated as and planted with late varieties. This went on for years and the Grape was loudly condemned by reason of the cracking of berries and its failure to colour well, mostly in mixed vineries, be it observed.

Ultimately it dawned upon some growers that the second early and mid-season houses would suit the Vine better, and the new Grape rose accordingly in public estimation as being one of the best black Grapes extant. This Grape may be had in good condition from May to December inclusive. The last bunches were consumed at Madresfield on January 2, and we shall probably have forced ones ready for the table by the middle of the month of May, and were I confined to one variety, it would be this one. I understand that growers for market, finding the commercial value great, are taking up its cultivation vigorously, because they, doubtless, believe that the demand for it will increase, at the expense of its rival, the Black Hamburgh, the quality being far superior.

I maintain that a Grape grower's triumph consists in a nice, evenly finished, and well ripened crop, free from anything sensational in huge bunches, which, after all, are not desirable objects except to exhibitors. How to best achieve this is the question before us. It may be superfluous to enter into details of border making, notwithstanding the fact that making Vine borders at the present day is a very different matter generally compared with the practice of twenty years ago.

I recollect being told by a very old garden labourer how he once helped in his early days to plant a house of Vines, and how the roots of every Vine plant as planted were most carefully wrapped up in large pieces of flannel. These were truly the primitive days of Vine cultivation in England, and the owner of these glass-houses where this was done has not been dead quite a month yet.

The size of a Vine border often has to depend on circumstances, but whatever its size it should always be kept for the roots of the Vines. The maximum breadth should not exceed 10 or 12 feet inside, and the same width outside, indeed, less width would do; but whenever the roots have occupied the greater part of the border, if planting is done in the month of September or early in October it is astonishing how the roots of the Vines extend in good soil. A portion of the exhausted soil may be removed even to the extent of a moderate disturbance of the roots, and replaced with good compost, making the soil firm as the work proceeds. This may be done annually or biennially.

My own practice is to concrete the bottom of the border some 3 inches in thickness, giving the concrete a gentle slope for drainage purpose, for if this is not done there is always the risk of some of the roots striking down into the less genial subsoil, with its attendant ill consequences, even under the best management. I prefer a border which is elevated and made piecemeal, commencing with a 3-feet breadth next to the house, and a turf wall for a boundary, adding to it as required; the width inside may be the same. For very early forcing inside borders are to be preferred, but for general purposes a combination of inside and outside, made firm and solid, is to be recommended. The best kind of compost consists of good holding loam of a turfy and fibrous nature, enriched with potash and phosphates, half-inch crushed unboiled bones, wood-ashes, and old mortar rubble, the proportions of each ingredient being varied to suit the nature of the loam—the more retentive and fibrous the loam the more fertile it is, but it will as a consequence require more of the porous rubble to prevent cohesiveness than a light or sandy loam. I have sometimes employed horns and hoofs of animals, and rags, rabbits' and sheep's feet, and other refuse from the bone mills, the two latter in the raw state—with excellent and lasting effect.

There are some who recommend an admixture with the soil of a highly concentrated artificial manure, as Thompson's Vine manure, but I prefer to employ this later on, as a top-dressing. For planting we prefer one-year old canes (cut-backs) which have made a few inches of new growth after having been previously shaken out. May is considered to be the best month for planting permanent Vines, and the distance not less than 4 feet apart; at this time the roots are the most active and ready to seize upon the good soil provided. Give plenty of moisture, heat, air and light, then the leaves will be built up of good substance to stand the sun, whereas if grown under too close and badly ventilated an atmosphere, scorching of the foliage and insect attacks will follow. Encourage laterals in every direction, but beware of an excess in this matter—the crowding of foliage; judiciously water the roots, and give a good mulching. I may here mention, although it is not new, an advantageous, and expeditious method of renewing Vines that we have lately practised. Being anxious to furnish as quickly as possible a certain vinery with Madresfields, we took down an old rod in an adjoining vinery, made an opening through the dividing wall, and so layered its full length on the inside border; in due course it threw up a shoot or two from every spur, which were disbudded and trained as

* Extract from a paper read at a general meeting of the Birmingham and Midland Counties Gardeners' Mutual Improvement Association, by Mr. W. Crump, of Madresfield Court Gardens, on January 22, 1889.

required. The growth made was highly satisfactory, it going to the top of the house, whilst a perfect wig of roots was formed all along the border, the old rod being gradually cut through at the base as these new roots extended.

As regards pruning, I am an advocate for extension pure and simple, therefore it is most essential to thoroughly ripen the wood in the autumn, and herein lies a great secret, and any half-measures or neglect at this point will be irretrievable, whilst thoroughness and cleanliness will bring success, for without ripeness extension pruning would be quite a failure, abundance of fire-heat and ventilation being absolutely necessary—the amount of each being regulated by the season—to accomplish this. By the extension system the additional young rods on a Vine impart great vigour, whilst the crop of bunches on a Vine so pruned and trained would be greater than that on several Vines occupying an equal amount of space. Moreover extension is certainly favourable to longevity in the Vine, whereas the reverse exhausts the vital energies of the plant with more rapidity; and if it were not that the Vine is an exceedingly manageable subject and has quick recuperative power, this result would become more generally apparent than it is. Moreover, extension of growth is certainly more in unison with its natural habit than restriction.

Upon training I need not comment, as every operator has his own fancy, and the same may be said of disbudding, although, if all has gone on aright, and the Vines at this stage have broken strongly and well, considerable care must be exercised, for the better they are doing the more brittle and liable the shoots are to snap off. I now reach the setting of the Grapes, a matter upon which considerable diversity of opinion exists. My practice is to keep up a brisk, bracing, and buoyant temperature of about 65° to 75°, free from draughts, whilst the Vines are in flower, occasionally, during the day, removing the exudation from the stigma, by drawing the dry hand down the bunch gently, or by lightly tapping the shoots to disperse the pollen. In dull weather this must be frequently done, or small and seedless berries will form, for the Madresfield Court inherits some of the faults of one of its parents — the Black Morocco—which, by the way, is a notoriously bad setter, and is subject to cracking. It is the warm buoyant air, together with sunlight, which induces the proper dispersion of the pollen, and the fertilisation of the flowers.

(To be continued.)

Orchid Notes and Gleanings.

THE PLANTS IN FLOWER AT WOOLTON WOOD.

There is, at the present time, a fine display of flowers in Mr. Holbrook Gaskell's collection.

The Masdevallias Harryana, ignea, and Lindenii, of which there are very large masses, are now pushing up their numerous spikes, and will, a few weeks hence, be worth going a long distance to see. Of Odontoglossums, in the cool house, a great number are in flower or bud, and Oncidium macranthum, O. serratum, and Odontoglossum Edwardii are especially noticeable, others in flower being O. crispum, O. Pescatorei, O. luteo-purpureum, O. Halli, O. triumphans, O. Rossi majus, and others; and overhead hang magnificent examples of Masdevallia chimæra, which are at times well furnished with flowers. The somewhat scarce M. bella is a grand specimen, clothed with abundance of foliage.

Plants of Miltonia vexillaria, which are in the finest condition, almost monopolise one house, the other occupants being Oncidium crispum, O. marshallianum, O. Forbesii, and splendidum, Odontoglossums, O. Harryanum, O. pulchellum, and O. citrosmum, Lælia harpophylla and Ada aurantiaca—plants quite at home in a warmth midway between that of the cool Odontoglossum-house and that of the Cattleya-house.

Lælias in great variety, including examples of L. anceps, its varieties, alba, Dawsonii, Sanderiana, Williamsi, Hilli, Barkeriana, and Percivalliana were observed in another house well grown, the plants being mostly large ones. Great pieces of Cœlogyne cristata were in full flower; the fine variety Lemoiniana, as fine a plant as any in the country, had seventy-six spikes. The yet rare variety C. c. alba was likewise in flower.

A group of Dendrobium Falconeri forms quite a thicket in a sunny corner of this house, and will when in flower be a remarkable object. I observed in bloom Cypripedium Boxallii superbum, and a very dark form of C. villosum, which had fifty open flowers, were observed.

A large plant or collection of plants of the shy-flowering Odontoglossum coronarium is developing some very fine growths. This plant has been brought from its former home—the Masdevallia-house—into that in which the Lælias are grown, with a view to flowering it there, it being thought that the stronger heat would induce the plant to flower; the result of the change of quarters will be watched with interest.

The Cattleyas are very gay, C. Trianæ being now at their best. There are plants of C. Mossiæ and C. Mendellii, C. Percivalliana, C. Walkeriana, of which I noted two plants, each with about 20 pseudobulbs; C. Lawrenciana, C. Warneri, C. crispa, C. gigas, C. Sanderiana, C. Gaskelliana, Lælia elegans, L. amanda, L. purpurata, L. Perrini, and others too numerous to be mentioned here.

The chief interest is furnished by a plant of Lælia superbiens var., which has this season developed two flower-spikes, with thirteen and eleven flowers respectively. A description and figure of the plant will shortly appear in the *Reichenbachia* and the *Orchid Album*.

Cypripediums occupies a large portion of a warm house. C. Spicerianum appeared to be the favourite. Many fine things in large examples were observed. Several of the Leeanum type, raised here, have this season flowered for the first time.

Amongst Dendrobes in flower are large masses of the old and most useful nobile and its var. nobilius, and D. Ainsworthii.

Several plants of Vanda Amesiana are flowering freely. Vanda gigantea, the most majestic of Vandas, has a nine-flowered spike. This Burmese species is seldom seen in flower. The flowers are of large size and good substance, the colour yellow, with brown blotches and crimson sports.

Calanthes Williamsi, C. Turneri, Lycaste lanipes, Angræcum Leonis, Dendrochilum glumaceum, help to swell the display.

A number of Orchids, generally found difficult to manage, are quite at home in the stove; these are Cattleya Eldorado and its varieties, C. Dowiana and C. D. aurea, C. superba, C. speciosissima, Oncidiums Lanceanum and O. ampliatum, and Brassavola Digbyana. *F. Ashton.*

Saccolabium cœleste

is a new and lovely species, evergreen, and compact in growth, with foliage 6 inches long. The plant attains to a foot or more in height, and is slow in growing to this size. The inflorescence proceeds from the axils of the leaves on either side of the stem, and the spike is erect, some 6 or 9 inches in height, the raceme being dense. The blunt cuneate-oblong sepals and petals are tipped with sky-blue, and the compressed blunt recurved spur has a blue tint on both sides of centre; the interior part is also sky-blue, while two falcate, subulate bodies rise from the apex inside the spur. The blooming season is July and August, and the plant continues in full beauty between three and four weeks, if kept in a fairly warm house, and the flowers shielded from the effects of damp.

This plant requires the temperature of the East India-house to maintain it in proper condition, and should be grown in sphagnum moss, with ample drainage. It is of slow growth, and requires a considerable time to attain to the dimensions of a specimen; nevertheless, when strong it produces lateral growths, which, as they increase in size, tend to make the plant compact and dense, whilst as its young shoots produce flowers in abundance, it cannot be ranked as a shy bloomer. From the natural habitat of the plant it probably will occur to growers in this country that it requires strong heat, an abundance of atmospheric moisture, plenty of sun, as well as light and air; yet it will be found advantageous to shade it from the hottest sun in this country, as, being beneath glass, the foliage is apt to become yellow or burnt, which would not occur in the open air. As before remarked, this species during its period of growth, requires an abundance of water, and even when at rest, it should be kept free from drought. We find Saccolabium succeed best as basket plants, suspended near the roof, and yet not too near the glass during the cold nights, as the leaves are apt to become yellow, and in this case the beauty of the plant is much diminished, as nothing detracts more from the appearance of a plant as yellow and brown foliage.

Insects are not very troublesome, yet the white scale sometimes makes its appearance, which should be at once removed, or otherwise they will speedily cause the foliage to assume an unhealthy hue, to the great detriment of the health of the plant. "*Orchid Album*," *January*, 1889.

Cymbidium eburneo × Lowianum, *n. hyb.*

The work of hybridisation among Orchids proceeds apace, and we have now to record another genus that must be added to the list of those in which artificial hybrids have been obtained. The present instance is, moreover, one of especial interest, for up to the present time by far the great majority of the hybrid Orchids that have flowered are included in the tribes Epidendreæ and Cypripedeæ, whereas Cymbidium belongs to the Vandeæ. The hybrids obtained in the last-named tribe are still few in number, and previous to the flowering of this Cymbidium were confined to four genera, viz., an Aërides raised by Dominy many years ago, three or four Zygopetalums, the bigeneric Zygocolax, and the beautiful Phalænopses described in recent volumes of the *Gardeners' Chronicle*. From a horticultural point of view, too, this new acquisition has been accredited with marked favour, a First-class Certificate having been awarded to it at the meeting of the Royal Horticultural Society, on March 12. Indeed, sprung from two such noble species as Cymbidium eburneum and C. Lowianum, the progeny could scarcely be otherwise than exceptionally interesting. As indicated by the name, C. eburneum is the pollen parent; the cross was we learn effected about nine years ago.

The following is a description of the plant:—Vegetation nearer that of Cymbidium eburneum than of C. Lowianum. Pseudobulbs ovoid, compressed, 2½—3 inches long, with 3—4 equitant leaves on each side, gradually longer upwards, and an apical one, all broader than in C. eburneum, but narrower than in C. Lowianum, and with the characteristic pale basal band of the last named species. Raceme shorter than the leaves, as in C. eburneum, but shorter, and covered with long, narrow, and very acuminate bracts, as in that species. The raceme in the present instance, is three-flowered, but the number will probably be greater as the plant gains strength. Flowers equal in size to those of the best C. eburneum forms, and delightfully fragrant; sepals and petals similar, and sub-equal, light nankeen-yellow, almost ivory-white, oblong-lanceolate, the petals and lateral sepals spreading, the dorsal sepals bent forwards; lip nearly as in C. Lowianum, ivory-white on the inner side, with a V-shaped red-crimson blotch on the reflexed front lobe; lamellæ of the disc bright yellow. Column ivory-white, with a reddish crimson stain next the anther case.

Burlingtonia fragrans

blooms during the months of April, May, and June, and continues in perfection for fully three weeks. This species, like all the Burlingtonias, is not difficult to maintain in vigorous health if just

the necessary care is bestowed upon it. It thrives well upon a block of wood, or in small baskets or pans; these should be drained well, and a very small quantity of potting material should be used, as the plants thrive best when their thin, white, wiry roots can escape from the basket or pan, and hang freely in the air. It enjoys an abundance of light, and should be suspended from the roof, some 18 inches from the glass; in this position, during the hottest days in summer, slight shading will be necessary, but during the autumn and winter months it will require all the sun that shines. We find the temperature of the Cattleya-house suits this species admirably, with an abundance of moisture in the atmosphere during the growing season; in the resting season its roots must be kept moist, for its small bulbs or leaves, if once allowed to shrivel, do not readily swell up again; indeed, the same rule applies to all those kinds of Orchids with small bulbs.

Burlingtonias thrive best when undisturbed, but if it is absolutely necessary to increase this plant, it may be effected by division, choosing a vigorous subject for the purpose, just before growth commences. White scale is apt to infect this plant, which secretes itself in the sheathing bases of the leaves; these insects must be eradicated whenever seen, as they rapidly cause the plant to assume a sickly hue and cast off its leaves. "*Orchid Album*," *January*, 1889.

Miltonia spectabilis.

The cultivation of this plant is very easy if its wants are carefully supplied. M. spectabilis and M. spectabilis Moreliana succeed under the same treatment, as they necessarily would do, being found in the same localities in a state of Nature, growing on the branches of trees, where they get partial shade, but the full benefit of light and air. Their creeping stems spread rapidly in the rainy season, which is their time of growth and flower. After the flowers are past the dry season follows; but even at this time there is a considerable amount of moisture rising during the night, and they also derive nourishment from the decaying leaves that fall amongst them. We find them succeed well in baskets or in pans, as their creeping stems require a large amount of surface-room. They require good drainage, but not a large amount of soil, as they do not root deeply, the best material being rough peat fibre, or living sphagnum moss; and the proper time to repot or re-basket them is in spring, just as they begin to start into growth. The warmest end of the Cattleya-house, or the cool end of the East India-house, will supply them best with the necessary heat, and the baskets should be suspended near the roof-glass in such a position that the plants can be shaded from the sun during the hotter part of the day. They require a liberal supply of water to the roots, and an atmosphere well charged with moisture during the period of active growth.

White scale appears to be one of their natural enemies, as it is frequently imported with them, and if not eradicated thrives apace, to the great detriment of the plants. It is, therefore, essential to keep these—and all other insects—from injuring them in health and appearance. "*Orchid Album*," January, 1889.

FUNGUS ON CUCUMBER PLANTS.

DIDYMIUM DÆDALEUM, B. and Br.

Some time ago a correspondent sent to the office of the *Gardeners' Chronicle* examples of Cucumber stems and leaves badly infested with a fungus. The fungus growth presented such a peculiar appearance, that the correspondent naturally doubted whether it really belonged to the vegetable kingdom at all. The fungus was a rare member of the Slime-fungi or Myxomycetes, so called because they are slimy in their infant state. The plant forwarded was an example of Didymium dædaleum, B. and Br., which is, as far as I know, confined to Cucumber plants.

It was first observed by Mr. Berkeley in 1843, and I have no record of its re-appearance till last year (1888). Mr. Berkeley described this fungus as growing in great abundance in a Cucumber frame at Milton, in Northamptonshire; on writing to Mr. Berkeley as to this habitat, he replied that the Milton fungus was really infesting Cucumber plants, and so exactly agreed in habit with the plant lately sent to this office.

Didymium dædaleum is remarkable for its possession of one name only; it is not involved in a labyrinth of



Fig. 66.—Cucumber disease: Didymium dædaleum. (For references, see text.)

involved synonomy. Some mycologists, as the readers of this paper know, delight in re-naming fungi, and it is probable that no fungi have more synonymous names than the Myxomycetes—several have more than twenty different names. How much longer Didymium dædaleum will escape it is difficult to say; possibly its rarity has saved it from mycological verbosity.

The accompanying illustration (fig. 66) will give an idea of Didymium dædaleum, which has, I believe, not been illustrated before. The figure at A shows part of a stem and leaf-stalk of a Cucumber plant, natural size, covered with the Didymium; the leaves sent were spotted in a similar manner, much in the style of Hollyhock leaves when badly attacked by Puccinia malvacearum. At B and C, a top and side view of a single growth, or sporangium, is shown. The sporangia are often confluent. The name may here be referred to; the name Didymium was not invented by Mr. Berkeley; it refers to two supposed membranes of the sporangium. In the illustration (D) only one membrane is shown, and this would seem (to a beginner) to disaccord with the generic name, but mycologists kindly tell us the walls of Didymium are "single or double;" white, too, is sometimes black; "dædaleum," as given by Mr. Berkeley, is very good; it describes the intricate convolutions of the sporangium itself as seen at B and C enlarged 20 diameters. The illustration at D shows a vertical section through a sporangium; the darker portion shows the interior compacted mass of millions of dark-coloured spores; the colourless granules outside the sporangium are amorphous grains of lime, these grains of lime give the fungus (as seen by the unaided eye) a curious greyish-white mealy appearance. At the lower part of the illustration at D the singular reddish-brown or orange-coloured stem is seen perforated with many comparatively large openings. The microscopic structure of this fungus is not cellular as in fungi not belonging to the Myxomycetes.

At E, the minute violet-black spherical spores are illustrated enlarged 400 diameters. When these spores germinate they do not give rise to a mycelial thread as in most fungi, but to a minute mobile fragment of slimy protoplasm. These slimy fragments soon become confluent, and a mass of the conjoined fragments is termed a plasmodium. The sporangia illustrated spring from the slimy plasmodia much as other fungi spring from thread-like spawn or mycelium. The Didymium acts injuriously on Cucumber plants, for although the fungus is superficial every sporangium scars the host plant.

The examples illustrated have been given to the Department of Botany, British Museum, South Kensington. *Worthington G. Smith, Dunstable.*

SAXIFRAGES.

The Megasea Section.—The Megasea group, which includes crassifolia, ligulata, Stracheyi, &c., is a very interesting one, and of great value for spring decoration. Unfortunately they are not proof against our early spring frosts, and in five cases out of ten the bunches of flowers, though produced in the greatest profusion, are blackened and destroyed to the distress of all concerned. S. Stracheyi has been singled out specially as being most tender, but in our experience all are more or less tender, and none more so than S. ciliata, though one of the freest flowering and most useful of all the Megaseas.

Beginning with S. ligulata, perhaps the best known of the group, we have a plant suitable for all climates, however severe they be, because, if planted against a north exposure, which was suggested for S. Stracheyi, it rarely begins to flower until the worst of the danger is over. The flowers are produced in a dichotomous panicle, pale red or almost white, and always in great profusion; leaves subcordate, obovate, and ciliated only on the margins.—Native of Nepal, &c., forming large imposing masses. Figured in *Bot. Mag.*, 3406.

S. ciliata, of which a figure is given (p. 365, fig. 67), is now placed as a variety of S. ligulata, although for what reason we are quite at a loss to understand, unless it be that of geographical distribution, S. ligulata being in every way more closely allied to cordifolia and crassifolia than it is to ciliata. It differs from S. ligulata in being deciduous, the leaves copiously hairy on both surfaces, and the flowers closely resembling those of S. Stracheyi, figured also *Bot. Mag.*, 4915. Nepal and Kumaon.

S. thysanodes (*Bot. Reg.*, 1846, t. 43) we have

always looked upon as a synonym of S. ciliata, and it would be difficult to draw a distinction. In the *Dictionary of Gardening* it is placed as a variety of S. Stracheyi.

S. crassifolia is a Siberian species differing from S. ligulata in its fleshy oval leaves with serrulated margins, *Bot. Mag.*, 196. S. c. var. cordifolia has orbicular leaves, cordate, and with serrated margins; flowers in bunches, red. Siberia, introduced 1779.

S. Stracheyi is a useful plant, many forms of which are in cultivation in gardens, besides those of different coloured flowers. The most notable of these forms is one that retains its large obovate spathulate leaves all through the winter; flowers pink or white. Western Himalayas. *Bot. Mag.*, 5967.

S. purpurascens.—Another Himalayan species, and when in a flourishing condition by far the showiest



Fig. 57.—Saxifraga ciliata. (see p. 364.)

of the group. The flowers are produced in a loose panicle, rich purple, almost an inch in diameter, leaves oblong. *Bot. Mag.*, 5066.

Amongst the hybrids of this class S. Milesii and S. speciosa are perhaps the best known, both of which are largely indebted to S. Stracheyi. Some others have been introduced lately, but we have not had time yet to test their merits. *D.*

—— Megaseas, when well grown upon rockwork, or in herbaceous borders, stand out boldly where suitable provisions have been made. Of very dwarf growth, Megaseas produce very large leaves, broad, or heart-shaped, of a pleasing shade of green, and which maintain their freshness throughout the year. The, comparatively speaking, large spikes of flower, standing 8 or 10 inches high, resemble short-stalked Hyacinths, and possess pleasing tints of colour, as rose, rosy-purple, rosy-red, pink, and white, with some intermediate shades. The flower-spikes of whatever colour contrast well with the light green of the leaves.

The plants have the merit of blooming freely in the months of February, March, and April. I have already suggested well-enriched, deeply-prepared soil as being requisite for their successful growth, but it is also a fact that the plants will live a long time in poor soil, and when once they have taken possession it is difficult to extirpate them. Being gross feeders, they are, unless well manured, too prone to form roots near the surface, with the result that they suffer during dry summer weather; but when aided by occasional waterings during the months of July and August, they form fine crowns, and by carefully transplanting them they may be made to do excellent duty as spring bedders. As some species are natives of Siberia, there need be no question of their perfect hardiness.

The best species are M. purpurascens (Himalayan form); M. cordifolia purpurea, a grand variety of a very popular species, and perhaps the best of all; M. Stracheyi, the flesh-coloured species; M. ligulata (strap or tongue-leaved species); M. crassifolia, and crassifolia sibirica, the thick-leaved forms. *W. Earley, Ilford.*

Hybrid Saxifragas.

The paper by J. G. Baker of Kew Herbarium on the genus Saxifraga, read at the Horticultural Society on the 12th inst., is almost sure to raise an important discussion with growers of these popular alpines. The subject was well chosen, and all who are acquainted with the genus know that it requires nothing short of a master-hand to cope with such great confusion as exists at present. The only unfortunate part of it was the fact that the genus could not be well represented in living specimens. Indeed the mossy group, except perhaps, with the exception of S. Camposii, could hardly be represented at all; and the show consisted chiefly of the oppositifolias, S. Burseriana, sancta, and a few of that class. The sections that are most confused are the Aizoon and mossy varieties, the garden names of which may be counted by the hundred. Apart from the true species there are several hybrids hardly known at all in gardens, although of sterling worth as rockery plants, and as easily managed as the species. It may not be out of place to name a few of these hybrids, as S. lutea-purpurea is a cross between aretioides and media, and is exactly intermediate between the above two species. It was introduced from the Continent, and is now offered in the German lists, under the erroneous name of S. Frederici-Augusti, and under which it was certificated by the Royal Horticultural Society.

S. luteo-purpurea was first described by Lapeyrouse, in *Fl. Pyr.*, 29, and also in DC. *Fl. de Fr.*, iv., 397. It is a very charming plant, with much the habit of S. sancta, but superior in point of beauty. It rarely exceeds 2 inches in height, forming a dense tufty mass of small rosettes, the leaves lanceolate acute, with cartilaginous margins, and distinctly seven-pitted on the upper surface. The flower-stem glandular, hairy, corymbose, flowers numerous, medium-sized, and of an agreeable primrose-yellow. S. Frederici-Augusti is quite a different plant, and we are doubtful if it is in cultivation at all. It was found by Bassoletto (*Viagg.*, fig. 199), in Dalmatia in 1841. It is close to S. media, and may be a form of that species; the lower leaves are narrow, linear-lanceolate, obtuse. The inflorescence is spicate, as in S. media, and the flowers purple. We have seen specimens from the highest cone of Parnassus, and from the high mountains of Firiæ. It is doubtless hardy, and would certainly be an acquisition. S. ambigua DC *Fl. Fr.*, v., 517, is a hybrid between the same parents, but nearer to media—S. medio-aretioides, Godr., *Fl. Fr.*, i., 657, differing from both by its obtuse linear leaves. It has a neat habit, and is easily managed.

S. mutata×aizoides, Reuter, Lagger in *Flora*, 1837, p. 622.—This cross gives rise to three hybrids, two of which, S. Hausmanni and Regeli, are in cultivation. S. Hausmanni, Kerner, in *Œst. Bot. Zeit.*, 1863, p. 105, is exactly intermediate between the two parents; habit dwarf and compact, leaves linear-oblong, rigid, with slightly cartilaginous margins; flowers numerous, citron and pale orange-coloured, Tyrol, &c.

S. Regeli, Kerner, *Œst. Bot. Zeit.*, 1870, p. 107. This form is nearer to aizoides; flowers large, orange, leaves oblong-linear, mucronate, with ciliate margins. S. inclinata, Kerner, we have not seen.

S. Geum×Aizoon give us two, one of which, the well-known S. Andrewsii, Harvey, *Hook. Lond. Journ. of Bot.*, vii., 570, is in cultivation; S. Guthrieana is a synonym. S. Aizoon×cuneifolia gives S. Zimmeteri, Kern. *Œst., Bot. Zeit.* It is nearly intermediate between the parents, having the flowers of Aizoon and the neat habit of cuneifolia.

S. cæsia × aizoides also gives a fine hybrid, S. patens (Gaud, *Fl. Helv.*, iii., 92), intermediate between the parents; leaves oblong lanceolate, obtuse; the margins at the base ciliate, and 5—7 pitted on the upper surface.

S. tyrolensis, Kerner, *Bot. Zeit.*, 1870, p. 146, is a rare hybrid between S. cæsia and squarrosa, with habit of squarrosa.

S. Kochii, Hornung, an interesting hybrid between oppositifolia and biflora. The habit resembles the former parent, more straggly, the leaves wider apart, and the branches weaker; the flowers are about 1 inch in diameter, with a distinct purple ring round the base of the lilac-purple petals; anthers deep orange, every alternate one opening first. Another form from the above parents, called Huteri, we have not seen.

Another hybrid, Aizoon × crustata, called S. pectinata, Schott, is well known in gardens; the rosettes of Aizoon-like leaves are very neat. *Bot. Zeit.*, 1870, 145.

Others are pedemontana, capitata, Mureti, hybrida, &c. *D.*

Forestry.

The Scotch Pine.—Dr. Schlich has published (through W. H. Allen & Co., Waterloo Place) a series of "Yield Tables," calculated from the detailed measurements in 351 Pine woods made in various parts of Germany by Herr W. Weise. Dr. Schlich has translated this document and reduced the German measurements to their English equivalents. The tables show the progressive amount of increase of a wood of a definite area, during the progress of the trees from early youth to maturity and the returns which may be expected from it. Separate yield tables are, of course, required for the different species, as also for the different methods of treatment as standards or coppice, or a combination of the two. The following passage will enable the reader still further to realise what is aimed at:—

"When standing trees have been grown in the open at such distances that they do not interfere with each other, they show a varying rate of increment, and the cubic contents must be ascertained by measuring each individual tree. When trees have been grown on fully stocked areas, in so-called crowded woods, the increment per unit of area (acre) follows certain well defined laws, which can be ascertained once for all, and applied to the measurement of the volume of other growing woods. This was recognised many years ago, and several eminent foresters have from time to time given tables which show what volume certain species can be expected to produce if grown on a locality of a certain quality. Such yield tables were originally prepared for certain districts only, but they were soon found to be applicable to lands situated at a distance, so that gradually the idea developed of preparing general yield tables, for instance, for the whole of Germany.

"About twenty years ago an association of German foresters for experimental investigation and the collection of statistics was formed, which, as part of its work, devotes its attention to the investigation of the laws of increment of growing woods. In the year 1873 this association agreed upon a systematic method, according to which all measurements were to be made, and the results arranged. Since then numerous measurements have been made, and by 1879 sufficient material was available to prepare a set of general yield tables for the Scotch Pine. This was done by Oberforster Wilhelm Weise, who was at that time connected with the experimental station at Ebereswalde, in Prussia.

"Similar sets of tables have been prepared and issued for various other species, such as Spruce, Silver Fir, Beech, &c., while others are under preparation, so that within a limited number of years all important species will be dealt with."

Dr. Schlich tells us that he has tested the tables with a view to their applicability in this country, and has found that the volume of growing wood can be calculated by their aid with wonderful accuracy. By their means it will be possible to obtain a close degree of approximation to the returns that our woods may be expected to yield within a certain period—a point concerning which we have, at present, little else than more or less shrewd guesses. Of course the ideal way of constructing such tables would be to stock a selected area of definite size and in which all the conditions should be as nearly uniform as possible with trees of the same species and age, and to measure them annually. But individual life is too short for such procedures, and therefore a mean or average result has been attained by measuring woods of the same age in different localities and by comparing them with corresponding observations in other woods of different, but known ages. To avoid the confusion and uncertainty arising from variations of soil and consequent differences in growth, Dr. Baur constructs a table based on the following considerations:—A good locality will produce good growth in height, an inferior locality the opposite, hence all woods which at the same age show the same mean growth in height must grow on soil of the same quality as far as the growth of timber culture is concerned. In this way a body of evidence is procured from a large number of woods of varying ages, and the facts so collected are grouped into divisions according to height. A graphic representation or diagram is then constructed in which the abscissæ denote the various ages, whilst the height of the woods is indicated on the ordinates. Thus, woods showing a height, in from eighty to ninety years, of 90 or 100 feet are placed in the first division; those in which during the same period a height of only 40—50 feet is noted, are considered of fifth-rate quality; and so on.

Of 396 woods thus reported on, 45 were eliminated as inconclusive from some cause or another. The remaining 351 woods were divided into five classes, according to quality, thus:—

Mean height of wood at the age of 90 years.

Over 84 feet	1st quality
From 72—84 feet	2nd ,,
,, 60—72 ,,	3rd ,,
,, 50—60 ,,	4th ,,
Below 50 ,,	5th ,,

Accordingly the 351 woods were thus ultimately classed:—

To the first quality	102
,, second ,,	137
,, third ,,	60
,, fourth ,,	32
,, fifth ,,	20

Having gained these data, the analysis is pursued still further by means of a series of tables, the construction and use of which are duly explained, and which show the mean height of a number of Pine woods according to height and quality; and the number of trees and size of the timber on an acre of ground of the first, second, third, fourth, and fifth quality respectively. These tables show the number of trees, their diameter, their mean height, the volume of wood in cubic feet and in faggots, the average annual increment, and other particulars. Similar tables show the returns per acre at regular intervals—20—25, 25—30 years, and so on, up to 115—120 years.

It is difficult to give a clear idea of those tables in the form of a short article. Foresters and estate managers should, however, make it their duty to master their contents, and, as far as possible, to act upon them. We can, however, imagine the dismay of the ordinary forester or bailiff at being confronted with these tables, and can sympathise with the forest officer of botanical or natural history tendencies, who has to subordinate his proclivities to the elaboration of statistical details of this character. Dr. Schlich, however, deserves the acknowledgment of those who wish to see the art of forestry based upon accurate scientific principles.

Plants and Their Culture.

General Directions: The Greenhouse.—The hard-wooded plants will require now more attention as many of them will be nearing their flowering stage. Aphelexis plants should be freely watered to assist them to develope their flowers, and always using rainwater. Many kinds of plants will now take more liberal supplies of water, and especially Cape Heaths, and this fact should be borne well in mind. Many plants suffer by being allowed to get too dry, whereby the water cannot permeate the ball of earth when it is afforded them. It is therefore good practice for the same person to attend to them regularly rather than that several persons should do so. Newly potted plants should receive great attention, all overwatering being avoided. Erica Cavendishiana and several other varieties will now be coming into bloom, and should be allowed to get all the light possible. The same remark applies to Darwinias, which should be kept close to the glass, to give colour to the flowers.

Epacrises which bloomed early and have broken freely after being cut back, should be repotted and kept at the warm end of the house, and rather closely for a short time. The late flowering varieties, such as Eclipse and E. miniata splendens, should be kept in the coolest part of the house so as to retard their flowering. These require a little thinning out at times, and not close pruning like the erect-growing varieties.

Boronias, Acrophyllum venosum, and Leschenaultias should be placed in favourable positions in the drier parts of the house, where they will be free from draughts of cold air, and be watered carefully.

Chorozemas will now, or soon, be at their best, and should be transferred to the conservatory, and well supplied with water at the root. C. Henchmani, which is liable to mildew, should be carefully watched for that malady. Chorozemas are useful plants to grow in small pots, as they are then available for many decorative purposes; it is therefore advisable to propagate some of them annually.

Kalosanthes should be placed in sunny positions to form their trusses, and to keep them dwarf—a shelf near the glass is excellent. The plants may be given more water at this season.

Pimeleas are most useful greenhouse plants, and easy of culture if care be taken of them after the plants are potted. They are very impatient of being over-watered at that stage, and should be afforded a little more warmth than that of a greenhouse to assist them in the formation of new roots. Small plants may now be repotted, and plants required to bloom late should have the points of the shoots pinched out. Statices that require repotting should have a shift, if it be found necessary on examination. These plants should have abundance of water when in active growth, and they will be benefited by liquid manure in liberal quantities as soon as the flower-spikes appear. Tremandras (Tetrathecas) should get all the sunshine possible, so that substance may be given to the flowers.

Softwooded Plants.—Chrysanthemum cuttings may now be potted into small pots, and kept close for a few days, a cold frame will then be the best place for them. Carnations early struck may be repotted, and more cuttings propagated; the cuttings being taken from the plants in the greenhouse that have made new growth. A few of the early sown Stocks will now be coming into bloom, and may be afforded liquid manure occasionally. Many other autumn sown annuals will be found valuable for cutting and decorative work, and a few of them may be brought on gently. Fumigate the greenhouses to destroy apides and thrips.

Conservatory.—Hardy plants that have been forced and are going out of bloom should have a place in pits for a time. Deutzias may be repotted, growing them on in an intermediate-house, to make strong new growths, placing the plants into a cool frame in May, before standing them out-of-doors in June. These plants flower better under this kind of treatment, and are easier forced. Roses in pots should be examined often for the Rose-maggot and for mildew. Liquid manure must be frequently afforded the plants. Camellias will be now in bloom, and should not be allowed to suffer from dryness at the root. All the permanent plants in this structure should have been repotted or top-dressed, creepers trained and regulated, and the house be often rearranged to prevent monotony. *G. Wythes, Sion House Gardens, Brentford.*

The Orchid Houses.

Hints for the Month.—In no matter connected with the Orchid-houses is diligence better rewarded than in that of keeping down obnoxious insects. Fitful cleaners who clean a plant here and there and then leave it until they think its turn has come round again only make room for a rising generation of insects, of which a crop is sure to follow in a short time, let the cleaning be ever so carefully done. Frequent inspection and sponging of the plants either with clean water, or, in the case of those especially which have insects on them, with weak tobacco-water or with some other properly mixed insecticide, is the best, and by careful continuance the insects may be almost stamped out. The insects in our Orchid-houses which must be faced in all collections may be enumerated as scales of many kinds, thrips, and aphides. These are found everywhere, and must be continually dealt with. Mealybugs are rarely found on Orchids, unless these are grown in mixed plant stoves, and red-spider only when there is some defect in the health of the plants or the management (excessive dry-heat generally).

There is no doubt that fumigating as a means of keeping insects on Orchids in check is bad, no matter how carefully it is performed. It can never be done, I think, without injury to the plants, which might easily be avoided by hand-cleaning; and, after all, Aphides are the only insects injured to any extent by fumigation. However, if by any means the insects have got ahead to an alarming extent, it may be the lesser of two evils to fumigate lightly for three nights in succession, and afterwards to keep the sponge or tobacco water or other insecticide in use.

It should be borne in mind that the more closely the insects are kept in check the less is the work, and the more they are allowed to establish themselves the harder is the task of stamping them out. With

this fact in view a specimen should never be passed through the hands without being examined to see if it be clean or not. Wood-lice must be hunted; slugs, which are especially troublesome in the cool houses, looked after sharply, and the houses visited with a lamp at night. Cockroaches, which are most ravenous pests, should be killed with phosphor-paste placed on pieces of paper and spread about dry places in the houses every evening for a week; then leave it off for a week and re-commence, and so on until none remains. Root-galls and swollen buds (the work of the Isosoma Orchidiarum) should be ruthlessly cut off and burnt, and general cleanliness of plants and houses diligently enforced. *James O'Brien.*

The Flower Garden.

Present Operations: Planting Hardy Carpeting Plants.—The planting of hardy plants in beds not occupied with spring-flowering plants should be done now, with a view to the success which follows early planting, and of disposing of all the work possible before the more busy season arrives. Our bedded-out garden is in winter filled with small evergreen shrubs, Sedums, and Saxifrages, and these are now transferred to their summer quarters, and the beds occupied by them are being prepared for the reception of the summer bedders in due time, and when this is finished, the work of planting the edgings, marginal lines, and ground-works, of hardy plants, will begin. Nearly all our edgings consists of Herniaria glabra, a plant that needs no clipping, and nothing beyond an occasional pressing down with the hand, and cutting off encroaching margins when they are likely to spoil the designs in small beds or figures. Rooted pieces are not at all wanted, as the smallest bit of shoot, if made firm in the soil, does just as well as rooted pieces.

Hardy Succulents.—Sedum, glaucum, S. lydium, and S. acre elegans, which are all that we use for bedding, take root in the same way, and rooted plants are used on upright edgings only, so as to get these edgings furnished quickly. Antennaria tomentosa, one of the best of carpet plants, is an exception, and will not do unless rooted pieces are planted. In wet or heavy soils this plant does not thrive, but damps off when the growth becomes dense; in light soil, on the contrary, damping-off never occurs. We use the plant principally for clothing the ground beneath the small shrubs employed in the centre of small beds, and in these positions it is very satisfatory.

When the beds intended to be planted with hardy succulents and carpet plants are dug over, the designs should be marked out, the shrubs planted, and the other plants put into their proper places; and then by the time that it is safe to put out the general stock of bedding plants, these hardy kinds will make a show, and the garden look furnished at once. We have occasionally allowed Sedums to stand a second year without transplantation, but the plan cannot be recommended, for the reason that owing to their not being disturbed, they flower so persistently as to cause the plots to look shabby, from midsummer onwards. My advice, therefore, is to replant every year, and not only the Sedums but all the other hardy groundwork plants.

Shrubbery borders.—Now that the clumps of bulbs and herbaceous plants—which are sometimes planted near the margins of these—are visible, the borders should be put in order. I may say that I have great objection to digging such borders, because many surface roots are destroyed by the spade or fork, thereby injuring the plants. A better way is to add an inch or two of fresh soil, and by this means the plants are supplied with nutriment, and neatness is secured. The outer margins may of course be dug over, and the vacancies filled up with suitable subjects. Lilies always seem at home in such positions, so do Tritomas, Spiræas, Foxgloves, and Funkias; and, amongst smaller plants, Primroses, Snowdrops, Daffodils, and Crocuses.

Indoors.—Proceed with the propagation of needful plants. Seeds of all kinds required for the summer garden should now be sown. Prick out plants of which seed was sown a few weeks ago, and pot singly such things as Castor-oils, Fishbone Thistles, Eucalyptus, variegated Maize, large-foliaged Solanums, and Hemp. Divide, pot, and place in frames where there is slight warmth herbaceous Lobelias, and Cannas. All tuberous Begonias and Dahlias should now be gently started into growth. If cuttings of the latter are required give them strong heat. *W. Wildsmith, Heckfield Place, Hants.*

Fruits Under Glass.

Seasonable Operations: Pine-apples. — The autumn started fruiters will now be swelling, and some of them to commence to colour, and they must be afforded air and less moisture than hitherto. Keep the roof-glass as clean as possible, so as to admit all the light possible, as the colour of the fruits will depend very much on attention to this point, and be very careful with the watering, just merely keeping the soil moist and no more. Those which started to fruit early in the year and should be ripe in May and June, and which will now be just past the flowering stage, may now be syringed lightly over on bright days at closing time if all the pips are set. The temperature at night may reach 70°, and bottom-heat 90°. Give air in the morning when the temperature has risen to 80°, and gradually increase it if the temperature gets warmer until noon, shutting up whilst the sun shines on the house, and letting the temperature rise for a time to between 85° and 90°. It is good practice to have manure-water in the evaporating troughs and sprinkled on the paths, a genial atmosphere being maintained without the excessive use of fire-heat. Occasionally use guano or sheep's dung water at the same temperature as that of the house. Provide each plant with two stakes to support the fruit, keeping the top string tied a little higher on the stakes than where it is fixed round the base of the crown. Any succession fruiters should be brought on with a rise in the temperature, and the soil kept rather dry to cause the fruit to throw up. Late fruiters should still be kept cool, moderately moist, and unexcited. Any suckers not potted in February should now be potted, plunging them afterwards in a bottom-heat of 85°; the night temperature may range from 60°—65°. Give the pots a watering to settle the soil, and a slight dewing over with the syringe daily when the sun has been very bright. The plants should be kept close but not very warm for a few days, and when the leaves begin to prick up more air should be afforded so that there shall be no drawing of the leaves.

Cucumbers.—These plants will now require liberal supplies of manure-water in some form, as well as top-dressings of fresh stable-dung and turf in equal proportions, chopped up roughly. Keep the evaporating troughs filled with weak manure-water, and afford air to the house or pit when the morning temperature has risen to 80°, beginning to lessen the amount of ventilation at noon, syringing, and closing early at 85° to 90°. Stop and tie in the young shoots, cut off daily a few of the old leaves. The night temperature may range from 68° to 70°. Under this treatment neither red-spider nor thrips will be troublesome, and attacks of mildew need not be feared. Do not crop too heavily. *W. Bennett, Rangemore, Burton-on-Trent.*

The Hardy Fruit Garden.

Grafting.—Any grafting to be done should now be carried out, beginning with the most forward kinds. For standards, which were headed back at an earlier date, crown grafting is the best, the trees making in three or four years, if properly done, fine bearing heads. For dwarfs and pyramids, &c., if the shoots are not thick, tongue or whip grating is to be preferred, and it is one that is very extensively practised by Kentish growers. In carrying out this mode, and in order to allow for any portion of the stock or branch dying back, which not unfrequently happens, the top of the branches to be grafted should be cut in a sloping direction terminating, if possible, just above a bud, and the scion should be placed on the lower side of the slope. In preparing the scion a slice should be cut off obliquely, and from 1 to 2 inches in length, using a very keen knife for the work. A thin tongue should be cut in an upward direction, about half an inch from the top of the first cut, and the stock should then be cut in a corresponding manner. Let each cut be made as clean and as evenly as possible on both sides, so that, when placed together, they will coincide. When the stock is much thicker than the scion, and which is a very common condition, the latter may be placed on one side, so that the two barks come in contact with each other, so that an union is effected on one side of the stock. Having placed the two together as accurately as possible bind them moderately tight with some soft tying material. Broad Raffia or soft matting soaked in water answers this purpose well; over which place some grafting wax, and encase the whole with properly prepared grafting clay. Crown, or, as some call it, rind grafting is best performed when the sap is sufficiently in motion to allow the bark to part freely from the wood. The branches —assuming that they were cut back a month since— should, before inserting the grafts, be pared at the edges. Then make a longitudinal cut through the bark downwards about 3 inches in length. Take the graft, which should be from 5 to 7 inches in length, and cut it in an oblique direction, the same length as the cut in the stock, pare off the bark on one side of this tongue-shaped cut, raise one side of the bark on the stock and insert the scion, taking care that the pared edge of the scion joins the bark of the stock. One or two scions may be inserted on each stem intended for their reception according to size and thickness. Tie them fast but not too tightly, and cover the cut part and the top well with clay, &c. This method is very suitable for horizontal trained Pear trees on walls, placing the scions on the upper side of the branches to allow of their being more readily trained. The varieties to use as grafts depend much on the localities and aspects, and for what purposes they are intended. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

Mushroom-beds in the Open.—In continuation of my remarks in the issue for March 16 on Mushroom beds in the open air it should be stated that the straw should be replaced to prevent a too rapid loss of heat and too great dryness. Should heavy rains set in, a covering of mats must be thrown over the ridge. Should, however, the straw get wet it must be replaced by dry. When the materials are being prepared for making up beds of this description, some kind of covering should always be employed to prevent rain or snow falling on it, and more straw should be left in the manure than is usually done. A good guide as regards the state of the material is to take a handful and squeeze it, and if it remain in a lump it is too wet, and if it falls to pieces it is too dry for making up.

Tomatos.—Do not let the plants get pot-bound, it being advisable to repot them as many as three times prior to placing the plants in their fruiting (11 and 12-inch) pots, rather than that a check should occur from there being too little space for the roots. Tie them up to their supports regularly, cut out all lateral growths, and confine the fruit to the stem only. When the fruits are set, thin out all the small ones, or where they are too thickly placed, retaining only those which are about of a size, and of good shape. Plants in bearing will require feeding with dung-water and Thomson's Vine manure at alternate waterings, but guarding against strong doses of either, or disease may set in. Pick the fruit when it is a little short of being quite ripe, when they have to be sent to a long distance, but for home use they may be quite ripe, the flavour being then best.

French Beans may now be sown in 9-inch pots, care being taken not to water the soil much at this season; advancing crops sticked and earthed up, giving no manure-water before the pods are set, and syringe the plants twice a day in bright weather, for red-spider is a great scourge to them, and syringing will help to keep away these insects. A sowing may now be made in a warm pit or hotbed, and failing these a quantity may be placed on strips of turf, as was recommended for Peas and Beans previously, keeping them in a Peach-house or similarly warm house until they are of sufficient size and strength to be turned out into a cold pit, where protection at night can be given. The same means may be adopted when Beans are planted out under protectors on a sheltered and warm border outside. Tomatos for planting out-of-doors should be sown without delay; also Radishes, Lettuces, Little Pixie Cabbages, and round Spinach, about once a fortnight. It is better to sow often and plant frequently than to run the risk of a number of plants bolting. A piece of ground should be got in readiness for sowing a few weeks hence the main crops of Winter Greens—the 27th of this month for the Midlands and the North, and the second week in April for the Southern Counties. The ground should have a liberal dressing of soot and charred soil—the former as a preventive of disease, and the latter for the production of abundance of fibry roots. All arrears must now be brought forward as fast as possible. *Wm. M. Baillie, Luton Hoo.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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W. RICHARDS, 41, Wellington Street, Strand, W.C.

GARDENERS' CHRONICLE OFFICE TELEGRAMS.

NOTICE to Correspondents, Advertisers, Subscribers and others. The Registered Address for Foreign and Inland Telegrams is "GARDCHRON, LONDON."

APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

WEDNESDAY, MAR. 27—Glasgow and West of Scotland.
THURSDAY, MAR. 28—Paisley (two days).

MEETINGS.

TUESDAY, MAR. 26 — Royal Horticultural Society: Fruit, Floral, and Scientific Committees.

SALES.

MONDAY, MAR. 25 — Hardy Plants and Bulbs, at Protheroe & Morris' Rooms. Named Carnations, Picotees, Roses, &c., at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., by Protheroe & Morris.

TUESDAY, MAR. 26 — Special Sale of Flowering Orchids, at Protheroe & Morris' Rooms.

WEDNESDAY, MAR. 27 — Lilies, Hardy Bulbs, Greenhouse Plants, &c., at Protheroe & Morris' Rooms. Roses, Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms.

THURSDAY, MAR. 28 — Nursery Stock and Greenhouse Plants from Sample, at Protheroe & Morris' Rooms. Imported and Established Orchids, at Stevens' Rooms.

FRIDAY, MAR. 29 — Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—44°.4.

Creatures of Circumstances.

GARDENERS have only relatively limited opportunities of controlling the circumstances and conditions under which plants grow. If they can regulate the amount of heat or moisture they cannot simultaneously adjust the light or the ventilation, and so they are at the mercy of circumstances. Their skill is therefore shown in the manner in which they contrive to make their plants adapt themselves to these circumstances. Slavish imitation of natural surroundings must always result in failure, because impossibilities are thus attempted. The botanist in the laboratory has often much better means of accomplishing his ends; he can, to some extent, isolate his plant and make it grow under what conditions he pleases, but the results, though more or less satisfactory from a scientific point of view, are rarely such as would commend themselves to the gardener. The laboratory proceedings, therefore, exact and definite as they may be, are no more to be imitated by the cultivator without modification than are the natural conditions. Are the teachings of Nature, then, to be disregarded?—are the lessons of the laboratory to be ignored by the practical man? Assuredly not. The best type of practical man is he who, having made himself acquainted with facts and the general principles deduced from them, profits by his experience and exercises his judgment in applying the knowledge he has gained to his every day work. Take the question of manures as an illustration: the gardener or farmer who purchases and applies artificial manures without knowing, beforehand, something definite as to their composition and the results he is likely to obtain from their use is likely to purchase his manure very dearly. He will probably apply to the soil matters of which it already contains sufficient; matters which will throw the plant into flower when he wants foliage or *vice versâ*. The waste in the use of these manures arising from defective knowledge must in the aggregate be enormous, and says little for the perspicacity of the practical men. Some experiments lately made by M. JUMELLE in the laboratory of the Sorbonne are worthy of attention from this point of view. The object of the experiment was to ascertain the effect of mineral substances on the structure of plants. For this purpose a number of Lupins were grown in distilled water, and a corresponding series in water to which various salts in duly regulated proportion, were added. At first little difference was observable but after the production of the fifth or sixth leaf, marked differences became observable. The plants grown in water became lanky and drawn, the leaves small and deep green, while those in the solution had short-jointed stems and relatively large leaves of a yellow colour. Microscopical examination of the two sets of plants revealed corresponding differences in structure. The plants grown in the solution developed the succulent cellular tissue to a greater extent, and the woody fibrous portions to a less degree, than in the case of the plants grown in water. Analogous differences were found in the structure of the leaves of the two sets of plants. The changes that occurred in the plant when subjected to the action of the solution were similar to those which have been noted as the results of growing plants with defective illumination. When dried, it was found that the plants grown in the saline solution contained more water than the corresponding plants grown without mineral matters. This larger proportion of water is due to the attraction for water which the salts exercise. The absence of salts, therefore, concludes M. JUMELLE, notably modifies the structure of the plant, but these modifications are due less to the deficiency of the salts themselves than to the relatively smaller quantity of "water of constitution" which the plants so grown contain. If this were the only result of the application of such fertilisers, it is obvious that the mere increase in the amount of water in the plant would be rather a costly one.

Another interesting series of experiments is that devised by M. GASTON BONNIER, who has been cultivating various plants, some on the slopes of Mont Blanc, above the Pierre Pointue, at an elevation of 2300 metres, and others in the valley of Chamonix, not only of the same species, but offsets from the same plants. The principal differences observable are, that at the higher elevation the stems are bent down to the surface, or quite prostrate, and much shorter than at the lower level, so that the leaves are more tufted and less exposed to the effects of radiation or wind. The leaves and flowers are also much smaller at the higher elevation, but the coloration of the flowers is deeper. Some of the plants during the last summer did not flower at the higher elevation. Among the most curious illustrations of the effects of diverse circumstances may be mentioned the Jerusalem Artichoke, which at the higher station was represented by tufts of small leaves resting on the ground and entirely destitute of stem or flower; while below plants derived from the same original tubers developed stems 7 feet high. On microscopical examination the palissade tissue of the leaf, or that which is more especially rich in green colouring matter, is found more abundant or better developed in the plants at the higher elevation. This latter appearance is naturally connected with the amount of work effected by and in the leaves. This was shown by the following experiment. Leafy twigs were taken from the same species, gathered at the same hour, at the upper and at the lower stations respectively. Those gathered at the high level were immediately put into a tin box, wrapped in moss and carried down into the valley. When simultaneously exposed to the same amount of light, the two sets of leaves invariably gave the same result, viz., that for the same leaf-area the amount of oxygen given off was always greater from the leaves gathered at the upper than from those collected at the lower station.

It results, then, according to M. BONNIER, that alpine plants which cannot, during the short summer, develope their leaves and stems to the same degree as plants of the same species at the lower altitude, are, nevertheless, by a process of compensation, enabled to do more work in the way of forming and storing nutriment in a given time, by reason of the superior organisation of their palissade, or special chlorophyll-producing tissue. This of course is just what happens in the case of plants grown in high as contrasted with low latitudes.

GARDENERS' ORPHAN FUND.—We are pleased to learn that the sum of £51 0*s.* 6*d.* has been paid over to this Fund, as the result of the concert recently held at Edmonton, under the direction of Mr. H. B. MAY and his brother florists.

DR. ROXBURGH.—The East India Company had not long been in occupation of territory before, like prudent merchants, they took stock of their possessions. If they wanted a survey of an unknown tract of country they usually employed military engineers for the work. If they desired to know what the country could produce, either above or below the surface, they sought for men whose education had included certain branches of natural science; and in this way the Medical Department was often indented upon to furnish a "special duty" man. The need of special advisers was obvious when we are told that certain wiseacres of the Madras settlement took it into their heads that they could grow Pepper on the eastern coast, and commenced experimental Pepper gardens at Samulcottah, in what is now the Godavery district. They could not have known the peculiarities of the Pepper-vine, and its love of moisture and shade, or they would never have thought it worth while to attempt raising a Pepper crop in the dry and scorching climate of the Coromandel coast. But the errors of judgment into which well meaning officers were led by their want of scientific culture had the useful effect of encouraging the Company to find scope for the exercise of scientific tastes and training when they were found to be possessed by some of its servants, and thus it was that ROXBURGH came to be the "father of Indian botany." *Proceedings of the Agri-Horticultural Society of Madras, January*, 1889.

NATIONAL CHRYSANTHEMUM SOCIETY.—The usual meeting of the general committee took place at Anderton's Hotel, Fleet Street, E.C., on the 18th inst., Mr. R. BALLANTINE in the chair. Previous to their meeting the members of the Floral Committee of the Society had held a meeting and revised the rules regulating their procedure. The Hon. Secre-

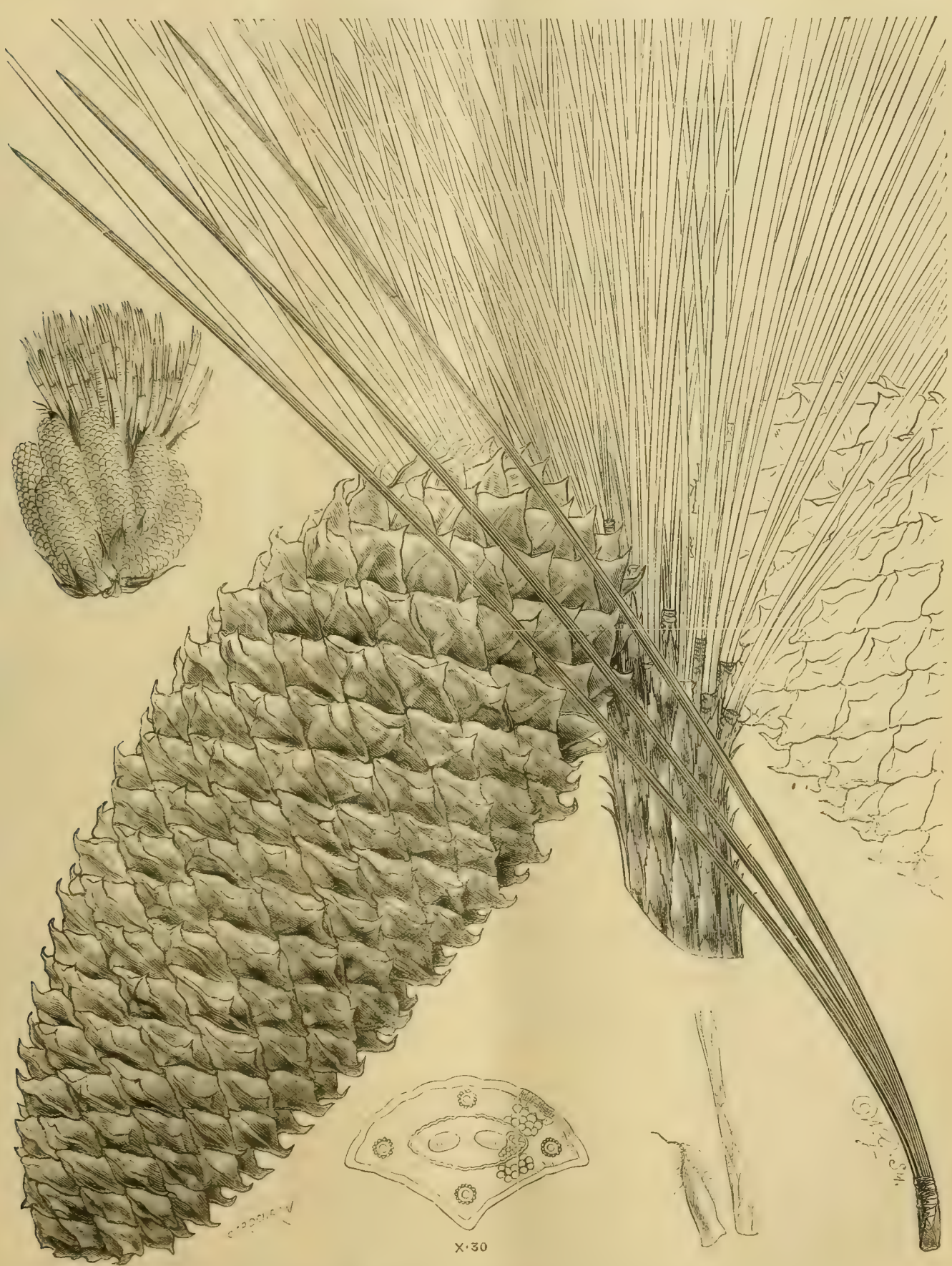


Fig. 68.—Pinus Jeffreyi: a hardy Californian pine. (see p. 360.)

tary announced that Messrs. J. Jensen & Co. offered £5 in special prizes for Chrysanthemum blooms at the November show. Three new members were elected, including one Fellow; and the Derby Chrysanthemum and Green Street District Cottage Garden Society were affiliated. The schedules of prizes for the September, November, and mid-winter (January) shows, which had been prepared by a sub-committee were then considered and passed. It was arranged that conferences should be held in conjunction with the September and January shows; and also in connection with the provincial show at Hull in November. A suggestion was made that a supplement to the Chrysanthemum Catalogue, bringing the record up to date should be prepared, and the matter was referred to the schedule sub-committee. It was resolved that a new design should be obtained for the Society's Certificate of Merit. The matter of the celebration of the centenary of the introduction of the Chrysanthemum was mentioned, and a sub-committee, consisting of Messrs. Harman Payne, Briscoe Ironside, G. Gordon, L. Castle, R. Dean, J. Laing, and B. Wynne, with power to add to their number, was appointed to prepare a scheme and submit the same to the first meeting of the committee held in the autumn. The Hon. Secretary was requested to make arrangements for an annual outing during the summer, and the proceedings closed with a vote of thanks to the Chairman. The interest of the meeting was enhanced by a contribution of cut blooms of Japanese Chrysanthemums from Mr. Kipling, Knebworth Gardens; and of Primula sinensis, from Mr. R. Owen, Maidenhead.

Our Forefathers.—The following items are taken from the Parish Books of Holy Cross, Westgate, and St. Peter's, Canterbury, which have lately been investigated and published by Mr. Cowper:—

"1653. Michael Terry, for a nursery, paid rates at 4*d.* per acre. William Dunn, for an orchard, 3*d.* per acre. Richard Jarman, for a Cherry-garden 4*d.* per acre."

"Paid James Mead, for letting goodwife Bessun's blood in y^e^ foot, 0 1 0."

"1708. In funeral accounts for Rosemary, 1*s.*; also for Romery (Rosemary), 4*d.*"

"1699. Paid for a Palm tree to set in the churchyard (Westgate), 1*s.* 6*d.*" The "Palm tree" was doubtless a Willow.

"At a 'visitation' of St. Peter's (date not given) the expenses included rum punch, brandy punch, Tobacco, Cabbage and Carroots, Colleflowers, and Sallett, and other Eatables, Dressing, and sass."

Ghent Chambre Syndicale.—At a meeting held on March 11 the following awards were made:—First-class Certificates to Lycaste lassoglossa, from Mr. Léon Poelman-Maenhout; to Cypripedium bellatulum var. Mariæ, from Mr. J. Hye-Leysen; to Clivea (seedling), from Mr. A. Peeters, Brussels; to Clivea (seedling), from Messrs. Ph. Blancquaert & Ch. Vermeire; to Calanthe gigantea, from Mr. A. Van Geert; and to Cypripedium villosum aureum var., from Mr. G. Vincke-Dujardin, Bruges.

Dr. Lindberg.—Students of mosses have much reason to regret the decease of this gentleman, on February 20, in his fifty-third year, after a short illness. Dr. Lindberg was Professor of Botany at Helsingfors, and was known in this country as much for the extent of his knowlege as for his kindness in communicating it.

Two-shaped Azalea.—A correspondent from Cambridge sends us a head of flowers of Azalea mollis bearing flowers of two descriptions. Some of the flowers are of the usual funnel-shape, about 2 inches long, and of a fawn colour, the posterior lobe of the corolla somewhat larger than the others, and faintly marked with yellowish-brown spots, with five or six curved stamens of unequal length, but all with the anthers upturned, opening by pores at the top, and a long declined style, upturned at the top, and slightly exceeding the stamens in length. In these flowers the upturned stamens, with their anthers opening at the top by pores, and the similarly upturned style, are so placed as to be in a direct line with the spots on the upper petal, so that an insect visiting the flower, and guided by the spots on the flower, must needs come in contact first with the stigma and then with the anthers; and as the flowers ripen their stigma before the anthers (protogynous), they would deposit upon the stigma the pollen gathered from a flower they had previously visited. Mixed with these flowers, which were quite of the ordinary character, were a number of others with much shorter pedicels, corollas white, or faintly flushed with colour, not exceeding an inch in length, with narrow segments, the posterior one somewhat larger than the others, and showing a trace of colour but destitute of spots. The stamens here are five in number, quite straight and short, the style is also straight, and but little exceeds the stamens in length, being, like them, inclosed within the corolla-tube. The ovary and ovules were perfectly developed. These smaller, nearly regular, pelorioid flowers illustrate a relative arrest of development. Whether that arrest is to be considered as a reversion to an ancestral condition is hypothetical, but at least it is a plausible conjecture.

Howard's Patent Combinare Knee Pad.—Mr. Howard, 12, Gray's Inn Road, W.C., has sent us a specimen of a pad composed of indiarubber and thick felt, and bound with leather. From its pliability and softness it is a great improvement on the old leather pad.

The Botanic Garden, Buitenzorg.—We learn from a statement of M. Treub in the *Comptes' Rendus* that "The Botanic Garden of Buitenzorg, founded at the commencement of this century, is divided into three sections. The Botanic Garden, properly so called, at Buitenzorg, in which 8000 or 9000 species of plants are cultivated; the Botanic Garden at Tjibodas, situated in one of the most mountainous parts of the district of Preangés, at an altitude of about 2000 feet; the Experimental Garden at Buitenzorg, in the Tjikeumeuh district, containing plantations of tropical economic plants. In the first section there are, besides the garden-office, a museum, herbarium, large library, chemical laboratory, a photographic studio, and a laboratory for botanical research. The experimental laboratory was instituted four years ago, for the purpose of enabling botanists coming from Europe to pursue their studies of tropical vegetation. The directors of the Garden desired to render the scientific institution of Buitenzorg as useful for botany as is the zoological department at Naples for zoological purposes. The annual revenue placed by the Government of the Dutch Indies at the disposal of the directors is £600. The Botanical Gardens of Buitenzorg have been visited by Dutch, Russian, German, and English naturalists. The Director of the garden considers it both a duty and a pleasure to render as much assistance as possible to foreign botanists who go there for purposes of study. He considers that researches in a well-managed tropical garden will have a most beneficial influence on the investigations being carried on of the vegetation of the extensive French territories in the extreme East."

"Villa and Cottage Gardening" (Alex. Sweet, 8vo, pp. 233; Walter Scott, 24, Warwick Lane).—This is an excellent little book, ostensibly written for amateurs in Scotland and the northern parts of England and Ireland, but much of it is applicable to residents further south than the Humber. It is evident that the writer is a man who has practised what he teaches, and knows how to handle garden tools and implements with skill and precision; and he knows, moreover, how to give all the needful directions for doing the work in an amateur's garden in concise language that is always to the point, and which is often made more readable by touches of a dry humour savouring of the land beyond the Tweed. The lists of florists' flowers, of hardy perennials, biennials, annuals, house plants, window-boxes, alpines, of Apples, Pears, and other fruits that succeed in the North, are sufficiently full, without loss of variety. The book is provided with a calendar of operations and an index.

Cyclamens.—A correspondent sends us a specimen in which the flower-stalks, instead of proceeding directly from the corm, are raised upon an herbaceous stalk. Such caulescent Cyclamens are not uncommon. The peculiarity was complicated in this case by the congenital union of two stalks and the leafy state of some of the sepals.

Roath Park, Cardiff.—The Corporation of Cardiff recently offered a prize of £75 for the best design for laying out 130 acres of land which the Marquis of Bute has presented to the town of Cardiff for a public Park. The Parks Committee has awarded the prize to the plans sent in by Messrs. William Barron & Son, Landscape Gardeners, Borrowash, Derby. The site of the proposed park is a valley nearly two miles in length, with a considerable stream running through it, which will be utilised in the formation of a lake of about 30 acres in extent, besides several lakelets and waterfalls. Ample provision has been made for outdoor games, and an open-air swimming-bath and gymnasium are also provided.

University Scholarship.—Mr. Alfred Bernard Badger, B.A., New College, Oxford, was yesterday awarded a Burdett-Coutts Scholarship, of the value of about £115 per annum, tenable for two years. Mr. Badger was educated at King Edward's High School, Birmingham, and obtained a first-class in the Final School of Natural Science last Trinity Term. The Burdett-Courts Scholarships are given by the University of Oxford "for the promotion of the study of Geology and of Natural Science as bearing on Geology."

Crocuses.—Where these have been planted "wild" in about the grass plots they are bursting out in all their beauty. In Kew and Regent's Park they attract much attention, and give a gay and lively grace when all else is quiet. Snowdrops treated in the same way are to be seen in Regent's Park, and they attract by their quiet grace and elegance.

Nottinghamshire Horticultural and Botanical Society.—The monthly Exhibition of the above Society will be held at the Arboretum Rooms, Nottingham, on Wednesday, March 27, at 7 p.m. A paper on the History of "Bramley's Seeding Apple" will be given by Mr. J. Jarmell, Carrington.

Those Salesmen Again.—We often hear complaints of the market salesmen, and not unfrequently of the Post Office authorities. A case that has just been brought under our notice shows how neither of these classes of individuals can be always held responsible far the disappointments of which growers and would-be vendors complain. Two boxes of Daffodils were sent by Parcels Post to a well-known salesman in Covent Garden. They arrived on the morning of the 21st, there being no market till the 22nd. Each box was smashed and reduced to its elements, and each might have contained a couple of dozen Daffodils. Now what return could the sender expect from driblets of this kind, packed in thin cardboard boxes, with the stamps carefully adjusted on the boxes to receive the full force of the obliterating stamp, and sent a day too soon for the market? almost as bad as a day too late. Clearly neither the salesmen nor the Postal authorities are to blame in this case. The sum paid as postage, viz., 6*d.*, must have considerably exceeded the market value of the blooms.

Wolverhampton Horticultural Society.—This Society's show and floral *fête* is fixed to take place in the public park on July 16, 17, and 18.

Notices of Books.

The Cruise of the "Marchesa" to Kamschatka and New Guinea, &c. By F. H. H. Guillemard. Maps and Illustrations. Second edition. (John Murray.)

This is a book which we rejoice to see in a new and cheaper edition. It is, indeed, a work which should not only be read by every one interested in travel and natural history, but one which should be placed on one of the most easily reached shelves of the student's library of reference. It contains the record of a cruise to Formosa, the Liu Kiu Islands, Japan, Kamschatka, China, the Sulu Archipelago, North Borneo, the Dutch Indies, and New Guinea, not to mention the well known places of call on the route. Wallace's *Malay Archipelago*, Burbidge's *Gardens of the Sun*, and the now very numerous books upon Japan, not forgetting Miss Bird's interesting volume, contain abundance of information for the general reader and the naturalist; but as to the Liu Kiu Islands and Kamschatka, or even some of the Dutch Malay Islands, the botanist and gardener have comparatively little information. These deficiencies are largely supplied in the present volume. Perhaps the most important, certainly the most novel, part of this volume is that devoted to Kamschatka. The general impression, we suspect, would be that this was a dreary, fog-begirt, ice-bound region that the traveller would be glad to quit as soon as possible. Dr. Guillemard tells quite another tale. He and his companions visited the east coast and made a long excursion from north to south along the Kamschatka river, thus traversing a large extent of the peninsula. The entrancing beauty of the scenery, the exquisite outlines of the numerous snow-capped volcanos, the birds, the fishes, the insects, the plants render the place, it is evident, a veritable paradise for the traveller and the naturalist—a paradise not without drawbacks, it is true, but drawbacks which only serve to accentuate the pleasure and secure its memories the more firmly. The reader can gain some faint impression of what the loveliness of the scene must be by consulting the beautiful woodcuts with which the volume is illustrated, but how is it possible to give an adequate idea of a cluster of mountains whose peaks rise from 8000 to nearly 16,000 feet, in a page 9 by 5½ inches! We will not spoil the reader's pleasure by citing further detail respecting this peninsula. The Sulu Islands south of the Philippines are better known to horticulturists from the researches of Mr. Burbidge, from whose investigations it appears that the flora is more like that of the Philippines than of Borneo. British North Borneo is one of our most recent acquisitions; it is a region of Mangrove swamps, and fertile, but insanitary river banks. Higher ground does indeed occur, for, in addition to maritime cliffs, the haunt of the edible swallow, whose nests are an object of earnest quest by the Chinese, the mighty Kina Balu itself, with its glorious pitcher plants, is now British territory. A temperature of 95° along the river, with a saturated atmosphere, must make the slopes of Kina Balu a welcome refuge, and before many years are over we may hear of a sanitarium there and of a "Royal Nepenthes" hotel. From Borneo we are taken to Sumbawa, Celebes, the problematic source of "thy renowned oil, Macassar," and thence to the Spice Islands and Western New Guinea, where birds of paradise formed the chief objects of solicitude on the part of the travellers. Amboina was next visited. In this island is a memento which may justly form an object of interest to all those who appreciate the work of their predecessors, and venerate the memory of a brave and indefatigable worker, for here, "In a garden to the south, fittingly overshadowed by the wealth of tropical verdure, which in his lifetime he loved to describe, stands the tomb of Rumphius."

Our author's predilections are evidently in the direction of ornithology, but a well-informed traveller knows how to make his book interesting, not only to students of other departments of natural history, but to the general reader also. When we add that the book is copiously illustrated with excellent woodcuts, and useful maps, we vindicate our assertion that this is one of the best and most important books of travel it has been our good fortune to have to commend to the notice of the reader.

India.

MADRAS.

The President's "Early Tea" at the Botanic Gardens.—Read the following account, from the *Madras Mail* of the 14th inst., of an "early tea," given by His Excellency the President at the Botanic Gardens:—

"Early this morning His Excellency Lord Connemara, President of the Agri-Horticultural Society of Madras, entertained members of the Society and their friends at 'early tea' at the Botanical Gardens. The entertainment was prompted by His Excellency's desire to strengthen the hands of the committee by stimulating the members to take a personal interest in the extensive alterations that are now being carried out with a view to increase the attractiveness and popularity of the gardens. The committee feeling that the rearrangement of the gardens was expedient in the interests of the Society and of the public, requested the Superintendent, Mr. J. W. Gleeson, to submit a plan for improvements. The Superintendent promptly complied, and his plan was approved and sanctioned by the committee on January 20, on which day active operations commenced.

"His Excellency arrived at the chief entrance of the gardens at 7 A.M., and was escorted round those parts of the gardens which have undergone alteration. Turning from the broad central path His Excellency proceeded to the large fountain, past the Baobab tree to the pillared water tower, turned to the left, and entering the arcade formed of fifty granite slabs roofed over by the luxuriant climber, Bauhinia diphylla, he reached the lawn to the west of the office, passed down the new curved walk, stopped to notice the beauty of Oreodoxa regia Palm, the common Date Palm, and Sandalwood, then entered the new walk that goes from end to end of the Cocoa-nut tope, and reaching the collection of conservatory plants at the north-east corner followed the new paths, and expressed warm appreciation of the rearrangement of the many rare and beautiful plants that are displayed at this point. Then re-entering the broad path he pursued it to the Kigelia pennata opposite the eastern side of the office, and was soon met there by those who had followed him on his tour of inspection." *Abridged from Proceedings of the Agri-Horticultural Society of Madras, January*, 1889, *p.* 18.

The Alpine Garden.

HEPATICAS.

In my collection are two single white varieties, both bearing large flowers of fine form and pure white; but one is altogether white, even to the stamens; the other has these coloured—a kind of pale pinkish-rose. It is not a question of development, because the flowers open in this way and remain so until they fade. Both are seedling varieties, and perhaps owe their fineness of petal to this fact, though I have been informed that seedlings, as a rule, show a tendency towards degeneration. Among the single blues I observe variations in the form and colour of the flowers, but all are very pretty indeed, and most winsome because they are so early to flower in the open air. The single blue, the single white, and the double red, do well with me planted out under a west wall, where they get plenty of sunshine; and they are frequently top-dressed during the summer, and kept well watered in dry weather. They flower as early in this position as they do in a cold glass-house. *R. D.*

Colonial Notes.

THE VICTORIAN WARATAH (TELOPEA OREADES).

This magnificent and comparatively hardy plant is almost confined to Eastern Gippsland, passing—so far as known—only into the most southern part of New South Wales, it having been found by Mr. W. Baeuerlen at an elevation of about 3500 feet at the southern sources of the Shoalhaven River. During a recent tour of some members of the Victorian Field Naturalists' Club, undertaken at the suggestion of the writer, Mr. Charles French saw exceptionally fine trees, 60 feet high, with a considerable stem diameter. Mr. James Stirling also saw trees in the valley of the Ben River fully 50 feet high. This superb species descends to valleys with Dicksonia Billardieri, Alsophila australis, and Senecio Bedfordi, as does Telopea truncata in Tasmania, from which species it is quite distinct in its always glabrous bracts, and some differences in the leaves and seeds. T. oreades was discovered in 1860 in the highlands at the sources of the Genoa, where some snow lies during the winter months, the elevation being about 4000 feet. What a splendid acquisition this plant would be in mild regions of England for outdoor culture. *F. v. M.*

True Wedding Lily.

Mr. Bull, in his catalogue for 1885, p. 72, denominates Crinum pedunculatum pacificum as the Wedding Lily of Lord Howe Island. From conversation with the islanders during their visits to Sydney—which are rare from want of communication—I doubted Mr. Bull's statement. I was fortunate enough through the kindness of W. E. Langley Esq., who was visiting the island, to obtain specimens of C. p. pacificum and also of an Irid, which has since flowered in my garden.

My friend Chas. Moore, of our Botanic Gardens, thus writes me:—"It is no doubt Morea Robinsoniana, which I discovered on Lord Howe Island some years ago. On the island it is known as the Wedding-flower; why, or wherefore, I know not." I consider it so named for the purity of the white petals, conjoined with the three little golden horseshoe on three of the petals. I am sorry to hear this beautiful plant is now becoming very scarce. *R. B. Read, Coogee, N. S. Wales.* [A figure and a full account of this plant were given in our columns, March 23, 1872, by our venerated correspondent Dr. George Bennett of Sydney. Ed].

Vegetables.

Parsley.—Whilst reading my *Gardeners' Chronicle* this evening the miscellaneous notes of your able correspondent, Mr. W. M. Baillie, caught my eye on p. 239, particularly his remarks concerning the difficulty experienced of cultivating Parsley successfully on light soils. On taking charge here in the spring of 1885 I was told by the kitchen gardener that it was no use to sow Parsley, my predecessor having tried it over a period of fourteen or fifteen years. Various plans had been unsuccessful, and they had to depend on a neighbouring garden for a supply. Not liking this to continue, I set about me to devise some means to compel success in growing Parsey, and amongst other devices was that of sprinkling gas-lime liberally round some of the vegetable quarters which had been previously dug, digging in the lime, afterwards sowing the seed in drills in the usual way, and wherever this was done we obtained by the end of June some excellent rows of Parsley, and by following out this practice each year there has never been any failure in the supply either summer or winter. As a precaution, however, against loss in severe winters it is my invariable practice to sow a three-light frame full on a spent dung-bed, using the gas-lime in the soil. I may here state that it is both convenient and safer when the lime is passed through a quarter-inch meshed sieve before being used, as large

lumps are death to all root that comes in contact with them. It is applied at the rate of about 1 bushel to 100 square yards. Last season I had the curiosity to try sowing a bed in the kitchen garden without applying the lime, and the result was that every root was eaten up by the small worms (wireworms) just as the plants were getting nicely into the rough leaf, and this season we are applying a dressing of gas-lime to each quarter as fast as it is dug, by which means I hope to have more success than hitherto with Carrots and Parsnips, both of which get very much crippled by wireworm. If any of your readers has to deal with a light soil, and has found that Parsley grows with difficulty, if he will give gas-lime a trial in the manner described he will find that good results will follow. I may just mention that I find the plants grow better and stronger if just thinned in the rows in the ordinary way than when transplanted. *B. Ashton, Glossop Hall.*

Dean's Snowball Cauliflower.

This is a very useful early variety, and should be given a trial by all desirous of having an early supply. It is beautifully white, firm, and in flavour mild. Owing to its exceptionally dwarf habit, and the leaves being very small, 1 foot apart in the row gives ample space for it, and if seed be sown now, good heads may be expected by the middle of June, if the weather prove warm.

Diver's Purple Sprouting Broccoli.

Where these Broccolis are esteemed this variety is much to be recommended for its earliness. I have grown it for the last three years by the side of the old varieties, and it is usually fit for use at least three weeks sooner than white-headed Broccolis. It is very sturdy, and produces many very fine sprouts.

Asparagus Kale.

For supplying abundance of greens from the beginning of March and onwards, for tenderness when cooked, and for flavour, this variety of Kale surpasses all others with which I am acquainted. It is also very hardy, and stands the cutting winds, which as a rule do more harm to the Brassica tribe than do sharp frosts. *H. Markham.*

Foreign Correspondence.

ABIES EICHLERI.

The home of this beautiful Abies is a wild romantic valley near Daba, not far from Borjom, in the Caucasian mountains. About the year 1870 Director Lauche procured for the first time the fresh seed of this plant, through the instrumentality of a Russian official in Tiflis. The few specimens of this plant that help to ornament the Royal Gardens in Potsdam are the fruit of this importation.

Last autumn I had the opportunity of seeing and admiring some very fine specimens in Fischbach, in Silesia, on the charming estate of Marshall v. St. Paul, where they had attained to a height of 5—6 mètres.

This beautiful Abies, in my opinion, equals the Abies nobilis glauca. It was illustrated for the first time in Wittmack's *Gartenzeitung* for 1882, p. 63. It is distinguishable from A. Nordmanniana by:—1, the bluish-green colour of its young shoots; 2, by its leaves being somewhat shorter, and more bent upwards; 3, by the lower parts of the leaves being of a bright silvery colour; 4, by its small bluish-black cones, those of the Nordmanniana being green, and twice as large as those of the A. Eichleri. A. Nordmanniana displays a dark green colour, but A. Eichleri charms the eye by its bright silvery colour.

Many fruitless endeavours were made about the beginning of this decennium to obtain fresh seed, in order to introduce this beautiful plant into our country, and to bring it within the reach of the public. After endless negotiations with the Russian Government, permission was at last obtained for the collection of the seed of the tree on its native soil. The seed arrived safely in a healthy condition, and I am able to supply healthy seedlings. *Wilhelm Hans, Herrnhut, Saxony, March,* 1889.

The Society of American Florists.

At the annual meeting of the executive committee of the above Society at Buffalo, with John R. May, Summit, New Jersey, in the chair, besides the matters usually discussed at such meetings, were some essays which will be read at the next convention by competent gentlemen, The subjects of the papers were:—"Education;" "The Establishment of an Experimental Garden in this Country on the Plan of the one at Chiswick, England;" "The Relation of the Horticultural Press to the Florist;" "Roses;" "Summer Cut Flowers;" "What can be Done to render Horticultural Exhibitions more Popular and Profitable?" "Landscape Gardening."

Cultural Memoranda.

BALSAMS,

If well grown, are splendid summer plants, and the first sowing should be sown towards the end of April, which is quite soon enough to have them in fine condition, as Balsams require plenty of sun and light, and a brisk temperature to keep them growing freely till they come into bloom. The way to have them dwarf and stocky is to keep potting them lower at each shift they receive till the shoots are brought level with the top of the pot, and as the shoots progress, they should either be pegged down or tied out, and the plants will take a pyramidal form. If these are wanted of extra large size, it will be necessary to pick off the first flowers that show, and perhaps the second, and what came after are generally finer and more fully developed. Balsams cannot have too rich a soil, provided the manure given is decayed and mild, in which state they will take nearly equal parts with loam and liquid manure after they have filled their pots with roots, and begin to show bloom.

Celosias.

As decorative plants for the summer these stand almost unrivalled. It is a matter of importance that a good strain be obtained, as many poor ones are about, and seed should be sown at once thinly in pans, and just covered with soil. Place the pans in brisk moist heat and the plants will soon be up. When large enough to handle they should be potted off singly into 60's, and placed on a shelf near the glass, in a stove. During May and June, and as long as they are growing, a pit with a bed of fermenting material in which to plunge them suits them best, as there they can more easily be kept free from red-spider, and to prevent its attacks the plants should be heavily syringed before closing the pit or frame in the afternoon. Celosias, like Balsams, require rich soil, and plenty of liquid-manure, but they do not need much pot-room, pots of from 6 to 8 inch being quite large enough for them to bloom in.

Mimulus.

These plants seed freely, and have been greatly improved of late years, and the fine flowers with their wonderful markings one sometimes sees, create quite a suprise. For baskets or pots in shaded windows, greenhouses, or conservatories, these Mimulus are unrivalled, and being such moisture-loving subjects they must be supplied with abundance of water. The seed is very small, and the best way is to sow it on the surface of a pot of finely sifted soil that has been watered, and gently press into it or strew a little silver sand over it, and afterwards sprinkle slightly, without a cover with a sheet of glass. The seeds will soon germinate and the plants will make rapid growth in a warm house or pit, if frequently sprinkled and kept damp at the roots.

Petunias.

It is not many years since that the first double variety made its appearance, but now they are quite commonly grown, and come fairly true from seed saved from single flowers furnished by pollen from the doubles. The single, too, of some of the best strains are very effective, the ground colour and markings of the flowers being often very fine. To have good plants seed should be sown at once in prepared pans or pots of fine light soil made smooth and firm. After watering the pots and allowing the surface to get dry, the new seed should be scattered thinly and just covered, and if stood in a moist, gentle hotbed the plants will soon appear, and when large enough to handle they should be potted singly, to grow on in a warm house or pit till the end of May, after which they best plunged out in the open, unless they can be kept cool and have plenty of light under glass. To have them bushy they need frequent stopping, and neat stakes should be used for the support of the branches, and to train the plants into good specimens.

Schizanthus.

Too much can hardly be said in praise of this beautiful annual, the flowers of which resemble butterflies in shape and exquisite markings. By sowing at once flowering plants may soon be grown if the seedlings are brought on in a warm house on a shelf near the glass. The finest show is made by by having three plants in a 6 or 7-inch pot. To have Schizanthus in flower early in the spring seed should be sown towards the end of August, and the plants wintered on a shelf in the greenhouse. *J. S.*

The Apiary.

Bees are at last flying pretty freely. On March 15 I saw some of them bringing in pollen. I fear, however, that the mortality has been great. I know cases where bees seemed to be very well up to the end of February, but the snow and the frost of the first week in March caused them to succumb.

Towards the end of this month, if the bees are flying every day (or most days), syrup may be given if required. Do not grudge the trouble, as it will repay you. Care must now be taken to prevent robbing. If you see bees flying about aimlessly round a hive, you may know that the occupants of it are dead, and those flying about are seeking their property. Therefore contract the entrances at once, whether robbing is going on or not.

No time ought to be lost now in preparing for the summer. At the very best the honey season cannot last many weeks, and the only way to secure a good harvest is (1), to see that the bees are brought up to their full strength by the time honey is ready for collection; and (2), to see that bees are not waiting for goods to arrive from dealers, but get them in now, or much honey may be lost.

It appears that Minorcan queen bees will arrive pretty plentifully this season. I hope they will answer expectations. Doubtless much good has resulted from judicious crossing, but I think there is a limit. After a great deal of patient investigation, I come to two conclusions. The first is, that our English bee is undoubtedly a good one, if well treated; and the second is that the Carniolian bee is at any rate the next best, and for docility and good temper is unapproached. *Bee.*

Scotland.

NORTH OF SCOTLAND ROOT, VEGETABLE, AND FRUIT ASSOCIATION.

The prize schedule for the show proposed to be held under the auspices of this Association at Inverurie, N.B., in November next, has already been printed. Additions have been made to the prize money, and even at this early period there are signs of an unusual amount of preparation and enthusiasm, which augur well for the success of the next meeting. The catalogue contains three more classes than last

year, and altogether, judging from the catalogue, the show of 1889 promises, with a favourable season, to be one of the best of recent years. In the section for garden produce some splendid prizes are offered. Among those from a distance offering prizes are Messrs. Sutton & Sons, Reading. The Secretary, Mr. William Maitland, is working hard to make the show a success, and it is to be hoped his efforts will be crowned with success.

The Cultivation of Tobacco in Aberdeenshire.

Among the experiments conducted during the past year by Mr. Thomas Jamieson, Lecturer on Agriculture in Aberdeen University, on the experimental farm at Glasterberry, Cults, by Aberdeen, has been that of Tobacco culture. From the results of the experiments it has been proved that the soil of Aberdeenshire will produce Tobacco of a quality which when manufactured meets with the appreciation of smokers. From the results obtained Professor Jamieson concludes that Tobacco might be easily grown, ripened, and cured in this country, and that with the skill that comes by experience, even the finer varieties might be successfully made. Plants were grown upon an experimental plot, and on a larger scale in the field; they were late in being planted, yet the produce is described as being heavy, and though not thoroughly matured, it was manufactured into three forms of tobacco and "smoked with appreciation." The trouble entailed to the grower and the Inland Revenue officers, however, by the frequent inspection of the crop, has led to the abandonment of the experiments. *W. K.*

THE "STANDARD" FLOWER-POT. (Figs. 69, 70.)

The above name has been given to the latest American novelty in the way of flower-pots. The advantages claimed for them are that they are stronger, less liable to be broken in carriage, and that they are easier to stack away. The rim, which is characteristic of the kind of pot, is furnished to all sizes from the thumb upwards, and is made proportionate to the size of the pot; the concave bottom is also an advantage, by allowing the moisture to more readily reach the outlet. The form of pot has been adopted by the Society of American Florists; it is now in common use. The Whilldin Pottery Company, Philadelphia, are the manufacturers.



Fig. 69. New form of flower pot.

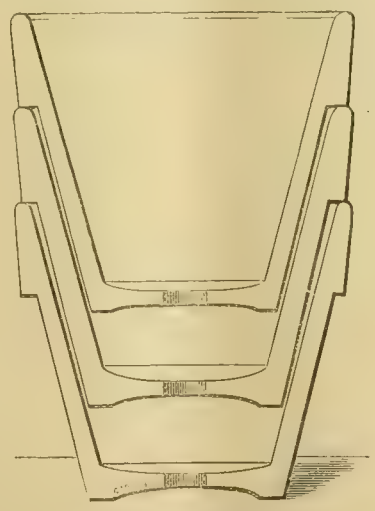


Fig. 70.—New form of flower-pot, stacked one within the other.

Home Correspondence.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Please permit me to echo Mr. Wildsmith's remarks (p. 308) as to the desirability of all who are interested in horticulture doing whatever they can towards raising the necessary money so as to enable the committee to place the late unsuccessful candidates on the pension list of the Institution. My reasons for calling attention to this matter are mainly as follows:—In the first place I think it the duty of all who are able to do so to help those who, from causes beyond their control, require assistance; secondly, as Mr. Wildsmith says, if more gardeners became subscribers they would as a body wield more influence at the elections. For instance, they could give their votes to those candidates who, having been subscribers, have not been so sufficiently long to enable them to be put on without an election. I find from private correspondence there are complaints as to some of the candidates at the late election being placed on the pension list who had never subscribed a penny, whereas others who had subscribed for several years were not elected. Personally, I am acquainted with one of the unsuccessful candidates who had subscribed several years and who, when he began to do so, little thought that he would ever require its assistance; yet he had to stand on one side for some who had never subscribed at all. I have for some time had an idea that the committee should have power to allot a certain number of votes to each *bonâ fide* subscriber according to the number of years he has subscribed—these votes to be added to the ones he gets at the election. I am of course alluding to those candidates who have not subscribed the requisite time to enable them to be put on without an election. I also venture to suggest that more gardener subscribers should be placed on the committee by choosing one or more from each county according to the number of subscribers in it. Even if they were not able to attend the meetings very often they would form the nucleus of a local committee in future, and would, in the meantime, often be able to give useful suggestions in writing. They would also indirectly benefit the Institution by creating more local interest on its behalf. In support of this I think I may fairly quote the local secretaries of the Gardeners' Orphan Fund, "which most of your readers who are interested in that Fund will agree with me in saying, have had much to do with its success. In conclusion allow me to quote the following pithy remark from a noted trade catalogue, viz., "Many can help one, but seldom can one help many." *H. J. Clayton, Grimston, Tadcaster.*

FRUIT CULTURE 168 YEARS AGO.—The Paradise stock was not used for grafting upon in this country in 1721, and there is no doubt that it first appeared here with Continental varieties of Apples grafted on it about the time your correspondent "R. D." mentioned in the *Gardeners' Chronicle*, February 9. I have before me a volume, entitled "*The Whole Art of Husbandry*, by J. Mortimer, F.R.S., printed by Robinson & Mortlock, at the Golden Lion, and at the Phœnix in St. Paul's Churchyard, 1721." I do not know if it is a rare book. The writer seems to have had a good knowledge of gardening as it was then carried on, and had numerous correspondents, and was well versed in contemporary writings of the period. He does not mention the Paradise stock, which he probably would have done if it had been employed in England in his time; he gives several kernel or seedling stocks, such as the Peach-stones, Plum-stones, Cherry-stones, &c., but recommends the Quince for Pears, and for the Apple Crab stocks, and one called Gannet-moyle, or Cydodine stocks. As to the knowledge displayed in fruit culture in the good old times, I fancy some of the practice of 1721 would make our present day fruit-growers rub their hands and smile, especially those amongst us who are troubled with hares and rabbits gnawing the bark off their trees. As at p. 285 in his book he describes how Apple growers in Northamptonshire managed their trees in his time, he says, "Old trees that grow mossy the owner at the beginning of April disbarks the trees from near the bottom almost up to the part of the tree where the head divides into branches, and these trees bear every year afterwards, not one of them missing. And one in Essex told me of a Pear tree which he barked, and it occasioned it to bear every year, though it never bore before." At p. 278 he states that "many trees run altogether to wood, and seldom bear fruit. To remedy this inconvenience some propose hacking of the bark, others propose to bore a hole through the body of the tree, others cleaving the roots, and some drive stones or wedges into their trees, but the best way is to prune off some of the branches in summer, when the sap is in them, which is the best way to abate their luxuriancy." In his book he describes over seventy-five varieties of Apples. Many of the Apples appear to be of quite as good a quality as those grown in England at the present day, except that they were rather small. He describes some ninety-five varieties of Pears, some of them of excellent quality, as the Bergamots. Some of the Perry Pears were very small, as at p. 296 he says, "A poor man in Hertfordshire brought me 4 bushels of Pears which were very small hardly so big as the smallest Crabs." Yet apart from those out-of-date practices the book contains a great deal of information, and some curious contrivances and suggestions for improving plants, flowers and fruits. His directions for Grape growing in the open air are really good, and altogether show that there was some active minds in the horticultural world nearly 200 years ago. *A. Feeney.*

THE COLTSFOOT.—Quite three weeks ago, on February 27, our foreman brought into our office a beautiful specimen of the Coltsfoot, with two flower-heads fully developed, which he had found in one of our gardens. This beats your London record on p. 338—at least for this season. *Dobbie & Co., Rothesay, Scotland.* [Another correspondent writing from Brympton says that he picked some blooms of Coltsfoot in the last week of January and sent them with other flowers to St. James's Palace, London. Ed.]

VIOLET CULTURE. — In accordance with the expressed wish of "T. C. H.," in his note on the above (p. 307), that some of your readers having experience in the use of artificial manures in the cultivation of Violets should supply a few hints on the subject, I relate the following method, which is our usual mode of growing these favourite flowers. First of all, I may be allowed to state that all crops here are grown with the aid of artificial manures, and the soil (herein so-called for convenience) is slaty stones varying in size between the extremes. Having selected a brake or brakes (for Violets are largely grown here) on which Cauliflowers or other well-treated gross-feeding crop had grown, we commence preparing for the Violets as soon as the plot is cleared, by bastard-trenching it as early as possible, leaving it rough until late in spring, when a heavy dressing of Beeson's manure is given, and with fork thoroughly mixed with the surface soil and left to pulverise until May, when it is levelled and slightly trodden, and is then ready for the plants. Young single crowns are selected, and planted a foot or so each way, a thorough soaking of clear water being then given to the whole, and if material is available we mulch heavily with decayed leaves, almost burying the crowns in so doing. Little further attention is given them until they commence growing freely, when occasional dressings of Beeson's alternately with soot or similar manure is applied, and, if the weather and soil be dry, watered in. We also find a good syringing on dry evenings up to about the end of August is most beneficial. In October we

remove them to their winter quarters, viz., sunk concrete pits facing south, giving them light soil again, highly impregnated with our panacea (Beeson's), which suits Violets admirably—as, indeed, some other crops. With such treatment we have splendid clumps of clean prominent crowns, buds and flowers, and are seldom without the latter throughout the year. We have cut down our varieties to four—Marie Louise, Comte de Brazza, Victoria, and odoratissima (single), the two former vastly outnumbering the two latter. Victoria, being comparatively new, is suffering at our hands from over-propagating, but have hopes it will prove a boon companion to the others. Odoratissima is grown chiefly for its foliage for bunching the other blooms. *J. R.*

—— I did not notice the remarks of "T. C. H." concerning Violets until it was too late to reply in the *Gardeners' Chronicle* of last week. I do not know the variety he refers to. I have a few plants of a dark Neapolitan, not so deep a colour as Marie Louise, which seems to be quite as hardy as the light blue variety. I shall be very glad to accept some plants from your correspondent, and will give them a fair trial alongside of my own. For a number of years I grew nothing in frames except the old Neapolitan; a few years ago I added Marie Louise and Comte de Brazza (white), and I intend this season to give a trial to two or three others. Having an abundant supply of farmyard and stable manure, I do not use any artificial manure whatever, and it has never entered my mind to do so; but, on reflection, I think some readily soluble chemical fertilisers would be an advantage, especially in such an unfavourable summer as that of last year. I was tempted by the only fine weather we had in September to allow my plants to remain out a fortnight longer than usual, thinking that they would grow to a larger size, when suddenly frost and snow came upon us, and I was fairly caught—a warning for the future. Comte de Brazza suffered most, Marie Louise next, while the old Neapolitan was but little injured. If your correspondent would kindly send me some plants, it will be quite soon enough for me to get them the first week in May. I hear a deal about the De Parme variety, said to be largely grown in France, but any I have had sent to me (blooms) from that country are just the old Neapolitan. [It is like, but darker. Ed.] I have always considered perfume the leading feature of a cultivated Violet, but colour seems to have great weight with others. Be that as it may, I would give one point to colour and three to perfume. *J. Heath, Sdgewick, Kendal.*

HYBRID SAXIFRAGES.—In the notice of Mr. Baker's lecture on Saxifrages (p. 336) I read with some surprise that hybrids in the genus are rare. Perhaps the statement refers only to wild hybrids, or perhaps Saxifrages of the longifolia class are exceptions. I am under the impression, however, that some Saxifrages, for instance, S. longifolia and S. aizoon, cross and produce intermediate forms very readily. I have noticed these two species where they grow intermixed on the perpendicular rocks along the "Route thermale" in the Vale of Gavarnie in the Pyrenees, and in several places have found what I believed to be hybrids between them; in fact, whenever S. longifolia was growing in compound rosettes, of smaller size than the ordinary type, I suspected a mixed origin. I brought many of these supposed crosses home with me, and believe they are growing still on my rockeries, but, unfortunately, I cannot identify them. Besides these wild forms, I sow seed saved in my garden from the best types of S. longifolia every year. The plants from which the seed is saved grow mixed up with such kindred species as S. Hostii, S. lantoscana, &c., and the progeny vary in such a way that I am in the habit of considering the parentage doubtful, though I have never tested them by any definite botanical characters. It is sometimes stated in nursery catalogues that the true S. longifolia never produces a multiplied or compound rosette, though I cannot find this mentioned as an essential character of the species on good botanical authority. Those which form a single rosette generally flower in cultivation in the fifth year from seed, after which they die. If the centre of the rosette is cut out in the third or fourth year, small and imperfect rosettes grow out of the axils of the leaves, but are not persistent, and I never succeeded by this operation in producing lateral rosettes in a plant of confirmed single habit. *C. Wolley Dod.*

STREPTOSOLEN JAMESONI.—This very striking plant has been in flower with me more or less since Christmas. It is of simple culture, and cuttings of it root with freedom during the spring in warmth, and in a cool frame in the autumn. It delights in abundant moisture at the root when growing, and is much benefited by liquid manure; in point of watering this is not likely to be overdone in summertime. The same kind of soil that will grow a Fuchsia will suit this plant, and a warm greenhouse is the best place in which to flower it. Its flowering is not confined to the winter season, for I have had it in bloom from July to September, at which season the reddish-orange colour of the flowers is more intense and attractive than in the winter time. *J.*

THE WHITE ARUM.—I notice that some cultivators find fault with or quite condemn the planting out of Arums in summer time, and that some of those who do so dry their plants off instead. Surely the drying of Arum roots is against the nature of the plant altogether, it being almost an aquatic, and therefore it cannot well have too much water at the roots during its season of growth. That Arums are cultivated well in pots I admit, but to do so they require more attention than when turned out in the garden, as when there, a soaking of water lasts some long time, but when in pots, watering has to be often repeated. Notwithstanding, much may be done to save some of this labour by plunging the pots in the soil or in coal-ashes and mulching them, but as the feeding area of the roots is circumscribed, they soon absorb all the available moisture. Those who object to planting out Arums say that the roots are injured by taking them up, but that matters but little, as the plants have then completed their season's growth, and are only biding their time to come forth into flower, which they must do when warmth is applied, and other conditions are favourable. The way that I manage them is to stand them away in some deep pit or spare place under glass when they go out of bloom, and about the end of May, the roots are divided by pullling them apart. The strongest crowns are at once put into a trench, manured, and got ready as for Celery, except that it is not so deep when finished, the plants stand about 18 inches apart, and are mulched with short littery manure, and a heavy watering is given them and repeated whenever it appears to be necessary. My mode of potting, &c., in early autumn does not differ in any essentials from that pursued by other growers. *J. S.*

—— I, like Mr. Coomber, prefer the method of planting out Calla æthiopica in the summer time to keeping the roots in the pots all the year round. The plants are grown here in pots of various sizes, the smallest being 6 inches, these contain single crowns, which are more useful for decorating an apartment than plants in larger pots would be. These small crowns are furnished with three and four spathes each, and, being in small pots, room can be readily found for a good number even in a limited space. My method of dealing with them in pots of various sizes is as follows:—The plants in small pots are planted out entire, and without removing any side growths, these throw up additional shoots towards the end of the summer, and at lifting time, which is towards the end of September, in southern Hampshire, they are potted in 10 and 11 inch pots. The plants in these pots are at the end of May or the first week in June divided and planted as single crowns, which, on being lifted, fill our 6 and 7-inch pots. Three parts loam to one of partly decayed stable manure, with a small quantity of dissolved bones, are the materials employed in which to pot the plants, and a good space at the top of the ball is allowed for water. After being potted the plants are stood in a pit and kept close for a few days, shaded from bright sun, and syringed daily for a week or so, air is then given the plants more and more freely, and they are finally removed thence to a cool vinery or greenhouse to bloom. The plants commence to throw up spathes towards the end of October, continuing to do so until the end of May. When the pots have become full of roots tepid liquid manure is frequently applied, and at other times water — lack of moisture is very injurious. Our roots are planted on a west border, where the soil is of a retentive nature, and it is manured and dug, and left in a rough state in the autumn, more manure being added at planting time. In dry weather copious supplies of water are given the plants. *E.*

SPENT HOPS.—In answer to your correspondent in issue of March 2, as to what use spent Hops could be put and also the manner of using the same I would state that having used a great quantity I have found them answer best for both zonal and show Pelargoniums which take very kindly to them used in the soil in place of leaf-mould and they are benefited in foliage and flower; many kinds of Ferns do well with spent Hops mixed with the soil used in potting, more especially Adiantums, including A. Farleyense, and I have never seen the young fronds attain such rich colouring from the use of anything else. I use it in the proportion of two of good loam to one of spent Hops with a good addition of sharp sand. Lomarias and Pterises do equally well with Adiantums. For Cucumbers it is likewise applicable, using in the ratio of one-third Hops to two of loam. I have had some 500 to 600 yards of frames under my hands in a season, but I have never found anything better in restoring the declining vigour of an old bed than a top-dressing of spent Hops direct from the brewery laid on about an inch thick. In a week from the time of putting on the dressing it would be a mass of roots; and when this stage was reached a sprinkling of loam with an occasional dusting of some fertiliser would carry them on for another two or three months. *G. B. Baskett.*

SEA-SAND.—I see in your replies to correspondents that sea-sand may be used for most things, and as I use a large quantity of it my experience of the substance may be of use to your readers. For propagating all kinds of soft-wooded plants I prefer sea-sand, as the cuttings root more vigorously than in silver-sand. Of Bouvardias and Tree Carnations just struck scarcely a cutting failed to grow; Crotons, Dracænas, and such like plants do equally well in it, and in potting soils I use it in rather large proportions—for Hyacinths, Tulips, &c., one-third sand; for Gladiolus also, which I place upon a good handful of the sand. Cucumbers grow in it, and a layer 3 inches thick placed over an Asparagus bed after raking over in the spring for a splendid top-dressing. Half a peck of soot to one barrowful of sea-sand, well mixed and spread over the ground intended for Carrots 3 inches thick, and forked in, is the best dressing for that crop which I can use. Azaleas, Ericas, and the finer rooting plants from New Holland, do not like sea-sand. The sand found on the beach hereabouts is mostly from mountain limestone and water-stone which is shaly. It may interest some readers to know how expensive silver-sand is here. I have just received twenty bags, or 2 tons 2 cwt., at a total cost of £4 19*s.* 1*d.*, made up thus:—Sand and bags, £2 9*s.*; steamer to Plymouth, £1 0*s.* 9*d.*; paid at London, £1 2*s.* 10*d.*; landing, 1*s.* 3*d.*; cartage, 5*s.* 3*d.*; hence the reason that we use sea-sand. *Geo. Baker, Membland.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

March 12.—Present:—Sir J. D. Hooker, in the chair; Drs. Müller, Scott, Oliver, Masters, and Darwin; Professors Church and Ward; Messrs. Pascoe, Maclachlan, Morris, Dyer, Hon. and Rev. Boscawen, and Rev. G. Henslow (Hon. Sec.).

Injuries to Trees by Hoar Frost.—Additional and corroborative information was received from Mr. Plowright, of Lynn, of the remarkable occurrence described at the last meeting, of boughs of various trees being broken off by the extraordinary deposit of crystals of rime upon them. As no snow had fallen during the period, it was impossible to attribute the results to such a cause. There had been excessive fog previous to January 7, 1889; the rime forming upon the telephone wires was so great that they were broken down. The ice was deposited unilaterally like flat sheets of glass, 1½ to 2 inches in width on the south side. On the 8th was a thaw. The result of the frost was that a Birch had a branch amounting to one-third of the tree broken off, the smaller branches particularly suffered. The Elms were most injured, branches of all sizes being broken off, even large arms, one measuring 5 feet 6 inches in circumference, and 1 foot 10 inches in diameter. To such an extent was the roadway covered with *débris* that the market carts were greatly impeded Oaks, Willows, and Poplars also suffered; but Ashes and Scotch Firs escaped Several photographs and broken branches were sent as illustrations of the way in which the damage was effected, for Mr. Plowright noticed that fracture without falling was a distinct feature of rime-injuries to trees, excepting to Willows and Poplars, the vast majority of whose branches fell to the ground. It was a remarkble sight, for

example, to observe the broken but still pendent branches of the Oaks upon the Hillington Road, hanging on them for some weeks afterwards and all on the south side.

Mr. W. G. Smith recorded and figured in the *Gardening World* for March 20, 1886 (p. 457), a very similar occurrence at Dunstable, due on that occasion to frost, fog, and wind, combined. The ice from sheets as thin as paper, about 2 inches wide, and attached to the leeward sides of the boughs, but at intervals only to the wood; thus forming a series of arches. He attributed this fact to the warmer temperature of the living shoots which melted the ice throughout the greater part. These blades of ice were about 2 feet long. Any little extra wind caused a stir among the branches like the sound of breaking glass. For several days previously the frost had been very severe, the hills at the same time being continuously hidden by wet fog, which was driven gently along by a biting wind from the north-east.

Barley Smut.—A communication was recieved from Mr. Plowright with specimens of Ustilago segetum, showing, in accordance with M. Jensen's opinion, two forms or species—one, the commoner, U. nuda, so called because the spores are almost naked; the other, U. tecta, because the spores are enclosed in a membranous capsule. They form, moreover, much more compact masses, and resist the disintegrating influences of the weather for a much longer period than do the spores of U. nuda. M. Jensen has also arrived at the conclusion, on biological grounds, that the smuts of Wheat, of Barley, and of Oats are distinct species, and incapable of infecting other than their proper host plant. Brefeld concluded that the spores of U. segetum formed yeast colonies in sterilised farmyard manure, and concluded that cereals became infected by farmyard manure. Mr. Plowright was unable to confirm this view.

Temperatures in the Engadin.—A communication was received, through Professor M. Foster, from Mr. Worsley, recording temperatures in and below the snow. He observes that "the main point seems to be that whereas the surface of the snow varies with the air, the temperature about 1 foot down is pretty constant at about 9° C., and that the surface of the ground beneath 3 feet of snow, although frozen perfectly hard, remains about 3° C. I think it seems pretty clear that plants beneath snow have not to stand more than a cold of 4° C. at the outside, if they are not more than 2 or 3 inches high." While thus corroborating the well known fact that the temperature is always higher on the surface of the ground under snow than on the surface of the snow; since the earth temperatures are higher than air temperatures in winter; it was thought that the number of observations taken were insufficient for deducing any further conclusions.

Galanthus Elwesi, Diseased.—Professor Marshall Ward reported upon the specimens forwarded by Mr. Barr to the last meeting. It appears that the fungus infesting the plants was a different species from the "Lily disease," and proved to be a form of Sclerotinia (Peziza), of which the parasitic state was the so-called "Botrytis" stage. Professor Ward has succeeded in infecting the common Snowdrop.

Lily "Botrytis," Culture of.—Professor Ward exhibited specimens of his culture of this fungus. They were obtained from single spores, one in each of thirty flasks. The spore had produced a large quantity of mycelium until the nutrient fluid was nearly exhausted, when an immense quantity of black sclerotia was formed.

Abies bracteata Cone.—Dr. Masters exhibited a cone of this tree from a tree grown under the care of Mr. Coleman, of Eastnor, Castle Gardens. It is remarkable for the long linear bracts accompanying the scales. Questions were raised as to the use of them, and how they could assist in the dispersion of the seeds. The cone when ripe is said to fall to pieces.

Skimmia japonica.—Dr. Masters has reinvestigated this plant, and finds that it is not known in Japan, but is really of Chinese origin. Mr. Fortune first brought it from the latter country. The true S. japonica as is the plant known in gardens under various names, oblata-fragrantissima, &c.

Willow, Creeping.—Dr. Masters exhibited a long, whipcord-like, creeping stem of some species of Willow (probably fusca or repens), taken from the sand hills of Southport, by Rev. C. W. Dod. It extended over 12 feet in length.

Crocus with "Ephemeral Roots."—Dr. F. W. Oliver exhibited some Crocus corms with tuberous roots. In this case the small corms, developed at the top of the old one, are provided with thick, fleshy, spindle or conical-shaped roots, in direct prolongation of the axis of the young corm. They act as reservoirs of nutriment, in addition to the young corm itself. As they serve a temporary purpose only Mr. G. Maw gave them the above name. Dr. Masters observed that they are quite different from the so-called "droppers" common in Tulips, &c., which consist of a bent leaf-scale with an attached bulbil.

Croton-wood, Scented.—Mr. Henslow exhibited a block of this wood called "Madagascar Sandal-wood," which Mr. Morris said had lately been investigated at Kew, and found to be referable to some species of Croton. It is very highly perfumed.

Hibiscus (Abelmoschus) esculentus "Coffee."—He also showed specimens of seeds, natural and roasted as well as ground, which had been sent to Mr. Christy as a sample of the "coffee" made from it by the natives of Guatemala, hence called "Indian Coffee."

"Katila" Gum.—He exhibited specimens received from Mr. Christy of a new gum, somewhat like gum Tragacanth, but less "flaky;" the pieces were in curious snake-like rolls, and hollow tubes, and ball-like pieces. It swells up into a mucilage with water, like Tragacanth. It was received from the central provinces of India, as Jubbulpore, &c. Sir J. D. Hooker thought it might possibly be the gum of Cochlospermum gossypium, of which he says, "The bark abounds in a transparent gum, of which the white ants seem fond, for they had killed many trees." (*Him. Journ.*, i,, 53). Drury, *Useful Plants of India*, describes the gum of this tree "as a substitute for Tragacanth in the North-west Provinces. This gummy substance exudes from every part of the tree if broken." He gives the native name as Cuteera, of which perhaps *katila* is a mispronunciation; but Drury also mentions Sterculia trees as yielding from the bark a gum resembling Tragacanth. This is known in Bengalee as *katira*—which would seem to be a nearer approximation to *katila*.

Larix sibirica, Gum-resin (?).—Mr. Christy also sent a large lump of reddish-brown gum, received through the Botanic Gardens, St. Petersbug. It is used as a "chew-gum" by the inhabitants of Siberia, but nothing at present is known of its qualities.

ROYAL BOTANIC.

March 20.—At this, the first spring show of the Society, the exhibits were numerous and pleasingly varied.

Azaleas were shown well by the amateurs, where Mr. H. Eason, gr. to B. Noakes, Esq., Hope Cottage, Highgate, led with neat, well-flowered specimens of Roi d'Hollande, Model, ane Jean Vervaine. Mr. J. Clement, gr. to L. H. Hicks, Esq., Springfield House, Muswell Hill, was a fair 2nd with smaller plants. Mr. Henry James, Castle Nursery, Norwood, was the only exhibitor in the nurserymen's class, and was placed 2nd.

Cyclamens in the competing division were best from Mr. D. Phillips, Langley Broom, Slough, who took the leading prizes for them with really very fine plants, with numerous large flowers; Mr. Odell, Gould's Green, Hillingdon, being a good 2nd in the open class.

Mr. J. Douglas, Great Gearries Gardens, Ilford, was a successful exhibitor of the bulbous plants; with Mr. Eason he divided the honours in the amateur division for Hyacinths and Tulips,—Mr. Eason leading for Tulips; and the order was reversed for Hyacinths—each having brightly coloured samples of general favourite varieties, which made a gay display; the Tulips being on the whole the better.

Mr. Douglas was to the fore with twelve pots of Crocuses, having a magnificently flowered lot, with a good 2nd in Mr. R. Scott, gr. to Miss Foster, The Holme, Regent's Park, W.

For twelve Amaryllis, Mr. Douglas again led with very fine plants, bearing richly coloured flowers; the best were—Dr. Masters, Great Gearies, and Emperor, which is a vigorous variety rich carmine with white nerves.

Messrs. Paul & Son, Cheshunt, were 2nd, having a conspicuous plant in Dark Beauty, very dark red with a green centre. The same firm led for a collection of bulbous plants, with Iris reticulata, Chionodoxa sardensis, Bulbocodium vernum, &c.

In the classes for Tulips, Lily of the Valley, Hyacinths, and Narcissus, either open or nurserymen's, Messrs. H. Williams & Sons, Fortis Green, Finchley, were 1st, showing fine lots of Narcissi and Tulips. Mr. Douglas followed closely for Narcissi, with a well grown lot.

Hardy Primulas from Mr. J. Douglas gained him another 1st place. Besides P. rosea, P. viscosa, P. cashmiriana, &c., he had a new Auricula named Marcus Aurelius, which is a deep claret self, with a good paste.

Chinese Primulas were shown by Messrs. H. Cannell & Sons, Swanley, Kent, who took 1st; and Messrs. H. Williams & Son, who were 2nd, both having large heavily flowered plants.

Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, had 1st for a collection of hardy herbaceous plants, which consisted of Narcissi, Lilium longiflorum, Primroses, Dielytra spectabilis, Myosotis dissitiflora, &c, a large specimen of Narcissus maximus being conspicuous. Messrs. Paul & Son, Cheshunt, with an interesting collection of Saxifragas, &c., were 2nd.

Forced Roses from Messrs. Paul & Son were excellent, and included some well known favourites, and the Mignonette, Paquerette Roses, too; also Paul's Single White and berberidifolia Hardii. Besides showing these in competition Messrs. Paul had a nice group for exhibition (Large Bronze Medal).

Deutzias were best from Mr. Eason, with Mr. Douglas as a good 2nd.

Miscellaneous.—Messrs. F. Sander & Co., St. Albans, Herts, showed a number of Orchids, in which were Cymbidium Lowianum, Neottia coralina, Cattleya Trianæ splendens, and C. T. ampliata, which is pale rose all over, with a yellow throat; and Odontoglossum Edwardii (Silver Medal).

Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, S.W., had a group of Amaryllis and other plants. The best Amaryllis, viz., Optima, Lustrous, and Mirabella are referred to on p. 361. Other plants were:—Amorphophallus Rivierii, Nepenthes Dicksoniniana, Boronia heterophylla, Rhododendron Princess Beatrice, a warm greenhouse hybrid, with salmon-yellow flowers, the lobes expanding and reflexed; and Dendrobium Schneiderianum, petals and sepals white, with rose tips; lip projecting, white, with rose tip and a large yellow blotch with brown lines at the throat.

Messrs. Barr & Son received a Large Bronze Medal for a group of Narcissi, Hepaticas, Crocuses, &c., in which C. vernus leucorhyncus, blue, with a white tip, was prominent.

Mr. Ware had a Bronze Medal for a large collection of cut Daffodils, &c.

Messrs. W. Paul & Son, Waltham Cross, Herts, were awarded a Large Bronze Medal for twelve boxes of cut Camellia blooms in variety.

Bronze Medals were given to the St. George's Nursery Co., Hanwell, W.; to Mr. J. Odell, Hillingdon, for collections of Cyclamen. Mr. Odell had a Cyclamen named striatum, which is red, with a broad band of white or rosy-white right up the centre). To Mr. Scott for a group of Cliveas and hardy Azaleas; to Messrs. J. Carter & Co. for Chinese Primulas.

Mr. T. Jannock, Dersingham, Norfolk, arranged in a tasteful manner pyramids of Lily of the Valley, for which a Large Bronze Medal was awarded. He also had Adiantum c. v. grande, dwarf, with large cuneate pinnæ, undulate at the edge; a similar award being given to Mr. J. James Woodside, Farnham Royal, Slough, for Cinerarias, the best of which were:—Advance, purplish-magenta, very large and broad rays with a white zone and purple disc; Wonder, purple, large white zone and purple disc, medium size; Sybil, clear blue, white zone, blue disc, medium size. He also had Cyclamen Faust, very rich, and bright red.

Messrs. H. Williams & Son sent a large collection of bulbous plants, in which Hyacinths were very fair (Silver Medal); and Messrs. Cutbush & Son, a group of Hyacinths and Tulips, arranged in a bank of moss (Small Silver Medal). A varied collection was shown by Mr. B. S. Williams, Paradise and Victoria Nurseries, Upper Holloway. Cliveas were very fine, and Amaryllis and Primulas were also well shown (Large Silver Medal).

Certificates Awarded.

Floricultural.

To Cinerarias Advance, Wonder, and Sybil, from Mr. J. James.

To Cyclamen Faust, from Mr. J. James.

To Nepenthes Dicksoniana×, from Messrs. J. Veitch & Sons.

To Amaryllises Lustrous, Mirabelle, and Optima, from Messrs. J. Veitch & Sons.

To Rhododendron Princess Beatrice, from Messrs. J. Veitch & Sons.

To Auricula Marcus Aurelius, from Mr. J. Douglas.

To Iris Rosenbachiana, from Messrs. Barr & Son and Mr. Ware.

To Crocus (vernus) leucorhyncus, from Messrs. Barr & Son.

To Amaryllis Dark Beauty, from Messrs. Paul & Son.

To Cyclamen striatum, from Mr. J. Odell.

Botanical.

To Adiantum Capillus-veneris var. grandis, from Mr. T. Jannoch.

To Dendrobium Schneiderianum, from Messrs. J. Veitch & Son.

To Calanthe vestita oculata gigantea, from Messrs. J Veitch & Son.

To Cattleya Trianæ ampliata, from Messrs. F. Sander & Co.

To Angræcum Sanderianum, from Mr. J. Douglas.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending March 18.	Accumulated Temperature. Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1889.	Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1889.	Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Deg-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	1 +	8	23	— 29	+ 62	6 —	59	11.7	9	18
2	4 +	26	16	— 32	+ 47	2 —	46	4.1	12	23
3	2 +	28	17	— 57	+ 6?	3 —	39	3.6	24	22
4	1 —	17	35	— 103	+ 161	3 —	38	3.2	16	21
5	2 +	32	16	— 93	+ 114	4 -	35	4.8	26	20
6	1 —	22	21	— 103	+ 118	3 —	37	4.3	21	19
7	1 ·	26	4	— 224	+ 19	5 —	48	9.2	19	23
8	1 +	20	8	— 61	+ 35	4 —	41	4.8	16	21
9	1 +	30	10	— 90	+ 102	6 —	40	8.1	22	24
10	4 +	30	0	— 22	+ 6	4 —	55	7.0	9	19
11	4 +	37	0	— 30	+ 21	4 —	47	7.9	20	27
12	0 av.	27	6	— 43	— 4	5 —	49	6.1	40	31

The districts indicated by number in the first column are the following :—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending March 18, is furnished from the Meteorological Office :—

"The *weather* has been very cloudy or dull in nearly all parts of the kingdom. Slight falls of rain have occurred in the west and north, but in most of the English districts the condition has been dry.

"The *temperature* has continued rather below the mean in 'England, E.,' and 'England, S.,' and has about equalled the normal in the 'Channel Islands,' but in all other districts it has been above; in Ireland and the east and west of Scotland an excess of 4° is shown. The highest of the maxima were generally recorded on the 13th, when they ranged from 53° to 59° over Great Britain, and 57° to 59° in Ireland. The lowest of the minima, which were registered on the 16th over our south-eastern counties and on various dates elsewhere, ranged from 24° in 'England, S.,' to 35° in 'Scotland, W.,' and 'Ireland, N.' A thermometer exposed on the grass at Ingatestone fell to 10° during the early morning of the 16th.

"The *rainfall* has been less than the mean in all districts; over England the fall has been very slight.

"*Bright sunshine* has been much less prevalent than it was last week, the percentage of the possible amount of duration having ranged from 9 to 19 in Scotland, from 9 to 20 in Ireland, and from 16 to 26 in England. In the 'Channel Islands,' however, the percentage was 40."

MARKETS.

COVENT GARDEN, March 21.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. Ed.]

Market quiet; no alteration. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, half-sieve...	2 0– 4 0	Lemons, per case ...	12 0–21 0
—Canada and Nova Scotia, per barrel	7 0– 17 0	Pine-apples, Eng., lb.	1 6– 2 0
Grapes, per lb. ...	1 6– 4 6	—St. Michael. each	2 0– 8 0
		Strawberries, per lb.	8 0–12 0

Vegetables.—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Asparagus, English, per 100 ...	...12 0– ...	Mustard and Cress, punnet	0 4– ...
— French, bundle	21 0– ...	Onions, per bunch ...	0 5– ...
Beans, Jersey French, per lb.	3 6– ...	Parsley, per lb. ...	1 0– ...
Beet, red, per dozen	1 0– 2 0	Peas, French, per lb.	1 0– ...
Carrots, per bunch...	0 6– ...	Potatos, per cwt. ...	4 0– 5 0
Cauliflowers, each ...	0 3– ...	— kidney, per cwt.	4 0– 5 0
Celery, per bundle ...	1 6– 2 0	— new French, lb.	0 6– ...
Cucumbers, each ...	1 0– ...	Rhubarb, bundle ...	0 6– ...
Endive, per dozen ...	3 0– ...	Sealkale, punnet ...	2 6– ...
Green Mint, bunch...	1 0– ...	Shallots, per lb. ...	0 6– ...
Herbs, per bunch ...	0 6– ...	Spinach, per bushel...	5 0– ...
Leeks, per bunch ...	0 4– ...	Tomatos, per lb. ...	2 0– ...
Lettuce, per dozen ...	1 6– ...	Turnips, per bunch, new	0 5– ...
Mushrooms, punnet	1 6– ...		

Potatos.—Beauty of Hebron, 70*s.* to 100*s.*; Imperators, 75*s.*; Magnum Bonums, 130*s.*; and Dunbar Regents, 120*s.* per ton.

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Foliage plants, various, each	2 0–10 0
Arum Lilies, p. doz.	9 0–15 0	Ficus elastica, each .	1 6– 7 0
Azaleas, dozen ...24	0–42 0	Genista, dozen ...	8 0–12 0
Cineraria, per dozen	8 0–12 0	Hyacinths, dozen ...	6 0– 9 0
Cyperus, per dozen .	4 0–12 0	Lily-of-Val., doz. pts.	10 0–18 0
Dracæna terminalis, per dozen 30	0–60 0	Marguerites, doz. ...	6 0–12 0
— viridis, per doz.	12 0–24 0	Palms in var., each	2 6–21 0
Erica, various, doz.	12 0–30 0	Pelargoniums, scarlet, per dozen ...	6 0– 9 0
Euonymus, in var., per dozen	6 0–18 0	Primulas, per dozen	4 0– 6 0
Evergreens, in var., per dozen	6 0–24 0	Solanums, dozen ...	6 0–12 0
Ferns, in var., doz.	4 0–18 0	Tulips, dozen pots ...	6 0– 9 0

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutillons, 12 bun....	3 0– 6 0	Narcis., paper-white, (French), 12 bun...	2 0– 6 0
Anemone, Fr., 12 bun.	2 0– 6 0	— double, 12 bun...	1 6– 3 0
Arum Lilies, 12 blooms	3 0– 6 0	Pelargoniums, 12 spr.	1 0– 1 6
Azaleas, 12 sprays ...	0 6– 1 0	— scarlet, 12 spr....	0 6– 0 9
Bouvardias, per bun.	0 9– 1 0	Primroses, 12 bun....	1 0– 1 6
Camellias, white, 12 blooms	2 0– 4 0	Primulas, dbl., 12 sp.	1 0– 1 6
— red, 12 blooms ...	0 9– 2 0	Roses, Tea, per doz.	2 0– 6 0
Carnations, 12 blms.	2 0– 3 0	— coloured, dozen.	2 0– 4 0
Daffodils, dbl. 12 bun.	4 0– 9 0	— red, per dozen ...	6 0– 9 0
— single, 12 bun....	6 0–12 0	— Safrano, dozen...	2 0– 4 0
— French, 12 bun.	2 6– 4 0	— do., (Fr.), doz....	1 0– 3 0
Eucharis, per dozen	3 0– 6 0	Snowdrops, 12 bun...	1 0– 3 0
Gardenias, 12 blooms	9 0–15 0	Tuberoses, 12 blms....	2 0– 4 0
Heliotropes, 12 spr.	0 6– 1 0	Tulips, 12 blooms ...	0 8– 1 0
Lilac, white Fr., bun.	4 0– 6 0	Violets, 12 bunches...	1 0– 1 6
— lilac-coloured, p. bunch	3 0– 5 0	— dark, Fr., bunch	1 0– 2 0
Lily-of-Val., 12 spr.	0 6– 1 0	— Parme, Fr., bun.	2 6– 3 6
Marguerites, 12 bun.	3 0– 6 0	Wallflowers, 12 bun.	4 0– 6 0
Mignonette, 12 bun.	2 0– 4 0	— French, 12 bun.	1 0– 2 0

SEEDS.

London: *March 20.*—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report more doing. The Canadian Clover seed, previously noted as exceedingly good and cheap, meets with increasing favour; white unchanged, Trefoil steady and scarce. Rye-grass is slow; Alsike from Ontario, being now exceedingly moderate in price, and of choice quality, is inquired for. Winter Tares are cheaper, foreign spring firm. Peas improving; bird seeds continue temptingly low; Haricots still neglected; Linseed hardening.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending March 16 :—Wheat, 30*s.* 2*d.*; Barley, 25*s.* 10*d.*; Oats, 17*s.* 2*d.* For the corresponding week in 1888 :—Wheat, 30*s.* 6*d.*; Barley, 30*s.* 3*d.*; Oats, 15*s.* 8*d.*

FRUIT AND VEGETABLES.

Spitalfields, *March 20.*—Savoys, 3*s.* to 6*s.* per tally; Cauliflowers, 8*d.* to 1*s.* 4*d.* per dozen; Turnip-tops, 1*s.* 9*d.* to 2*s.* 6*d.* per sack; Sprouting Broccoli, 1*s.* 3*d.* to 2*s.* do; Brussels Sprouts, 1*s.* 3*d.* to 1*s.* 6*d.* per half-sieve: Spinach, 1*s.* 6*d.* to 2*s.* per bushel; Parsnips, 9*d.* to 1*s.* per score; Beetroots, 9*d.* to 1*s.* per dozen; Seakale, 1*s.* 3*d.* to 1*s.* 6*d.* per punnet; Greens, 2*s.* to 3*s.* 6*d.* per dozen bunches; Turnips, 1*s.* 6*d.* to 2*s.* do.; Carrots, 1*s.* 9*d.* to 2*s* 6*d.* do.; Radishes, 4*d.* to 9*d.* do.; Parsley, 4*s.* 6*d.* to 5*s.* 6*d.* do.; Rhubarb (forced), 1*s.* 9*d.* to 2*s.* 3*d.* per dozen bundles; do. (natural), 2*s.* to 3*s.* do.; Celery, 12*s.* to 14*s.* do.; English Apples, 3*s.* 6*d.* to 7*s.* per bushel; do., 1*s.* 6*d.* to 3*s.* per half-bushel; American do., 9*s.* to 15*s.* per barrel; Horseradish, 1*s.* to 1*s.* 3*d.* per bundle; English Onions, 6*s.* to 7*s.* per cwt.; Spanish do., 5*s.* 6*d.* to 7*s.* per case; Bordeaux do., 4*s.* 6*d.* to 5*s.* do.; Dutch do., 2*s.* 6*d.* to 3*s.* 9*d.* per bag; Belgian do., 3*s.* to 4*s.* do.; Endive, 1*s.* to 1*s.* 6*d.* per dozen; Carrots, 20*s.* to 26*s.* per ton; Mangels, 16*s.* 6*d.* to 19*s.* do.

Stratford: *March 19*—Supply has been good during the past week, and with a fair attendnace of buyers a brisk trade was done at the following prices :—Cabbages, 2*s.* to 3*s.* per tally; Savoys, 2*s.* to 3*s.* do.; Turnips, 25*s.* to 35*s.* per ton; Carrots, household, 24*s.* to 32*s.* do.; do., cattle feeding, 15*s.* to 18*s.* do.; Parsnips, 40*s.* to 55*s.* do.; Mangels, 12*s.* to 17*s.* do.; Swedes, 11*s.* to 16*s.* do.; Onions, English, 120*s.* to 140*s.* do.; do., Dutch, 3*s.* 6*d.* to 4*s.* 6*d.* per bag; do., Bordeaux, 4*s.* to 5*s.* per case; Apples, English, 3*s.* 6*d.* to 6*s.* 6*d.* per bushel; Watercress, 6*d.* per dozen; Rhubarb, 1*s.* 6*d.* to 2*s.* per dozen bundles; Carrots, 2*s.* to 2*s.* 6*d.* do.; Celery, 6*d.* to 1*s.* per roll; Radishes, 6*d.* to 9*d.* per dozen bunches; Cress, 2*s.* per dozen baskets.

POTATOS.

Borough and Spitalfields: *March 19.*—A good demand prevails for best qualities, but the trade continues very dull for inferior. Scotch Regents, 80*s.* to 120*s.*; English, 65*s.* to 100*s.*; Hebrons, 60*s.* to 100*s.*; Magnum Bonums, 65*s.* to 100*s.*; Dunbar, 100*s.* to 120*s.*; other varieties, 60*s.* to 80*s.* per ton.

Spitalfields: *March 20.*—Quotations :—Champions, 55*s.* to 65*s.*; Imperators, 65*s.* to 80*s.*; Regents, 70*s.* to 110*s.*; Hebrons, 60*s.* to 70*s.*; Magnums, 50*s.* to 80*s.*; Scotch do., 70*s.* to 100*s.* per ton.

Stratford: *March 19.*—Quotations: — Scotch Regents, 80*s.* to 105*s.*; do., Magnums, 70*s.* to 110*s.*; English Magnums, 60*s.* to 80*s.*; do. Regents, 65*s.* to 80*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the principal metropolitan markets during the past week :—Clover, old prime, 126*s.* to 144*s.*; do., best second, 80*s.* to 120*s.*; do., inferior, 36*s.* to 70*s.*; prime old Hay, 108*s.* to 126*s.*; new, 90*s.* to 105*s.*; inferior, 50*s.* to 70*s.*; old straw, 42*s.* to 48*s.*; new, 24*s.* to 40*s* per load.

NOTICES TO CORRESPONDENTS.

Intelligent Readers, *do please Note that letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the* Publisher, and not to the Editor, but that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

A Noble Slug: *C. N.* A finely marked form of Limax maximus. How magnanimous you are to send it with its dinner. How different from the cruelty practised by another correspondent, who sent his enemy alive with a pin stuck through it!

Ants in Plant-tub: *L. D.* There will be no harm done to the Lemon tree by your sprinkling quite

a small quantity of carbolic acid in the inlet to the ants' nest. The same substance placed on a piece of paper on the soil, and encircling the stem of the tree, would prevent the ants climbing into the head.

Beds of Shrubs in Flower Parterre: *D. C.* What is planted should be slow-growing, or naturally dwarf in mature age. Small specimens of gold, silver, and green Hollies; Retinosporas in variety; green and variegated Box; Irish Yews; Japanese Euonymus in green and variegated leaved varieties; Skimmia japonica, and Eurya latifolia. These plants should be put at a distance apart sufficiently wide that the contour of each plant is well within view from any point; and they look best when tall and short are intermingled, still with a certain gradation being observed from the middle of the group to the outside. Transplanting is necessary in good soil every fourth year, generally speaking. Another method: — Plant with Berberis in variety, which may include B. aquifolium, B. dulcis (B. buxifolia), B. stenophylla, B. aristata; B. nepalensis will do out in Ireland, and should be included. On the outside of the beds dwarf growers like B. Darwini, B. empetrifolia, and B. nervosa might be planted. Pyrus japonica makes a showy mass, and when clipped with the shears when the plants have reached the desired height it flowers very profusely. Tall species of Heath are effective when planted in masses, but these plants grow very slowly. If an evergreen plant is wanted, which may be clipped, and thus kept at any desired height, the Phillyreas are very suitable—better, in fact, than Yew, the foliage being shining and pleasing, instead of sombre, and the plant grows as slowly as the Yew. Garrya elliptica would do, as would small and large leaved Myrtles, and Fuchsia Riccartoni.

Books: *X. Y.* Messrs. Carter & Co., seed merchants, High Holborn, London, publish a cheap cultural work called *The Practical Gardener*.

Cœlogyne cristata with Forty Flower-spikes: *G. M.* A very fine plant indeed; but we decline, with thanks, your proposal that it should be figured in our columns. It is a pleasure for us to know that you have been a subscriber to the *Gardeners' Chronicle* for so long a time; nevertheless that fact does not constrain us to figure the plant, although it shows that information and profit have been derived by you from our pages.

Grafting Wax, to Use Warm: *T. T.* A tin pot with a night-light underneath to keep the wax warm and plastic when being used, is first wanted. The wax is made as follows:—First melt together resin, 2 lb. 12 oz.; Burgundy pitch, 1 lb. 11 oz.; at the same time melt suet, 9 oz. Pour the suet, when melted, into the first mixture, stirring it well while doing so, then add 18 oz. red-ochre, dropping it in gradually. It may be put on to the grafts with a piece of rag or a brush.

Grape Duke of Buccleuch: *A. E. G.* Under its title the variety has been mentioned since the year 1878 in our pages, as follows:—Vol. x., 1878, pp. 89, 154, 280, 314, 346, and 399; vol. xvii., 1882, p. 149; vol. ii., 3rd series, 1887, in "Grapes at Clovenfords," p. 377; vol. iii., 3rd series, 1888, p. 807; and in many other volumes under a variety of headings. The Grape, a Sweetwater, has a white round berry, and it is well suited for early use.

"Illustrationes Floræ Atlantica:" *G. M.* We believe the publisher is M. Gustav Masson, but no publisher's name appears on the cover.

Maréchal Niel Rose.—The "cancerous" growth is partly due to unsuitability of stock and scion, resulting in a tumour or overgrowth, which has been injured by frost, and perhaps by fungus.

Names of Plants: *C. B.* 1, Polypodium vulgare; 2, Pimelea decussata; 3, Sedum carneum variegatum; 4, Henfreya scandens; 5, Begonia Ingrami; 6, Eupatorium riparium.—*P. D.* You must send good specimens when in flower; 5 and 6, Panicum variegatum and its variety zebrina.—*O. Cain.* Bryophyllum calycinum.—*C. C.* Lockhartia lunifera (S. America). Grow in the Cattleya-house in a small basket, or, if strong, in a pot.—*F. Bennett.* 1, Cymbidium chloranthum; 2, Cissus discolor.

Narcissus triandrus: *C. W. D.* A Puccinia, most most probably P. liliacearum. Please send further specimens later on. The sulphate of copper in this case is, we fear, useless.

Orchid Spot: *N. B.* It is the work of a fungus, for which we can at present not name any remedy.

Palm Leaf Diseased: *X.* Probably the immature state of some fungus.

Paradise Apple: *C. B. G.* In 1552 the naturalist Tragus asserted on the authority of the Latin poets (although what they could have known of the matter is not clear) that the Apple which Adam and Eve ate with so much gusto was this variety, which was afterwards called the Paradise Apple. We decline to be responsible for the correctness of these statements.

Stephanotis floribunda Bought at a Sale: *W. W.* If the soil was much disturbed, repot the plant, removing all loose and impoverished soil, replacing it with sandy peat, loam, and leaf-mould; and let the drainage be good, but not excessive. Cut back the longer branches somewhat, and place the plant in a warm house, where the temperature at night is about 65°, coiling the shoots for the present round a few stakes. Shade slightly from the sun when it is very bright, and syringe the plant two or three times a day. Water thoroughly after the repotting, and be careful not to over-water afterwards. If bottom-heat of 80°—85° can be afforded it, the plant can hardly fail to recover from its removal.

Strawberry Plants: *Gardener.* The soil appears to be suitable, but the plants show indications of their roots having been in contact with deleterious substances. It may be the soot, which was used too liberally in the soil, or in the water supplied to them. If the soil be from a pasture, and the top spit, it is not likely to contain, as you suppose, an injurious quantity of iron in its composition.

Summer Shading.—Mr. Masterson, Weston House Gardens, Shipston-on-Stour, writes to recommend the use of a particular shading, easily applied, and as easily removed, but as his communication is of the nature of an advertisement, we cannot say more about it in this place.

The Orange Tree: *R. E. Thomas.* First introduced at Beddington, in Surrey, by the Carew family before 1595. The Orange came here from Italy—probably.

Vines: *W. Walker.* There are several points in your management of the Vines that would account for your failure. Does it not occur to you that a dressing of cow-dung 6 inches thick, laid all over the border, is rather too much of a good thing? No plant has roots which could manipulate such a quantity of crude stuff, and there is no garden plant that needs it. The hotbed 18 inches thick, which overlies the border which is outside, may have been too warm for the roots; and then to give front ventilation as well as top is a dangerous proceeding for Vines in bloom in March. The roots are probably in a bad state, but you can hardly do anything with them till the autumn. The aërial roots on the canes are a proof that the moisture in the house is in excess of the needs of the Vines. We think you cannot do better than call in some good gardener and ask for his advice in the matter.

CATALOGUES RECEIVED.

Little & Ballantyne, Carlisle—Farm Seeds.
John Perkins & Son, 52, Market Square, Northampton—Agricultural Seeds.
John Jardine, Jun., 4, Gilmour Street, Kilmarnock—Florists' Flowers and Bedding Plants.
Charles Sharpe & Co., Sleaford, Lincolnshire—Farm Seeds and Corn.

Communications Received.—T. W. G.—F. J. H.—T. S.—H. M. T.—R. D. F., Sydney (received).—C. Woolford.—W. T. T. D.—Dr. Beck, Vienna.—W. T. Tarvit.—J. B.—J. T.—W. G. S.—Baron von Mueller, Melbourne.—J. M.—Epping Forest.—Vivrand Morel, Lyon.—S. A. B.—Protheroe & Morris.—C. N.—F. R., Pendell Court (with many thanks).—J. R.—H. M. W.—T. W. G. (in progress).—C. W. D.—G. & P. B.—N. B.—G. M.—Uxbridge.—W. H.—E. M.—W. B.—A. D.—H. M. W.—J. J. W.—J.—W. H., Herrnhut. J. R.—Editor of *Horticultural Times*.

Enquiries.

"*He that questioneth much shall learn much.*"—Bacon.

Old Orange Trees. — Will any of our correspondents furnish the following information?—Where is the oldest Orange tree to be found, and what is its age? What is the age of the Orange trees at Hampton Court Palace?

PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.
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ANT. ROOZEN and SONS' Special Spring CATALOGUE of the above for 1889, containing all the new Varieties, is now ready, and will, as usual, be sent post-free, on application to themselves or their Agents, Messrs. MERTENS & CO., 3, Cross Lane, St. Mary-at-Hill, London, E.C.

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VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6s. per 100; 12 choice named varieties, 8s. per 100.
LOBELIA, Bluestone, pumila magnifica, Brighton Blue, 3s. per 100.
CALCEOLARIA, Golden Gem, 6s. per 100; Camden Hero, fine dark, 10s. per 100.
HELIOTROPE, Jaun d'Amour, Miss Nightingale, 6s. per 100.
AGERATUM, Imperial Dwarf, blue, 5s. per 100.
COLEUS VERSCHAFFELTI, bedding crimson, 8s. per 100.
IRESINE LINDENII, dark crimson, good bedder, 8s. per 100.
PELARGONIUM, Vesuvius, finest bedding scarlet, 8s. per 100; Master Christine, Mrs. Levers, Jenny Dodds, best pinks, 12s. per 100; Henri Jacoby, best crimson, 12s. per 100; Madame Vaucher, Niphetos, white, 12s. per 100; Queen of the Belgians, finest white, 3s. per doz., 20s. per 100; Waltham Seedling, Lucius, Jean Sisley, White Vesuvius, John Gibbons, 12s. per 100.
SILVER VARIEGATED, May Queen (Turner's), Princess Alexandra, Flower of Spring, Little Trot, Prince Silverwings, Lady Plymouth. 12s. per 100.
GOLD-LEAF, Crystal Palace Gem, Happy Thought, 12s. per 100.
BRONZE, McMahon, Black Douglas, The Czar, best bedders, 15s. per 100.
TRICOLOR, Mrs. Pollock, 15s. per 100; Sophia Dumaresque, Lady Cullum, Sir R. Napier, 18s. per 100.
DOUBLES, F. V. Raspail, finest scarlet; Madame Thibaut, pink; Madame Baltet, Le Cygne, white, 12s. per 100.
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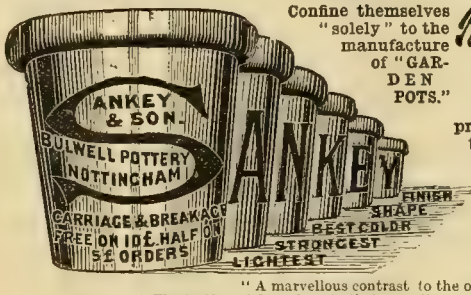
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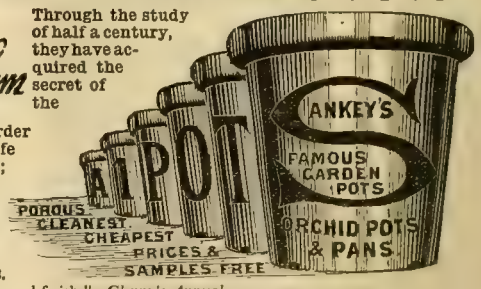
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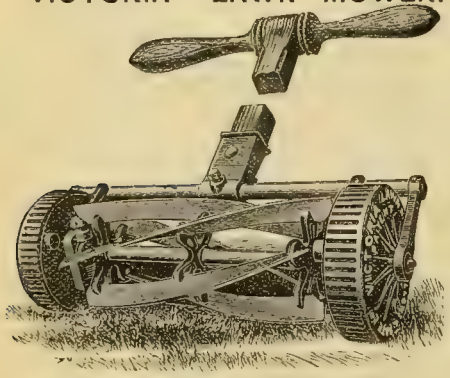
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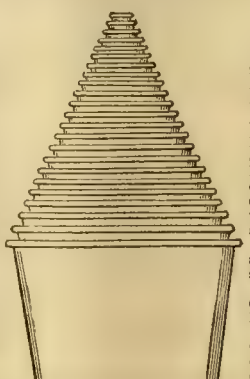
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It is not a chemical manure.
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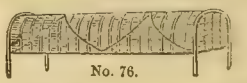
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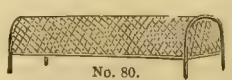
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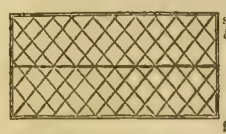

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Two end pieces included with each dozen.


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For training Peas instead of sticks. Training plants to walls, &c. IN PANELS.

6 feet by 3 feet	... 2*s.* each.
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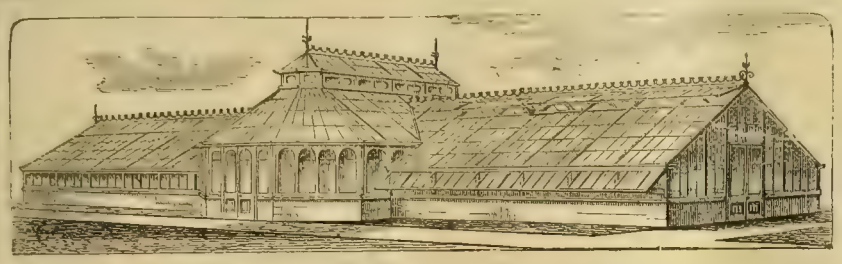
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Harmless to the most tender foliage.
Easily used and low in price.

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Established Over 20 Years.

Exceeds all others in general fertilising properties and staying powers.

It promotes a rapid, healthy, and robust growth to plants generally.

It is a clean and dry powder, with very little smell.

It is consequently particularly adaptable for ladies interested in plant culture.

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Quality, THE BEST in the Market. (All sacks included.)

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Tins.	7lb.	14lb.	28lb.	56lb.	1 cwt.
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EASILY USED. GIVES SPLENDID RESULTS.

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A CURE AT LAST FOR THIS DREADFUL PEST.

This assertion will probably be doubted, but if living mites are examined under a powerful microscope, and a drop of solution is applied, it will be seen that death is instantaneous, and if the solution is let down according to the directions, it kills in from 5 to 10 minutes. It may be objected that when unhealthy Eucharis are watered with the solution, it cannot touch the mites between the scales. Practice, however, has proved that it does; and the most unhealthy Eucharis, treated according to the directions, and grown with ordinary cultural care, become healthy in a short time, as a trial will convince.

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The Best and Cheapest Fuel for Greenhouse Boilers,
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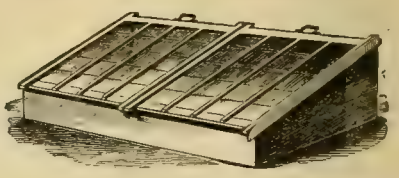
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4	" "	16 "	by 6 "		5 10 0
5	" "	20 "	by 6 "		6 15 0
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BEST QUALITY ONLY.

Pit Lights, 6 ft. × 4 ft. × 2 in. thick, with either 3 or 4 bars for 8 in. or 10 in. glass, 4*s*. 9*d*. each; or, by the 100, 4*s*. 6*d*. each.
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All other materials at equally low prices.
Free on Rail. Cash with Order. Send for Quotations.

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STOCK SIZES	
Inches.	Inches.
14×12	20×15
16×12	20×16
18×12	22×16
20×12	24×16
16×14	20×18
18×14	22×18
20×14	24×18

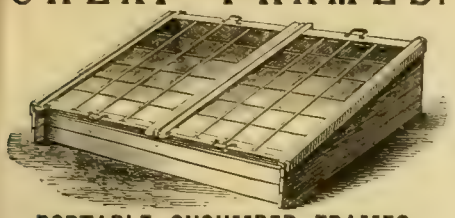
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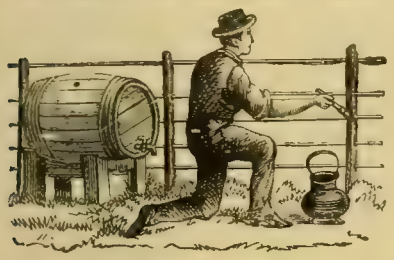
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2-light frame, 8 ft. by 6 ft.		3	2	6
3-light frame, 12 ft. by 6 ft.		4	15	0
6-light frame, 24 ft. by 6 ft.		8	10	0

Larger sizes at proportionate prices.

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BLACK VARNISH
for Preserving Ironwork, Wood, or Stone.



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Price 1s. 6d. per gallon at the manufactory, or carriage-paid to any railway station, 1s. 8d. per gallon in casks of 36, 20, or 10 gallons.

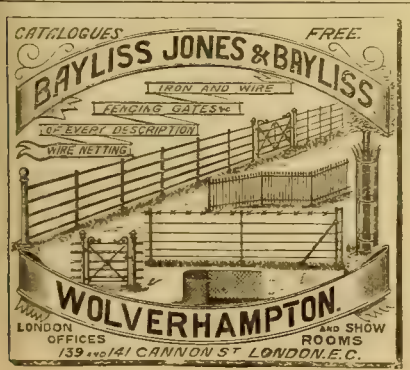
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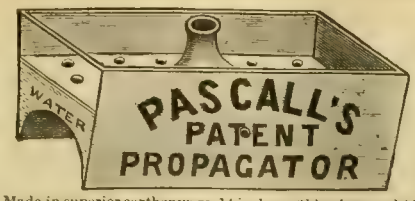
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WANTED, a FOREMAN Cucumber Grower. Permanent to a useful man.—H. DICKINSON, Shardlow, near Derby.

WANTED, a MAN, to take a leading part where Grapes are grown extensively. Must be well up in Plants and Cut Flowers for Market, also Wreaths, Crosses, &c. Permanency to suitable man.—State wages, which will be progressive, to E. CRUMP, Ranelagh Gardens, Leamington.

WANTED, a MAN and WIFE (without family), Man to attend to Small Garden and Greenhouse and make himself generally useful. Wife as good Plain Cook. Two in family. House parlour-maid kept.—M., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a young MAN, for Indoors, with a good experience of Market Work, &c.; also of Growing Cucumbers and Tomatos.—Apply, with particulars, to Ch. N., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a young MAN, for Cucumber Growing.—Only those who have been growing for Market need apply.—State age, wages, and reference to FIELD AND ANSTED, Brunswick Gardens, Leamington.

WANTED, IMPROVER, Indoor.—Age about 17; one with experience in Ferns preferred.—St. George's Nursery Company, Hanwell.

WANTED, TWO young MEN, strong and good workmen—one principally for Kitchen Garden; the other for Grounds and to Assist Inside and House Decoration. Must be perfectly sober.—E. BURTON, The Gardens, Ben Rhydding Hydropathic, near Leeds.

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WANTED, several young MEN, accustomed to Potting, Tying, Watering, &c., for Market Nursery; also one used to Budding and Grafting Roses, Clematis, &c.—LADDS' Nursery, Swanley Junction, Kent.

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GARDENING APPOINTMENTS.

Mr. G. COOK, late Gardener at Roughwood, Bucks, has been appointed Gardener to Major SMITH, Elkington Hall, Louth.

Mr. W. POTTLE has been appointed Gardener to J. H. G. NEWTON, Esq., Barrells, Henley-in-Arden, Warwickshire.

Mr. JAMES JEFFREY, late Gardener to W. T. CRAWSHAY, Esq., at Cyfarthfa Castle, Merthyr Tydvil, has been transferred to Mr. CRAWSHAY'S residence at Caversham Park, Reading.

Mr. JAMES OSWALD, late Gardener at Hoddam Castle, Dumfriesshire, has been appointed as Head Gardener at Cyfarthfa Castle.

Mr. JOHN MARTIN, late "The Dell Gardens," Englefield Green, as Head Gardener to P. SAILLARD, Esq., Buchan Hill, Crawley, Sussex.

WANT PLACES.

Letters addressed "Poste Restante" to initials or to fictitious names are not forwarded, but are at once returned to the writers.

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GARDENER (HEAD), where two or more are kept.—Married; thirteen years' experience. Abstainer. Good references.—JAMES CURLE, 24, Oldfield Road, Stoke Newington, E.

GARDENER (HEAD); age 35.—Should this meet the eye of any Lady or Gentleman who is in want of a thoroughly competent man, they can be accommodated by applying to Mr. R. GILBERT, Burghley Gardens, Stamford.

GARDENER (HEAD); age 33, married, two children.—Mr. C. J. GOLDSMITH, Kelsey Manor Gardens, Beckenham, will be pleased to recommend a thoroughly practical man as above.

GARDENER (HEAD).—R. GRAY, twelve years Head Gardener at Chevening Park, desires re-engagement. Successful Gardener in all branches—Grapes, Roses, Fruit, Flower and Kitchen Gardens. Highest references. —Stratton Terrace, Westerham, Kent.

GARDENER (HEAD).—Age 33, single; thoroughly understands Vines, Peaches, Tomatos, Cucumbers, Melons, Stove and Greenhouse Plants, Flower and Kitchen Garden.—W. G., 3, The Nursery, George Lane, Lewisham, S.E.

GARDENER (HEAD).—A GENTLEMAN who is reducing his Gardening Establishment wishes to recommend his Head Gardener. He is thoroughly experienced in all branches of the profession, and has held his present position for ten years.—Address, H. G., Street & Co., 30, Cornhill, E.C.

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GARDENER (HEAD), where two or more are kept.—Age 28, single at present; good experience in Vines, Stove and Greenhouse, Flower and Kitchen Garden. Good references. Two years' good character from present employer.—W. MANSFIELD, The Gardens, Coghurst Hall, Ore, Hastings, Sussex.

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GARDENER (HEAD WORKING); age 28.—W. HOLAH, Redleaf Gardens, Penshurst, Kent, strongly recommends H. Bickerstaff as above, who has been at Redleaf six years; thoroughly understands Orchids, Early and Late Forcing, Kitchen Garden, &c.—Apply as above.

GARDENER (HEAD WORKING), where three or more are kept.—Age 39, married; thoroughly practical. Twenty-five years' experience in good establishments; good references.—J., Williams' Nursery, Upper Holloway, N.

GARDENER (HEAD WORKING); age 32.—The Hon. A. TALBOT can highly recommend his Head Gardener, as well qualified in every way for the above. First-class references.—H. D., Little Gaddesden House, Berkhampstead.

GARDENER (HEAD WORKING).—Married when suited; sixteen years' experience in Vines, Pines, Peaches. Stove and Greenhouse Plants, Flower and Kitchen Gardens. Early and Late Forcing—G. McLeod, 6, Windmill Street, High Road, Chiswick.

GARDENER (HEAD WORKING).—Age 45, married, no family; experienced in Vines, Peaches, Melons, Greenhouse, Orchids, &c. Four and a quarter years in last place, seventeen in previous; good testimonials.—W., Butler's Hill Station, Nottingham.

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GARDENER (HEAD WORKING); age 35, married, no family.—W. H. DIVERS, Head Gardener, for J. T. Hopwood, Esq., Ketton Hall, Stamford, will be pleased to recommend a man to any Nobleman or Gentleman requiring a honest, industrious, and efficient Gardener.—The Harehills, near Leeds, Yorkshire.

GARDENER (HEAD WORKING), where two or three are kept; age 25, single.—A. BARKER, Gardener, Adare Manor, Limerick, will be pleased to recommend, as above, his Foreman (W. Watts). He has been here three and a half years, and is a thoroughly reliable, hard-working man. Abstainer.

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To Noblemen and Gentlemen.

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GARDENER (HEAD, or good SINGLE-HANDED); age 26.—JOHN CHESHER, Gardener to J. M. Heathcote, Esq., Connington, Peterborough, can with confidence recommend H. Knightley, who has been under him four years as Foreman.—H. KNIGHTLEY, Connington, Peterborough.

GARDENER (HEAD, or SINGLE-HANDED).—Age 26; twelve years' experience in all branches. Good character. State particulars.—BRIDGLAND, 7, Milton Road, Walthamstow, Essex.

GARDENER, where one or more are kept.—Age 50; thoroughly practical in all branches. Good Fruit, Vegetable, and Flower Grower, and capable of doing the best with large or small garden; the highest references. Low wages accepted.—WILLIAM GUNN, Mount Road, Braintree.

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GARDENER (SINGLE-HANDED), or where one or two are kept.—Age 28; married when suited. Ten years' practical experience.—GEORGE HARRIS, 9, Bonsall Road, West Derby, Liverpool.

GARDENER (SINGLE-HANDED).—Age 27, single; has had experience Inside and Out. Three years in present situation.—W. C., Bellefields, Englefield Green.

GARDENER (SINGLE-HANDED or otherwise).—Age 29, married, one child. Total abstainer. Fourteen years' experience in Vines, Stove and Greenhouse Plants, Flower and Kitchen Garden. Three and a half years' previous and present character.—R. W., 104, Highgate Road, Kentish Town, N.W.

GARDENER (SECOND, or SINGLE-HANDED).—Age 24; nine years' experience, Inside and Out. Good character.—W. OLDER, 6, Half Moon Lane, Dulwich, London, S.E.

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GARDENER (UNDER); age 23.—A GARDENER wishes to recommend a young man to Work Inside and Out.—H. LAW, 28, Shellon Street, Folkestone, Kent.

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GARDENER (Under).—Age 20; five years' experience, Inside and Out. Good character.—W., 41, Archbishop's Place, Brixton Hill, S.W.

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GARDENER (Under), Inside or Out.—Age 24; five years in present situation. Good character. Bothy preferred.—G. C., Rose Cottage, Cross Street, Farnborough, Hants.

GARDENER (Under), where three or four are kept.—Personal character if desired. Bothy preferred.—JOHN POWELL, 21, Thomas Street, St. John's, Tunbridge Wells.

GARDENER (Under), or PLEASURE-GROUND FOREMAN.—C. J. Goldsmith, Kelsey Manor Gardens, Beckenham, will be pleased to recommend a young man who has lived with him two years.

FOREMAN, in the Houses, in a good establishment.—Age 25; good character.—A. B., The Gardens, Kempsholt Park, near Basingstoke, Hants.

FOREMAN, in a good Private Establishment.—Age 27; well up in all branches. Good references. Two and a half years Foreman in present situation.—E. BELL, The Gardens, Coleshill House, Highworth, Wilts.

FOREMAN.—Age 25; ten years' experience. Over two years excellent character from Mr. Barham, Gardener to Earl of Sefton, Croxteth Hall, Liverpool.—Apply, J. EASTWELL, as above.

FOREMAN, where two or three are kept; age 24.—T. Goldring, The Gardens, Chilgrove, Chichester, can confidently recommend a young man, as above, who has lived with me five and a half years. Table Decoration.

FOREMAN, Indoors, where two or three are kept; age 24.—Mr. Stevens would be pleased to recommend J. Jones as above.—The Gardens, Stanage Park, Brampton Brian, Herefordshire.

FOREMAN; age 25.—G. Yearnsley, Gardener to Sir Henry Bessemer, Denmark Hill, S.E., can with confidence recommend his present Foreman, who has been with him two years, to any Gardener requiring a trustworty man.

FOREMAN.—Age 25; eleven years' experience in good establishments, including nearly two years as Foreman in present place. Excellent references from present and previous employers.—F. CUBBERLEY, The Gardens, Mulgrave Castle, Whitby, Yorks.

To Nurserymen.

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FOREMAN, or SECOND, in a good establishment.—Age 24; eight years' experience, two years in present situation.—C. BEST, The Gardens, Norman Court, Dean, near Salisbury.

To the Trade.

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JOURNEYMAN (First), or as SINGLE-HANDED GARDENER.—Age 24; nine years' experience. Three years' good character from last employer.—W. VISE, Potter's Bar, near Barnet.

JOURNEYMAN (First), in the Houses; age 23.—H. PORTER, The Gardens, Studley Castle, Redditch, can with confidence recommend a trustworthy young man as above.

JOURNEYMAN (First), in the Houses, or Inside and Out.—J. Knight can highly recommend a young man (age 21) as above, and having a thorough taste for Gardening.—The Oaks, near Epsom.

JOURNEYMAN (First), in the Houses.—Age 22; seven years' experience; good character.—A SMITH, Testwood Park Gardens, Totton, Hants, wishes to recommend a young man as above.

JOURNEYMAN, in the Houses or Out.—Age 28, single; nine years' experience. Good references.—A. GORRINGE, Effingham, Leatherhead, Surrey.

JOURNEYMAN, in the Houses.—Can be well recommended by J. Evans, Gardener to Lady Ashburton, Metchet Court, Romsey, Hants.

JOURNEYMAN, in the Houses, in a good establishment.—Age 22; eight years' experience. Good references.—J. E., Hollybank Gardens, Emsworth, Hants.

JOURNEYMAN, in the Houses, in a Gentleman's establishment.—Age 24; highly recommended.—GARDENER, Kempshott Park, Basingstoke, Hants.

JOURNEYMAN, in the Houses.—Age 19; good knowledge of Stove and Greenhouse Plants and Fruit Houses. Good recommendation.—H. DAVIES, Langford Park Gardens, Maldon, Essex.

JOURNEYMAN, Inside; age 21.—J. Trigger, The Gardens, Milton, Peterborough, can highly recommend Samuel Watkins to any Head Gardener requiring an active and industrious young man.

JOURNEYMAN, in the Houses.—Age 21; five years' experience in Plants and Fruit Houses. Good character.—J. GRIFFIN, Bishops Offley, Eccleshall, Staffordshire.

JOURNEYMAN, in the Houses.—Age 22; seven and a half years' experience, four and a half years' last place. Good character.—F. BENGOUGH, Harpton Lodge, Kington, Herefordshire.

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JOURNEYMAN, in the Houses.—Age 22; seven years' experience. Good references from last and previous employers.—W. CHANDLER, 2, Oldfield Road, Wimbledon.

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JOURNEYMAN, in the Houses.—Age 21; abstainer. Five years' character from previous and three from present employer. Knowledge of Vines, Melons, Cucumbers.—J. SHERLOCK, Adhurst Gardens, Petersfield.

JOURNEYMAN, in the Houses; age 19.—Mr. Wallis, Hartwell, Hartfield, Sussex, can highly recommend a honest, respectable, trustworthy, young man, as above.

JOURNEYMAN, Inside and Out, in a good establishment.—Age 22; seven years' experience. Good character. Bothy preferred. Apply, 138, High Street, Putney, S.W.

JOURNEYMAN.—Age 22; experienced in Stove, Orchids, Vines, Cucumbers, Melons, &c. Well recommended; two years in present place.—G. M., 5, Albion Terrace, Child's Hill, Hendon, N.W.

JOURNEYMAN; age 22.—Mr. Jaques (Head Gardener to Baron F. de Rothschild, M.P.) can highly recommend W. Dodwell to any Gardener requiring the services of a good Journeyman. Seven years' experience.—W. DODWELL, Waddesdon, Aylesbury.

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IMPROVER.—A Gentleman wishes to recommend a youth (age 18); has been with him three years. Well accustomed to Glass Work. Abstainer.—S. S., Brookland House, Market Harborough.

IMPROVER, Indoor and Out.—Age 18; three years' experience. Active and willing. Good character and reference.—E. WHITTLE, Langley-Burrell, Chippenham, Wilts.

IMPROVER, in the Houses.—Age 18; over three and a half years in present situation. Can be well recommended by employer.—E. M., The Gardens, South Belmont, Doncaster.

To Head Gardeners.

IMPROVER, Indoors and Out; age 18.—J. Stuart, Gardener, Offington, Worthing, Sussex, would be pleased to recommend a Lad as above; four and a half years' experience. Small Premium offered. Bothy preferred.

TO ORCHID GROWERS, &c.—Mr. E. Bland, Seaber House, Fordham, Soham, can with confidence recommend his late Foreman, F. Hopkinson, where Orchids, Fruit, and Choice Cut Flowers are in request.

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THE GARDENERS' CHRONICLE,
Vol. IV., Third Series, JULY to DEC., 1888.
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WANTED, 100 Black Hamburgh VINES, 1-yr., in pots. Apply with lowest price to E. POND, The Vineries, St. Lawrence, Jersey.

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MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, April 1, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

The Sunbury House Collection of Orchids.

SECOND and REMAINING PORTION, by order of Major Lendy, who is relinquishing their cultivation in consequence of ill-health.

IMPORTANT UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, April 2, 1889, at half past 12 o'Clock precisely, without reserve, the SECOND and REMAINING PORTION of this well-known Collection of ESTABLISHED ORCHIDS, including a large number of fine Cattleyas, in variety; Lælia elegans Warneri, Odontoglossums, including several very strong pieces of Alexandræ, Cattleya Skinneri alba, C. aurea grandiflora, Cymbidium Lowianum, Cypripediums, Maxillaria Sanderiana, Oncidiums, Vandas, and many other ORCHIDS.

On view morning of Sale, and Catalogues had

Tuesday Next.

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MESSRS. PROTHEROE AND MORRIS will include the above VALUABLE PLANT in their SALE on TUESDAY NEXT, April 2.

The Hadley Nursery, Barnet.

NOTICE OF POSTPONEMENT.

MESSRS. PROTHEROE AND MORRIS desire to announce that the above Property, advertised to be offered for Public Auction, on the Premises, on Tuesday Next, April 2, is unavoidably POSTPONED FOR A SHORT TIME.

Auction and Estate Offices, 67 and 68, Cheapside, E.C.

Wednesday Next.

A CHOICE COLLECTION of about 500 FERNS; 500 Named CARNATIONS and PICOTEES from an English Nursery, and other STOVE and GREENHOUSE PLANTS; a great variety of English-grown LILIES and HARDY BULBS; 2000 LILIUM AURATUM from Japan; IRIS, DAHLIAS, TUBEROSES, BEGONIAS, FREESIAS, ANEMONES, GLADIOLUS, Hardy ORCHIDS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, April 3, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.

STANDARD and DWARF ROSES, FRUIT TREES, EVERGREENS; choice CARNATIONS and PICOTEES in pots; CAMELLIAS and AZALEAS from an English Nursery.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on THURSDAY NEXT April 4, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday Next.

The remaining portion of the celebrated COLLECTION of ESTABLISHED ORCHIDS, formed by the late John Southgate, Esq., of Selborne, Streatham Hill, S.W.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executors to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, April 5, at half-past 12 o'Clock precisely, the remaining portion of this well-known collection, including CATTLEYAS, ODONTOGLOSSUMS, ONCIDIUMS, &c., in variety.

On view morning of Sale, and Catalogues had.

Friday Next.

ESTABLISHED and IMPORTED ORCHIDS, including the remaining portion of the well-known Collection of Established Orchids formed by the late John Southgate, Esq., of Streatham.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms 67 and 68, Cheapside, London, E.C., at half-past 12 o'Clock precisely, on FRIDAY NEXT, April 5, direct IMPORTATIONS of ORCHIDS, for Sale without reserve, including 3 cases of Epidendrum bicornutum, in very fine order; 5 cases of Saccolabium coeleste, 2 cases of Aerides mitratum, 2 cases of Vanda Parishii, 2 cases of a new kind of Vanda, Saccolabiums, and Aerides, a quantity of Dendrobiums, Odontoglossums, and Oncidiums. Also about 200 lots of various ESTABLISHED ORCHIDS, including many fine Cypripediums, in flower.

On view morning of Sale, and Catalogues had.

Tuesday, April 9.

UNRESERVED SALE, by order of the Executors of the late Mr. J. H. Bath, of Manor Farm, North Cray.

8000 ESTABLISHED ORCHIDS. Important to the Trade and large buyers.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, April 9, at half-past 12 o'Clock precisely, the first portion of this extensive Collection. The entire Collection comprises about 5000 Odontoglossum Alexandræ, Pescatorei, and triumphans, mostly unflowered; 3000 Cattleyas, Cypripediums, Dendrobium, &c.

On view morning of Sale, and Catalogues had.

Friday, April 12.

IMPORTANT SALE of unusually well-grown ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Messrs W. Thomson & Sons, of Clovenfords, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, APRIL 12, at half-past 12 o'Clock precisely, a magnificent lot of well-grown ESTABLISHED ORCHIDS, in splendid condition. Amongst the plants may be mentioned several especially fine Odontoglossum Pescatorei, many in spike, with 85 flowers; a very fine lot of Cypripedium, including grande, Morganiæ, Schröderæ, Wallisii (true), Measuresianum, Arthurianum, Œnanthum superbum, and others; Cymbidium eburneum, grand specimen; Parishii (true), elegans, Cattleya labiata, autumn flowering; Cœlogyne cristata alba, Lælia anceps Dawsonii and anceps alba, Oncidium macranthum, large plants; Dendrobium Leachianum, Vandas, Odontoglossum crispum, very fine plants; Aërides Lawrenceæ and Sanderianum.

On view morning of Sale and Catalogues had.

Streatham Hill, S.W.

By order of the Executors of the late John Southgate, Esq.

UNRESERVED SALE of the whole of the well-grown STOVE and GREENHOUSE PLANTS, many fit for exhibition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, on the Premises, Selborne, Leigham Court Road, Streatham Hill, S.W., 3 minutes' walk from Streatham Hill Railway Station, on WEDNESDAY, April 17, at 12 o'Clock precisely, in consequence of the large number of lots, the whole of the well-grown STOVE and GREENHOUSE PLANTS, grand specimen Camellias, trained Azaleas, two magnificent Lapagerias (alba and rosea rubrum), a large quantity of Decorative Plants, Palms, Crotons, and Dracænas, a capital collection of Chrysanthemums, a magnificent strain of Herbaceous Calceolarias, Cyclamen, and Cinerarias; also the GARDEN REQUISITES, comprising Garden Seats, Vases, Mowing Machines, Patent Thanatophore Fumigator, and other items.

May be viewed the day prior, and morning of Sale. Catalogues had of Mr. SALTER, the Head Gardener, on the Premises; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Wednesday Next.—(Sale No. 7902.)

A COLLECTION of LILIES, comprising some of the finest varieties in cultivation; Hardy Japanese IRIS, in great variety; also 1000 Standard and Dwarf ROSES, to name, from French and English Growers; Standard, Pyramid, and Dwarf-trained FRUIT TREES, ORNAMENTAL SHRUBS and CONIFERS, STOVE and GREENHOUSE PLANTS, CARNATIONS, PICOTEES, DAHLIAS, and other BORDER PLANTS, CHIONODOXAS, SPIRÆA JAPONICA, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 3, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7903.)

Consignment of ORCHIDS, from Brazil. Received direct.

100 fine pieces of LÆLIA FLAVA, on blocks; 140 CATTLEYA LABIATA, on wood; ONCIDIUM O'BRIENIANUM, O. FORBESI GRANDIFLORUM, SOPHRONITES GRANDIFLORA, WARREA TRICOLOR, STAPELOIDES, LEPTOTES BICOLOR, &c.

Also a fine Lot of ESTABLISHED ORCHIDS, many in Flower and Bud, comprising Vanda suavis, with 22 leaves and 3 spikes; and many other fine things in Flower and Bud.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 4, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7903.)

5000 Grand Bulbs of LILIUM AURATUM, and other LILIES, in extra fine condition, just received from Japan.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 4.

On view morning of Sale, and Catalogues had.

Thursday Next.

ODONTOGLOSSUM CRISPUM, best type.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 4, a grand importation of ODONTOGLOSSUM CRISPUM (best type), just to hand in fine order from Messrs. Shuttleworth, Carder & Co.

On view morning of Sale, and catalogues had.

The Valuable Collection of Orchids formed by H. J. BUCHAN, Esq.

MR. J. C. STEVENS has received instructions from H. J. Buchan, Esq., of Wilton House, Southampton (in consequence of the land having been bought for building), to offer for SALE, without the least Reserve, on WEDNESDAY and THURSDAY, April 10 and 11, at half-past 12 o'Clock precisely each day, his celebrated COLLECTION of ORCHIDS, comprising, amongst other fine things:—

Cypripedium caudatum roseum
,, Sanderianum
,, Spicerianum
,, Druryi
Lælia flava
,, autumnalis Buchanii
,, anceps alba
,, elegans
,, ,, Schilleriana
,, ,, alba
Odontoglossum × Ruckeriana
,, polyxanthum
,, cuspitatum platyglossum
Dendrobium stratiotes
,, Lowii
,, nobile nobilius
Cattleya Schroderii
Epidendrum prismatocarpum
Angræcum sesquipedale
,, Dubuyssonii
Cœlogyne cristata alba
Trichopilia crispa marginata (true)
,, suavis alba
Maxillaria Sanderiana
,, Hubshii
Masdevallia Bull's Blood

Besides all the leading varieties of other things.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SPECIAL SALE of ORCHIDS in FLOWER and BUD, will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 17, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS for this SALE will SEND LISTS AS SOON AS POSSIBLE.

Preliminary Notice.

PHAIUS TUBERCULOSUS, } Two of our grandest
,, HUMBLOTI, } discoveries.

MR. J. C. STEVENS has received instructions from Messrs. F. Sander & Co., St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., shortly, the above two extraordinary ORCHIDS. Collector has just arrived with a splendid consignment at Marseilles, and the plants are expected home in a few days.

Further particulars in next advertisement.

Brantingham Thorpe, near Brough, East Yorkshire.

IMPORTANT SALE of SPECIMEN and ESTABLISHED ORCHIDS, Cabinets of LEPIDOPTEROUS INSECTS, BOOKS on GARDENING, &c., by order of Christopher Sykes, Esq., M.P.

MESSRS. HEPPER AND SONS (of Leeds) are favoured with instructions from Christopher Sykes, Esq., M.P., to SELL by AUCTION, at Brantingham Thorpe, near Brough, East Yorkshire, on WEDNESDAY, April 10, commencing at 12 o'Clock prompt, his Valuable COLLECTION of SPECIMEN and ESTABLISHED ORCHIDS, &c., comprising:—

Odontoglossum crispum, Pescatorei, vexillarium, vexillarium Cobbianum, Lindleyanum, gloriosum, Hallii, triumphans, cirrhosum, Rossi majus, tripudians, roseum, maculatum, Sanderianum, Phalænopsis, pulchellum, grande, &c.

Cattleya Gaskelliana, Mendelii, virginalis, Mossiæ, Trianæ, Percivaliana, chocoensis, gigas imperialis, crispa superba, Warseewiczia delicata, &c.

Dendrobium speciosum, crassinode, cariniferum, Wardianum, pulchellum, &c.

Oncidium unguiculatum, flexuosum, tigrinum, auro-sum, Forbesii, Phalænopsis.

Cypripedium insignis, purpuratum, moniliforme, chrysotoxum, Robelenii, &c.

Lælia autumnalis, atrorubens, albida, Dayana, purpurata, anceps Sanderiana, &c.

Acineta, Acropera, Ada, Angulos, Aërides, Angræcum, Brassia, Burlingtonia, Camarotis, Calanthe, Catasetum, Cœlogne, cristata, Colax, Cheilanthes, Chysis, Cymbidium, Cyrtochilum, Epidendrum, Galeandra, Harpophylium, Lycaste, Masdevallia, Maxillaria, Miltonia, Mormodes, Peristeria, Phaius, Phalænopsis, Pilumna, Pleione, Saccolabium, Sarracenia, Sobralia, Sophronites, Stanhopea, Thunia, Trichosma, Tricophilia, Vanda, Zygopetalum, &c.; also a collection of splendid Nepenthes (Pitcher plants), Anthurium, Æchmea, Aloca-ia, &c.

A Slate Tank containing one of the finest plants in the country of the rare Ouvirandra fenestralis (or Lattice Plant); a number of rare Ferns, &c.

Two Cabinets containing 737 specimens of Lepidopterous Insects. Herbarium of dried plants, about 60 volumes of books on Gardening, and two volumes of Stainton's *Moths and Butterflies*.

The collection is in fine healthy condition, and most of the plants are suitable either for public exhibition or private decoration.

Catalogues will be ready one week before Sale, and may be had of the Auctioneers, East Parade, Leeds, and 12, Piccadilly, Bradford; or of M. R. C. KINGSTON, at Brantingham Thorpe, and the plants may be seen on Monday and Tuesday, April 8 and 9.

For Sale, the Large Conservatory,

240 feet long, 60 feet wide, and 75 feet high, on the south side of the Albert Hall, South Kensington, with glazed span roof adjoining.

MESSRS. HORNE, SON, AND EVERSFIELD are instructed to prepare for SALE by AUCTION, in MAY, the whole of the BUILDINGS in the Grounds formerly occupied by the Royal Horticultural Society at South Kensington, including the magnificent Conservatory, well adapted for a Winter Garden, and suitable for any public Pleasure Grounds, and which may be treated for by Private Contract previous to the Sale.

The valuable PALMS and ORNAMENTAL SHRUBS and PLANTS and out-door effects will be sold on the Premises on APRIL 9.

On view one week previous by Catalogues only, to be obtained of Messrs. HORNE, SON AND EVERSFIELD, 17, Great George Street, and 84, Basinghall Street, E.C.

IMPORTANT SALE of ORCHIDS, Specimen AZALEAS, and other GREENHOUSE and STOVE PLANTS, and GARDEN EFFECTS, on FRIDAY, April 12, 1889 (12 o'Clock), at Westbourne House, Cheltenham, by order of the Executors of John Walker, Esq., deceased.

CATALOGUES post free of the Auctioneer, JOHN G. VILLAR, Cheltenham.

WANTED, a General NURSERY BUSINESS (or Flower and Seed Shop).—Apply, H. R., 43, Chiden Road, Lower Clapton, E.

Yorkshire, West Riding.

On the confines of an important and thriving Market Town.

TO BE SOLD, as a going concern, and at a great sacrifice, to ensure an early Sale, a very Old-established NURSERY and FLORIST'S BUSINESS. The Premises comprise about 5½ Acres of capital Land, held at a very moderate rental and well stocked with useful Stuff. With Foreman's Cottage, Packing Barn, 3-stall Stable and Coach-house, Stone-built Offices and Store room. The Glass Erections comprise 6 useful Greenhouses, efficiently heated with Hot Water, also numerous Cold Frames, mostly covered with movable Glass Lights. Well supplied with Water. The Nursery is situate about 2 miles from the Town, and within 1 mile of a Railway Station. Satisfactory reasons will be given for Disposal. A splendid opportunity for acquiring a Genuine Business on exceedingly reasonable terms. The Vendor will be open to consider any reasonable offer to effect an early Sale.

For further particulars apply to Mr. F. CARTER, Accountant, &c., Nelson Chambers, Cloth Hall Street, Huddersfield.

TO BE DISPOSED OF, FLORIST'S BUSINESS, very cheap.—Shop well fitted; good stock. Old-established; improving neighbourhood. Present business easily doubled. Cause of leaving, husband deceased. Price, all at £100.

Apply, 154, Barking Road, Canning Town, London, E.

To Florists, Gardeners, and Others.

TO BE SOLD, with immediate possession, at Great Sacrifice, Long LEASE of nearly 3 Acres of Land, with Valuable Ranges of Glasshouses, all thoroughly Heated, and ready for immediate work. A chance seldom met with for energetic man. Six miles from Covent Garden.

W. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOR SALE, FLORIST and FRUITERER'S BUSINESS.—For particulars write to HORTO, 60, Gibbon Road, Nunhead, S.E.

SMALL NURSERY and CUT FLOWER BUSINESS, in Northern Suburb (6 miles from King's Cross). No opposition. Good opening for Seeds and Jobbing; suit a beginner. Price low, and immediate possession.

Address X., *Gardeners' Chronicle* Office, 41 Wellington Street, Strand, W.C.

Farnborough, Hants.

TO BE LET, on LEASE, for a term of years, a most desirable walled VEGETABLE and FRUIT GARDEN, of about 2 acres, well stocked with well-trained fruit trees. Contains:—Tank-house with wrought-iron tank and pulsometer engine, with furnace, &c.; tool shed and loft over engine-house, with Rider's Patent Hot Air Engine, with apparatus and tank; Potato and Root-house; 2 Greenhouses, ¼ span, 36 feet by 16 feet, and 26 feet by 12 feet; Potting Sheds; Propagating House, span roof, about 31 feet by 11 feet; Early Peach House, ¼ span, in two divisions, 100 feet by 13 feet, with well-trained trees in full bearing; Melon and Cucumber-house, span roof, in three divisions, 60 feet by 14 feet; a span Vinery, in four divisions, with outside frames on each side, 200 feet by 20 feet; a similar Vinery, 200 feet by 16 feet. The Vines are in full bearing; the glasshouses are of modern construction, iron-framed, with sliding glass, and are supplied with heating apparatus and piping, long open pot and soil shed. This property has singular advantages, being on the high road to Aldershot, about ½ mile from Farnborough Station, L. and S. W. Railway. The whole of the produce has been readily disposed of on the spot, thus saving cost of transport to market and risk of loss. The expanse of glass admits of large increase in the cultivation of fruit and flowers, and more land can be rented if required.

Enquire HILL, SON, AND RICKARDS, 39, Old Broad Street, E.C.

A BIG SALE.

UNDER NOTICE TO QUIT,

FROM ST. JOHN'S COLLEGE, CAMBRIDGE,

AFTER TWENTY-FOUR YEARS' TENANCY.

RENTS REGULARLY PAID.

THE ABOVE ACTION HAVING BEEN TAKEN BY ST. JOHN'S COLLEGE,

CHARLES NOBLE

Has no alternative but to offer the Nursery Stock at Half Price.

Buyers must book to Sunningdale Station, S.W.R.

CHARLES NOBLE, BAGSHOT.

South Shields and Westoe Burial Board.

TENDERS are Invited for Supplying about Ninety Plain IRON TREE PROTECTORS. Particulars may be obtained from the undersigned, to whom Tenders (indorsed "Tender for Tree Protectors") must be delivered by 12 o'Clock, Noon, on FRIDAY, April 5.

The Board does not bind itself to accept the lowest or any Tender. By order,

JAMES R. WHELDON, Clerk to the Board.

74, King Street, South Shields, March 26, 1889.

FORBES' CATALOGUE for 1889 is the largest, best, most reliable and complete ever issued on Florists' Flowers.

It consists of 112 pages of closely-printed matter, with Prices and full descriptions of all the newest and best Pansies, Violas, Phloxes, Pentstemons, Antirrhinums, Hollyhocks, Delphiniums, Pyrethrum, Potentillas, Auriculas, Dahlias, Pelargoniums, Fuchsias, Petunias, Begonias, Perennials, Stove and Greenhouse Plants, Ferns, &c., all of which are made a leading speciality and can consequently be had better than anywhere else.

The CATALOGUE itself is a most useful and convenient reference book on all sections of Florists' Flowers, and it should be in the hands of all, and carefully perused before ordering elsewhere.

Free on application.

JOHN FORBES, Buccleuch Nurseries, Hawick, Scotland.

A. Lietze, Rio de Janeiro, Brazil,

A. LIETZE'S NEW CALADIUMS, ORCHIDS, and PALM SEEDS.

Price LISTS of above Post-free to all applicants from Messrs. ADOLPH v. ESSEN AND CO., 73, Gr. Reichenstr., Hamburg, Germany.

PRIMROSES.—12 distinct varieties of Double Primrose, one flowering-plant of each for 8*s*. The common varieties of Double Lilac, Double White, and Double Yellow, 2*s*. per dozen.

PRIMULAS.—50 distinct varieties of Primula, one flowering-plant of each for 25*s*.

CATALOGUES free on application.

MORRISON BROTHERS, Nurseries, Aberdeen.

S. SHEPPERSON,

Florist and Seedsman,

PROSPECT HOUSE, BELPER, DERBYSHIRE,

Begs to inform the readers of this Paper that he is prepared to execute Orders for the following Plants, all of which are of the very finest strains that money can buy. They have all been grown on the Derbyshire hills, and are hardy and strong. Carriage free. Cash with order. Descriptive LIST 4d., free to customers.

PANSIES A GREAT SPECIALTY.—Five Silver Cups and other Prizes awarded during 1887. Probably the best collection in England. The cream only of the most noted raiser; the latest new sorts; and the winners at all the great shows. Good Plants, correctly named, show or fancy, 12 for 3*s*., 25 for 5*s*. 6*d*., free; also Seed from above, 1*s*. and 2*s*. 6*d*. per packet.

PHLOX (Special Culture).—The cream only; from Downie, Laird & Son, Kelway, Ware, and other first-class growers. Six fine varieties for 2*s*.: 12 for 3*s*., true to name. Strong stools to bloom well, 100 in 50 varieties for 20*s*.

CARNATIONS, PICOTEES, and CLOVES.—Strong layers, to bloom well, finest named varieties, 12 distinct colours for 4*s*.; 25 for 7*s*. 6*d*. Also seed from above, 1*s*. and 2*s*. 6*d*. per packet.

POLYANTHUS and PRIMROSE.—Hybrids, Jack in the Green, Hose in Hose, and other rare and curious forms; splendid, mixed colours, finest strain grown, 12 for 1*s*. 6*d*.; 25, 2*s*. 6*d*.; 100, 9*s*.; all good blooming plants. Also seed from above, 6*d*. and 1*s*. per packet.

DELPHINIUMS, in all the colours found in this deservedly popular class of border plants. Strong plants to bloom well, 6 for 1*s*. 6*d*.; 12, 2*s*. 6*d*. Also seed from above, 6*d*. and 1*s*. per packet.

THE beautiful pure White and Pink MALVA MOSCHATA, one of the best hardy, border plants in cultivation, strong 2-yr. old plants, 12 for 1*s*. 6*d*.; 25, 2*s*. 6*d*.

CANTERBURY BELLS.—Grand new colours and new forms, double and single Telescopes, Cup and Saucer, and other varieties, 12 plants, to bloom well, 1*s*. 6*d*.; 25, 2*s*. 6*d*. Also seed from above, 6*d*. and 1*s*. per packet.

PRIMULA CORTUSOIDES. — A grand spring flower (hardy). Gardening papers say it would be difficult to find a more beautiful plant for the rockery, greenhouse, or window, than this, 4 for 1*s*.; 12, 2*s*.

HOLLYHOCKS.—Double-named varieties, 6 for 2*s*. 6*d*., 12 for 4*s*., free; also seed from above, 1*s*. and 2*s*. 6*d*. per packet.

FANCY PANSIES (Unnamed).—Six for 1*s*., 12 for 1*s*. 9*d*., 25 for 3*s*., 100 for 10*s*.; all different, and first-class sorts.

AQUILEGIA.—Three splendid varieties of this deservedly-popular hardy border plant. Sibirica, double blue, glandulosa (Grigor's), blue sepals, white corolla; and grandiflora, the largest pure white; 1 each, 1*s*; 3 each, 2*s*.; good blooming plants.

HOLLYHOCKS.—Warranted double (Chater's), fine select strain; 12 varieties for 2*s*. 6*d*., 6, 1*s*. 6*d*.

CARNATIONS, PICOTEES, and CLOVES.—Strong plants from finest varieties only, including many new sorts. Will give a mass of bloom; 12 beautiful varieties for 2*s*. 6*d*.; 6, 1*s*. 6*d*.; 100, 15*s*.

POLYANTHUS.—The beautiful pure white Snowdrift; 6 good plants for 1*s*.; 12, 1*s*. 6*d*.; 50, 5*s*.

ARMERIA ALBA.—Fine white, spring flowering plant, suitable for edging, 6 for 1*s*.; 12, 1*s*. 6*d*.

THE NEW DOUBLE SCARLET GEUM.—Hardy, free bloomer, strong 2-yr. old plants, 12 for 1*s*. 6*d*.; 25, 2*s*. 6*d*.

IRIS (rivals of the famed Orchids).—Selections from germanica, sibirica, and palida, three distinct varieties, for 1*s*.; 6 extra, 2*s*.

FOXGLOVES, Gloxinia-flowered.—Dean's grand new, large spotted varieties, very fine, 12 for 1*s*. 6*d*., 6 for 1*s*.; also seed from above, 6*d*. and 1*s*. per packet.

PYRETHRUMS, Double and Single.—One of the best hardy border plants in cultivation, and for cut flowers a gem; 3 varieties, 1*s*.; 6 extra, 2*s*., named.

TOMATOS.—The three best sorts in cultivation, Abundance, Perfection, and Favourite—see Chiswick Great Tomato Trial; 3 plants of each for 1*s*. 6*d*.; 6 each, 2*s*. 6*d*.

PRIMULA CASHMERIANA.—Splendid, hardy, mauve-coloured, spring-flowering plant, 2 for 1*s*.

COLLECTION OF 12 HARDY BORDER PLANTS, distinct and useful for decoration and cutting purposes for 2*s*.

COLLECTION OF 12 VARIETIES OF SHOWY, FREE-FLOWERING, and other WINDOW PLANTS for 2*s*.

STRAWBERRY PLANTS.—Selected Crowns for fruiting this year, Black Prince, British Queen, Pauline, Sabreur, Viscomtes H. de Thury, Duke of Edinburgh, King of the Earlies, The Captain, and other new and extra sorts, 3*s*. per 100.

S. SHEPPERSON, Florist, BELPER.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL,

AT

The "ALBION," Aldersgate Street,

JUNE 13, 1889,

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Donations and Collections already promised or sent towards the Jubilee Collection of 1889:—

	£	s.	d.
LEOPOLD DE ROTHSCHILD, Esq., Chairman ...	105	0	0
The DUKE of WESTMINSTER, K.G., President ...	100	0	0
The DUKE of BEDFORD, K.G.	100	0	0
The EARL of DERBY, K.G.	21	0	0
Baron HENRY SCHRODER, Vice-President ...	105	0	0
Messrs. ROTHSCHILD AND SONS	105	0	0
Lord REVELSTOKE	52	10	0
JAMES McINTOSH, Esq., Vice-President	52	10	0
N. N. SHERWOOD, Esq. (Hurst & Son), Trustee ...	52	10	0
H. B. MILDMAY, Esq., Berkeley Square	52	10	0
HERBERT J. ADAMS, Esq., Vice-President ...	26	5	0
HARRY J. VEITCH, Esq., Treasurer	26	5	0
C. CZARNIKOW, Esq., Effingham Hall, Dorking ...	21	0	0
A. A. SILLEM, Esq., Sydenham	10	10	0
J. F. TIARCK, Esq., Chislehurst	10	10	0
JOHN LEE, Esq., Kensington (Trustee)	10	10	0
THAMES BANK IRON CO., Upper Ground Street	10	10	0
J. H. VEITCH, Esq., Chelsea	10	10	0
ARTHUR J. VEITCH, Esq., Chelsea	10	10	0
THOMAS MANNING, Esq., Chelsea	10	10	0
Mrs. H. J. VEITCH, Redcliff Gardens, S.W. ...	10	10	0
B. S. WILLIAMS, Esq., Upper Holloway, N. ...	10	10	0
Mr. C. W. BUCK, Covent Garden	5	5	0
Mr. E. R. CUTLER, Secretary	10	10	0
Messrs. JOHN LAING AND SON, Forest Hill ...	5	5	0
Messrs. WEBBER AND CO., Covent Garden ...	5	5	0
Mr. A. PLUMMER, Seedsman, Staines	4	4	0
Mr. R. H. ROBINSON, The Gardens, Heversham, Milnthorp	7	7	0
Mr. JOHN CROOK, Gardener, Farnborough ...	8	5	0
Mr. EDWARD MITCHELL, Gr., Bolton Lodge, Leeds	10	10	0
Mr. W. R. HODGES, Gardener, Copley Dene, Highgate	10	10	0
Mr. E. GILBERT, The Gardens, Old Charlton, Kent	1	15	0
Mrs. VINCENT NICHOLL, Red Hill	2	2	0
W. J. BROWN, Esq.	1	1	0
Miss CATTLEY, Clayden, Edenbridge, Kent ...	2	2	0
ROBERT HOGG, Esq., LL.D., Vice-President ...	10	10	0
RICHARD CHRIMES, Esq., Rotherham	21	0	0
Messrs. NUTTING AND SON, Southwark Street ...	10	10	0
Mr. WM. COLLINS, Gr., Chios House, Clapham Park	10	10	0
Mr. WM. WILDSMITH, Heckfield Gardens ...	1	1	0
Messrs. WATKINS AND SIMPSON, Exeter Street ...	5	5	0
Mr. H. E. TILLMAN, Covent Garden	3	3	0
Mr. S. E. KAY, Finchley	2	2	0
Messrs. DICKSON, The Nurseries, Chester	10	10	0
Mr. GEORGE MONRO, Covent Garden	10	10	0
Messrs. BARR AND SON, King Street, Covent Garden	2	2	0
Mr. W. S. JOHNSON, St. Martin's Lane	5	5	0
Mr. J. C. STEVENS, King Street, Covent Garden ...	5	5	0
Messrs. CUTBUSH AND SON, Nurseries, Highgate ...	5	5	0
Mr. J. ROBERTS, The Gardens, Gunnersbury ...	10	10	0
Mr. B. WADDS, Birdsall Gardens, York	1	1	0
Mr. G. WYTHES, Syon Gardens, Brentford	1	1	0
Mr. W. DENNING, Nurseries, Hampton	1	1	0
Mr. J. WALKER, Whitton, Hounslow	2	2	0
Mr. PETER BLAIR, The Gardens, Trentham ...	1	1	0
Messrs. H. AND A. TURNER, Royal Nurseries, Slough	10	10	0
Mr. W. C. LEECH, Albury Gardens, Guildford (annual)...	1	1	0
Miss OSBORN, Streatham	3	3	0
Mr. W. BROWN, Merivale Gardens, Atherstone ...	2	2	0
Mr. THOS. S. WARE, Hale Farm Nurseries, Tottenham	2	2	0
Mr. PEARMAN, Salmon's Garden, Chislehurst ...	10	10	0
Messrs. JACOB WRENCH AND SONS, London Bridge	5	5	0
Messrs. HOWCROFT AND WATKINS, Hart Street, Covent Garden...	5	5	0
Messrs. THOMSON AND SONS, Nurseries, Wimbledon	2	2	0
Mr. H. J. CLAYTON, Grimston Gardens, Tadcaster	1	1	0
Lord CALTHORPE	10	10	0
Messrs. SAYNOR, COOKE AND RIDAL, Sheffield...	1	1	0
Sir JULIAN GOLDSMID, Bart., M.P.	10	10	0
Mr. W. CHAPMAN, Hawk's Yard Gardens, Rugeley	3	10	0
Mr. C. SHEPPARD, Great Glenham Gardens, Saxmundham	0	10	6
Mr. G. H. RICHARDS, Somerley Gardens, Ringwood	0	10	6
Mr. KINDALL, Templeton Gardens, Roehampton	10	10	0
Mr. WILES, Unsted Gardens, Godalming	10	10	0
Messrs. JOHN PARKER AND SON, Nurseries, Northampton	5	5	0
CUTHBERT E. PEEK, Esq., Rousden	10	10	0
WILFRED PEEK, Esq., Rousden	10	10	0
Mr. A. J. LONG, Westwood Gardens, Droitwich...	10	10	0
The Rev. W. WILKS, Shirley Vicarage, Croydon (annual)	1	1	0
Mr. LOUIS VAN HOUTTE, Ghent	2	2	0
Messrs. F. HORSMAN AND CO., Colchester (annual)	1	1	0
Sir TREVOR LAWRENCE, Bart., M.P., Vice-Pres.	21	0	0

CHEALS' DAHLIAS.

CELEBRATED STRAIN OF

SINGLES,

CACTUS, POMPON, and SHOW varieties, &c.

NEW DESCRIPTIVE CATALOGUE,
now ready, containing a beautiful Coloured Plate of new varieties, post-free.

J. CHEAL & SONS,
CRAWLEY.

TEA SCENTED CHINA ROSE, MAY RIVERS.

Report of the Royal Horticultural Society, April, 4, 1888, when a First-class Certificate was awarded :—

"May Rivers is a Tea Rose, with large and deep blossoms, the outer petals creamy white, centre clear lemon-yellow."

Stong plants ready May 1st, 5*s*. each.

THOMAS RIVERS & SON, Sawbridgeworth.

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Thoroughly ripened Canes and Trees, to fruit this year.

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Large, beautifully imbricated flowers of the most splendid form and colour :—

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Choicest mixed seed, per packet, 6*d*. and 1*s*.

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Magnificent strain of beautiful double flowers, very highly recommended :—

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A grand strain of large and most beautifully blotched and coloured flowers,
Very choice mixed seed ... per packet, 1*s*. 6*d*. and 2 6

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INVITES AN INSPECTION FROM INTENDING PLANTERS TO

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Having stout straight stems, fine heads, and splendid roots. All have been transplanted within wo years :—

ACACIA BESSONIANA, 12 to 14 feet; A. SEMPERFLORENS, 12 to 14 feet; ACER DASYCARPUM, 12 to 16 feet; A. DASYCARPUM WIERII LACINIATA, 10 to 14 feet; A. NEGUNDO VARIEGATA, Standards, 8 to 10 feet; A. LEOPOLDII, 12 to 14 feet; A. REITENBACHII, 12 to 14 feet; A. SCHWEDLERII, 12 to 16 feet; A. WORLEYII, Standards, 12 to 14 feet. ASH, Mountain, 10 to 14 feet. BEECH, Common, 10 to 12 feet; Purple, Pyramids and Standards, 10 to 16 feet. BIRCH, Silver, 12 to 16 feet. CHESTNUT, Horse, 14 to 16 feet. Double White, 10 to 16 feet; Scarlet, 12 to 16 feet; Spanish, 12 feet. ELMS, English, 10 to 12 feet; Guernsey, 12 feet. LIMES, 12 to 16 and 20 feet; Silver-leaved, 10 to 14 feet. LIQUIDAMBAR, 6 to 10 feet. MAPLE, Norway, 14 to 16 feet. OAK, English, 10 to 14 feet; Scarlet American, 12 to 14 feet; PLANES, 12 to 16 feet. POPLAR BOLLEANA, 10 to 16 feet; P. CANADENSIS NOVA (the true variety), 12 to 16 feet; SYCAMORE, Common, 14 to 16 feet; Purple, 14 to 16 feet. THORNS, Double Scarlet, 8 to 10 feet; White, 8 to 10 feet. WALNUTS, Common, 10 to 12 feet.

Weeping Trees.

BEECH, Weeping, Pyramids and Standards, 8 to 12 feet; Weeping, Purple, Pyramids and Standards, 7 to 12 ft. BIRCH, Young's Weeping, Pyramids and Standards, 8 to 14 ft. ELMS, Weeping, Pyramids and Standards, 7 to 14 feet. LARCH, Weeping, Pyramids, 8 to 10 feet. OAK, Weeping, English, Standards, 10 to 12 feet. POPLAR, Weeping, Pyramids, and Standards, 10 to 12 feet. SOPHORA JAPONICA PENDULA, Standards, 8 to 9 feet.

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DUKE OF ALBANY POTATOS (by some advertised as White Hebrons), 10 tons. The best Early White Round Potato grown. Also White Elephant, Old Ashleaf, Red Bogs, and Dalmahoys, all fresh from Scotland last year. Fidler's Reading Giant, Perfection, and Bountiful—seed direct from raiser; also Mona's Pride and Magnums.

Bushel of each, 45*s*.; peck of each, 15*s*.; free on rail. Send for LIST. 75 tons in all.

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SPECIAL CULTURE OF
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The Glass covers an area of upwards of **300,000** super. feet.

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EARLY WHITE HEBRON.

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Will be glad to send, upon application, Special Offers of their Selected Stocks of

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" TREE PÆONIES, 7 First-class Certificates.
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A. F. BARRON, Hon. Sec.
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PELARGONIUM, Vesuvius, finest bedding scarlet, 8s. per 100; Master Christine, Mrs. Levers, Jenny Dodds, best pinks, 12s. per 100; Henri Jacoby, best crimson, 12s. per 100; Madame Vaucher, Niphetos, white, 12s. per 100; Queen of the Belgians, finest white, 3s. per doz., 20s. per 100; Waltham Seedling, Lucius, Jean Sisley, White Vesuvius, John Gibbons, 12s. per 100.
SILVER VARIEGATED, May Queen (Turner's), Princess Alexandra, Flower of Spring, Little Trot, Prince Silverwings, Lady Plymouth, 12s. per 100.
GOLD-LEAF, Crystal Palace Gem, Happy Thought, 12s. per 100.
BRONZE, McMahon, Black Douglas, The Czar, best bedders, 15s. per 100.
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TOWN CLOSE NURSERIES,

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VEGETABLE & FLOWER SEEDS,

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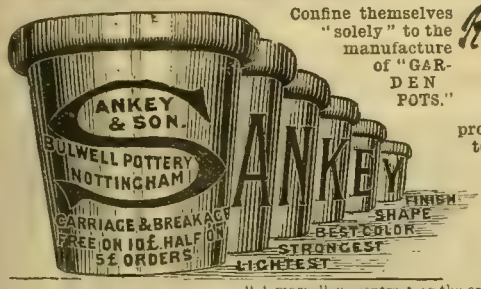
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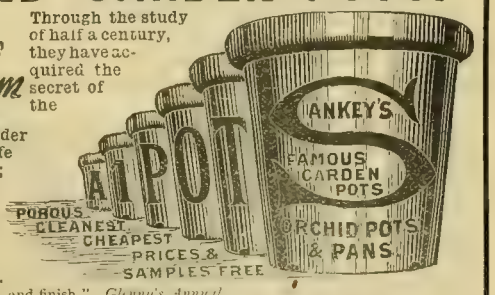


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THE

Gardeners' Chronicle.

SATURDAY, MARCH 30, 1889.

THE TERRACE GARDEN AT WELLESLEY, MASSACHUSETTS.

[See Supplementary Sheet.]

THE Terrace Garden at Wellesley, Massachusetts, which is shown in our Supplementary Sheet, is by far the finest example of an "Italian garden" with clipped trees and hedges that exists in America. Indeed, as far as we know, it is the only important example of this style to be found here. In the year 1851, we may read in Downing's *Landscape Gardening*, Mr. H. H. Hunnewell, of Boston, selected a portion of an old family estate of many hundred acres on the bank of Wellesley Lake, and laid out a country place of some 200 acres, about forty of which were devoted to ornamental grounds in the vicinity of the house. These forty acres consisted of a "flat, sandy, arid plain, which . . . was more or less covered with a tangled growth of dwarf Pitch Pine, Scrub Oak, and Birch, all of which were cut down and ploughed up." The ground was then prepared for planting, a nursery was established, for which the stock was chiefly imported from England, and the place quickly assumed a cultivated aud promising aspect. "The house . . . was then built, having . . . on one side a fine extent of simple and dignified lawn, and on the other a French parterre or architectural garden with fountains, bordered by heavy balustrades, surmounted at intervals by vases, with steps leading through a series of terraces to the lake—a fine sheet of water of about a mile in extent having a peculiarly varied and beautiful outline. From this French parterre stretches off on the right the ornamental or English pleasure-grounds, a part of the same view. . . . From this we pass along the lake to the Italian garden. . . . . To Mr. Hunnewell, we believe, is due the merit of having first attempted to clip our White Pine, and the result shows that it bears the shears quite as well as the Hemlock or Yew; though in this garden are equally successful specimens of clipped Norway Spruces,

*

Balsam Firs, Arbor-vitæ, the English Maple, the Beech, and Scotch Firs. From the Italian garden we cross the avenue into a wood through which winds a walk, planted on either side with a very extensive and satisfactory pinetum, containing all the rarest and newest Conifers and evergreen shrubs, which, with the slightest protection from the winter's sun, seem to thrive exceedingly well. Among other features of this place . . . are various vistas through different avenues planted for this purpose — some of Purple Beech, others of White Pine—all of which will in a few years become very interesting and effective."

It is indeed a wonderful place to have been wholly created in less than forty years, and no stronger evidence of its owner's devotion to it could be cited than the way in which the Italian garden has flourished. Perfect results are absolutely necessary if topiary works are to be anything but ragged and hideous deformities. To fail to produce absolutely symmetrical full and luxuriant forms is to spoil the trees that Nature had designed, and leave nothing but ruins in their stead. But at Wellesley there are no failures and no ruins. A great variety is shown in the formal shapes, as well as in the species of trees selected; but in each case the form has been admirably attained, and the species has been made absolutely docile beneath the shears. It is hard to say which tree gives the best result, clipped thus to a smooth wall of green; but the White Pine, most interesting from its novelty in such a shape, is, perhaps, paramount also in soft delicacy and beauty of surface. This, in its natural estate the most picturesque of our native trees, seems the tenderest and most charming when it assumes the form of a solid mass of foliage.

Admirable results, strange as it may seem, have been obtained by clipping the European Larch, which had not before been used in this way. In early spring the compact masses of pale tender green of this tree are particularly charming. The immediate vicinity of the lake, and the classic shape of the boat-house, give somewhat the illusion of a real Italian scene, and its effect as one comes upon it in the midst of characteristic New England scenery, is very striking. Whether it is an entirely harmonious effect—whether such a garden is a thing to be desired in a rural situation in America—is a question that may be left to individual tastes to decide. Such gardens certainly should not be used everywhere or very often; but those who have seen Mr. Hunnewell's garden must be glad that one exists in this country.

The pinetum, of which so much was expected thirty years ago, has more than fulfilled all that was hoped of it. It is now by far the most interesting collection of Coniferous trees cultivated in America. The sandy subsoil is admirably suited to the growth of these trees, which have flourished wonderfully under Mr. Hunnewell's generous treatment. The collection is interesting on account of the large number of fine specimens which it contains, and more especially for the lessons about trees which it has taught those persons who have been privileged to watch its development. Where trees are concerned a record of failure is not less valuable than one of success.

The collection contains many specimens of great beauty and interest. Some of the finest and the largest specimens of the Douglas Fir, raised from seed collected by Dr. Parry in Colorado, may be seen at Wellesley. There are fine specimens of Abies concolor, Picea polita, Abies Nordmanniana, Picea orientalis, Abies brachyphylla, A. Veitchii, A. cilicica (a tree too rarely seen in our gardens), Picea ajanensis (the P. Alcockiana of most gardens — a tree, by the way, which Mr. Hunnewell considers one of the most promising of all Conifers), Thuia japonica, Pseudolarix, and, indeed, every Conifer which has been found capable of supporting the New England climate. *Garden and Forest.*

[The following letter is from one of our correspondents who visited these gardens last year. Ed.]:—"When in America I called on Mr. H. H. Hunnewell, Wellesley, near Boston, U.S.A. I had heard a great deal about his place, as it is certainly the most interesting of the kind in the United States. Mr. Hunnewell is a very enthusiastic horticulturist, and for some forty years past has done much to encourage horticulture in America. He has a fine collection of Palms, Ferns, Orchids, water plants, &c., and grows fruit under glass remarkably well. The old gardener, Harris, is a Yorkshire man, and has been with him for thirty years, and takes prizes at almost all American shows. He is honest, clever, and hard-working. But the grandest things I saw were the Conifers. The seat lies on the shore of a big lake and I suppose the moisture rising from it, and the soil just suit them. I saw magnificent Picea Menziesii, Blue and White Spruce, Picea polita, Pinus Koraiensis, Abies Douglasii, A. Lowiana (Parsonsi), Retinospora squarrosa, and giant Liquidambar styraciflua. There is also a superb Japanese garden. Mr. Hunnewell has collected for many years past the finest things he could get in Europe, and is decidedly in the forefront of American horticulturists of the present day."

New or Noteworthy Plants.

Cypripedium × Robustius × Sedeni × longifolium, *n. hyb., Windib.*

This was raised by Mr. Horn, the zealous grower of Orchids, for Baron Nathaniel von Rothschild, Hohenwarte, near Vienna. It is Sedeni × longifolium. The green leaf is 2 inches broad by 1½ foot in length. Peduncles very strong, branched, dark brown, hairy. Bracts nearly or quite equal to the dark purple downy ovaries. Upper sepal triangular, purple outside, whitish, bordered and striped with purple inside. Side sepals navicular, inflated, oblong-acute, outside purple with a white part, white with purple margin on the inside. Petals purple, with a white central space on the inside, longer than the upper sepal much narrower, and undulate towards the apex, bent downwards. Lip with two broad involved basilar lobes, with one argute blunt-compressed lobe on each side over the mouth, with a broad, nearly retuse sac, whose border is toothed (!), purple, involved part white with numerous purple spots. Staminode transverso-pandurate, white, with purple freckles, bearded on the outer border.

This is the inverted hybrid of Cypripedium calurum, raised by Mr. Seden, and very well represented in Warner and Williams' *Orchid Album*, vol. iii., pl. 136 (April, 1884). This has the crenations of the mouth of the lip blunt retuse. The staminode is quite distinct. Our new plant has also good affinity with the stately Cypripedium Lemoinierianum, which has the narrow tips of the petals ascending, and the border of the mouth of the sac of the lip entire. It is, no doubt, a very decorative plant. *H. G. Rchb. f.*

Catasetum Darwinianum, *Rolfe, n. sp.*

At p. 473 of the last volume I described, under the name C. fuliginosum, Lindl., a very interesting plant, then flowering in the Kew collection, which produced, on one side of the pseudobulb a raceme of male flowers, and on the other side, a second raceme, of quite different, female ones. The determination was based on a comparison with a dried specimen in Lindley's Herbarium, the female only of the species being known. But on the specimen being dried, for preservation, it looks somewhat different from Lindley's plant, and I think the determination must have been a wrong one, so that I propose to call the plant C. Darwinianum, in recognition of the work of our great naturalist in investigating the phenomena of sexuality in this curious genus. Whence Lindley's plant came is not known, but the plant flowered at Sion House many years ago, and may possibly be the female of some species then cultivated. It probably died out many years ago, and there is no evidence that it ever produced flowers of the other sex. The females of this singular genus are remarkably alike, so much so that no less than three have been confused under the name Monachanthus viridis, as I have pointed out in a recent paper. Comparing the two plants above-named, C. Darwinianum has proportionately narrower segments, a smaller, narrower lip, and the raceme had only three instead of eight flowers, so that it seems as distinct as others already known. The male flowers I fail to identify with anything hitherto described, its nearest affinity being perhaps E. callosum. The plant was introduced by Messrs. Sander, of St. Albans, and is understood to have been obtained in British Guiana, Roraima region, or else nearer the coast. *R. A. Rolfe.*

Cypripedium venusto-Spicerianum ×.

A new variety, the result of crossing C. venustum with the pollen of C. Spicerianum, is now in flower with its raiser, Drewett O. Drewett, Esq., Riding Mill-on-Tyne, and flower and leaf from Mr. Keeling, his grower, exhibits it as a desirable kind. The general appearance and habit is that of C. Spicerianum; leaf greyish-green on the upper side, mottled with purple on the under; bract coloured like the leaf, marked with purple; flower nearly 4 inches across the petals, which latter are yellowish-green, with lines of chocolate dots, the most prominent being the middle line; petals tinged with red on the outer half; upper sepal formed much as in C. venustum; green at the lower half, white on the upper half, a purple band running up the middle nearly to the apex, and purple dots on the green at the base; pouch larger than in C. Spicerianum, dull creamy yellow, veined with green and tinged with purple, the inside beautifully and densely spotted with purple; staminode white, tinged with purple, and veined in the centre with bright green; lower sepals pale greenish-yellow, with green lines, unspotted. In this particular, as well as in others, it differs from a supposed cross of the same parentage, raised by R. H. Measures, Esq., and named C. polystigmaticum, that variety having "the lower sepal white, with a lightish ochre base and with lines of brownish-purple spots." *James O'Brien.*

The Aquarium.

Aponogeton distachyon.

Popularly known as the Cape Pond Weed or Winter Hawthorn. Both of these names are unsuitable, as they convey no idea as to its beauty. In our country it deserves a higher position than that generally assigned to weeds by us. The plant is a very beautiful white flowering perennial aquatic, which is perfectly hardy, and flowers nearly the whole year round, and doubtless would perform the circuit were it not for the frosts which check its attempts. When the weather prevents its flowering outside, a few plants should be taken up and potted, and placed in the aquatic tank, which is never very bright during the winter. A better way is to take up a few plants some time before they are wanted; put them, and put them back into a suitable position, so that they may be taken in when required. An old paraffin-tub, cut into two at about the middle, make suitable receptacles for accommodating the plant; they should be exposed to as much light as possible. When introducing the plant into the bog-garden, or where it is thought desirable to plant it, some means should be arranged for sinking the plant to a suitable depth, such as tying the plant up in a good turfy fibrous piece of loam, or it may be potted, the pot afterwards being broken, and secured by means of a tie or two. It succeeds well in a depth of 2 feet, and will grow in even a greater depth, though not so well.

The scapes are divided into two spikes; along the axis of these the essential organs are arranged, being placed in the axis of white bract. The flowers are deliciously scented, and have been compared to those of the Hawthorn. *W. Harrow.*

Orchid Notes and Gleanings.

Dendrobium Jenkinsii.

This charming little plant is one of the smallest Dendrobiums in cultivation. The length of leaf and pseudobulb combined is only from 2 to 3 inches. The whole plant, with its four-sided pseudobulbs and solitary leathery leaves, might be taken for a small D. aggregratum. The flowers are produced in pairs, on pseudobulbs one or more years old. They are an inch wide and slightly pubescent, with a large and spreading lip, which, like the rest of the flower is of a beautiful soft yellow. The species is fairly abundant in some parts of India, where it grows in large masses on the trunks of trees, but it is not much grown in England, probably because of the large number of showier kinds available. For its size, however, it is very free-flowering, and deserves to be grown where small Orchids are not excluded. Imported prices should be firmly fastened on to blocks of wood or Fern-stem, and suspended in a warm house, giving them the usual Dendrobium treatment.

Cypripedium Schlimii.

As one of the parents of a most useful group of hybrid Cypripediums—of which C. Sedeni is the best known—this species is well known to fame. As a rule, however, it does not succeed by any means so well under cultivation as its offspring do. I have learnt from one who has collected it in a wild state that it grows with its roots immersed in, or very near water, and it is probable that plants at home do not have enough given them. It also fertilizes very freely without artificial aid, and produces seed—a circumstance which is apt to weaken the plant if not prevented; it is therefore advisable to remove the ovaries after the flowers have decayed. Its strap-shaped, pointed leaves are 10 to 15 inches long, and bright green. The flowers are 1½ to 2 inches across with the sepals and petals white, flushed with rose. The pouch of the lip is rounded and also white, with a patch of deep rose surrounding the very small aperture. The flower is enlivened by the bright yellow of the staminode. The species is a native of the New World, being found in New Grenada, Columbia, &c., and therefore belongs to the Selenipedium group. It should be potted in a mixture of fibrous peat and loam, with a sufficient quantity of broken brick to keep the whole porous. To enable the copious waterings to be given without deteriorating the soil perfect drainage is necessary. A healthy specimen is flowering in the cool house at Kew.

Odontoglossum Sanderianum.

A very fine form of this sweetly scented Orchid is now flowering in the Kew collection. Although much superior to the old O. constrictum, it greatly resembles it, and indeed, by Messrs. Veitch, has been reduced to a variety of that species. It flowers with great freedom, and is easily managed under the same treatment as O. crispum. The flowers on the plant under notice are over 3 inches across, with the pointed lance-shaped sepals and petals yellow, blotched with reddish-brown. The lip is white, with one rosy-purple spot on the centre, and has a toothed margin. The fragrance of the flowers has been compared to that of the Hawthorn.

Another similarly scented species is O. gloriosum, also in bloom. This has branching racemes of flowers, with pale yellow sepals and petals, spotted with brownish red. The lip is much smaller, and is of the same colour marked with a single blotch in the centre. Both these species are natives of New Grenada, and deserve to be grown in every cool Orchid-house. *W. B.*

Jamaica Orchids.

Our native Orchids are not so gorgeous as the wonderful Cattleyas, Lælias, Dendrobiums, Vandas, &c., found in other parts of the world, but nevertheless, we have several really pretty species that are well worth growing. It must be borne in mind that the showy Orchids mentioned above are often valued at scores of guineas.

As a rule our native Orchids require little or no cultivation; if fastened on a Calabash, Mango, or Ginep tree, and given a little water occasionally during dry weather till they throw out fresh roots, and take hold of the tree to which they are fastened, little more is required. Those that may be treated in this way are:—Epidendrum fragrans, with its sweet-scented flowers; E. cochleatum, E. polybulbum, Broughtonia sanguinea, with blood-red flowers; Oncidium luridum, O. tetrapetalum, O. triquetrum, Schomburgkia Lyonsii, Brassavola cordata, Aeranthus funalis, Ionopsis utricularioides, a charming, profuse-flowering species; Brassia maculata, B. caudata, Pleurothallis longissima, &c.

Species that grow in the woods at 4000 to 5000 feet elevation should be kept in cool, shady places, and the atmosphere should be kept moist. Those requiring this treatment are:—Oncidium pulchellum, without a doubt one of the most beautiful little Orchids known; Lælia monophylla, a plant that has been much sought after of late years by connoisseurs in orchidology; it produces orange-coloured flowers nearly an inch across; Epidendrum jamaicense, Ornithidium confertum, Maxillaria palmifolia, Comparettia falcata, another beautiful species, but seldom seen; Macradenia lutescens, &c.

Of terrestrial species, Phaius grandifolius is undoubtedly the best we have. This Orchid is said to be a native of China, and is supposed to have been introduced to Jamaica, but I have found it at all elevations, from 500 to 5000 feet, growing in ravines, and in virgin forests, miles away from any habitation, so that I am inclined to regard it as a native plant. If not native, it certainly has become thoroughly naturalised, and is very plentiful, Bletia Shepherdii, B. purpurea, B. verecunda, and Cyrtopera Woodfordia. All these should be grown in pots in a good loam, and they should have plenty of water till they finish flowering, then they should be kept rather dry till they begin to make fresh growth *W. Harris, in Bulletin. Botanical Department, Jamaica.*

Cattleya Massaiana

is a splendid evergreen form, which resembles C. gigas in habit of growth. Its flowers are produced from the newly-made bulbs just before they are fully developed, several flowers appearing together upon the spike. The sepals and petals are similar in form to C. Dowiana aurea, and are rose-coloured, beautifully mottled with white, and flushed with white towards the base; lip large, 2½ inches across, enclosing the column at the base, the edge beautifully fringed and lobed, the colour being rich magenta-crimson; the throat is striped in the centre with brownish-crimson on a yellow ground, and bears at the side two large eye-like spots of bright orange-yellow; the convolute portion of the lip is streaked on the outside in a similar manner to C. Dowiana aurea, whilst it yields a perfume similar to that of C. Dowiana itself. It blossoms during the months of August and September, but doubtless it will vary according to its season of growth, in like manner as do both of its supposed parents, C. Dowiana aurea and C. gigas.

This Cattleya requires the same treatment as C. gigas, C. Dowiana, and C. Dowiana aurea, but we have never seen these plants grown in better style or flower more freely than at the Duc de Massa's (Chateau de Frauconville, Luzarechez, France), under the superintendence of M. Tallué, the Duke's gardener. At the time of our visit nearly every plant of these kinds in the collection was showing its sheaths, giving great promise for a magnificent display of flower in a short time. The plants were growing in a very light house, near the glass; they were allowed a decided season of rest, but receiving just sufficient moisture to keep their bulbs and foliage in a plump condition—thus affording the same sustenance as the dews, in their dry season, in a state of Nature. This system, indeed, will be found to suit all Cattleyas, for, although a decided season of rest is highly beneficial, the bulbs should never be allowed to shrivel. In the growing season these plants are subjected to heavy rains, but under cultivation the supply of water must be regulated with care. "*Orchid Album*," *January*, 1889.

Lælia (=Brassavola) glauca.

This desirable Mexican Orchid has of late years been neglected, probably on account of its having been found difficult to manage. The mode of culture which I have found to suit its requirements is to suspend it in the full sunlight at the coolest part of the Lælia or Cattleya-house, to put very little material about the roots, to water sparingly even whilst the plants are in active growth, and to afford it little or none after the cessation of growth until the flowers begin to show. It is an evergreen of compact growth, about 4—6 inches high. The large flowers are solitary, and proceed from a sheath at the apex of the pseudobulbs; the sepals and petals are pale green and the lip is white, and the throat slightly streaked with pink. A number of the plants are now flowering at the Vineyard Nurseries, Garston, Liverpool. *F. Ashton.*

Odontoglossum Humeanum and O. aspersum.

The former is a supposed hybrid between O. Rossii and O. cordatum, and the latter between O. maculatum and O. Rossii, and the botanical features of the two resultants seem to well bear out the theory. There is great variety, however, among them, which was, perhaps, never so well exemplified as in three now in flower in Messrs. Seeger & Tropp's nursery, East Dulwich. The handsomest, a variety of O. Humeanum, has a flower equal in size to that of O. Rossii majus, but with the peculiar Indian yellow and brown spotting of O. cordatum; the lip and petals are French white; the petals tinged with yellow, and the lip having a yellow crest. Another variety is similar in form and colour, but it has more of the features of aspersum; the whole flower is tinged with buff. The third is O. aspersum violaceum, an exquisitely lovely thing, with a light violet lip and petals, pale yellow crest to the lip, and yellow sepals blotched with chestnut-red—an interesting and pretty trio.

Dendrobium crassinode.

Now in these days of large importations, specimens of the Burmese Dendrobiums especially are easily made up, but they never compare in the matter of beauty and gracefulness with a plant well grown on from a single piece. Such an one is the above mentioned species, now in flower with Reginald Young, Esq., Sefton Park, Liverpool—a very charming specimen, with 108 blooms. A plant of the grand high-coloured strain of D. nobile, also out of the importation of the Liverpool Horticultural Company, is very fine, the flowers being larger, brighter, and on longer foot-stalks, than the old forms, and more like D. n. nobilius.

Oncidium unguiculatum.

As an instance of the durability of the flowers it may be remarked that this showy yellow-lipped species is still in flower with Dr. Richard Neal, at 60, Boundary Road, N.W. Despite the London fogs, it has been in bloom four months, the first flowers on the spike having opened in November last. The still handsome O. tigrinum has also proved almost equally lasting, even when used as a table plant, as it is here.

Cattleya Loddigesii.

A noble variety of this, with two spikes each of four flowers, is in bloom with T. Palmer, Esq., at Kingston Hill. Each flower is 4 inches across, the sepals as broad as the petals; flowers rose coloured with a yellow stain in front of the white tube of the labellum—quite a superb florists' flower. Several who have seen it have named it C. Harrisonæ superba, but reference to the illustrations of both species from plants which flowered at Kew (*Gardeners' Chronicle*, January 25, pp. 108 and 109), will easily settle the question. *J. O'B.*

Nursery Notes.

MESSRS. H. WILLIAMS & SONS.

Messrs. Williams' nursery at Fortis Green, Finchley, is essentially a market establishment, whence large quantities of Rhodanthes are turned out each season, one house at the present time being entirely devoted to them. But the feature of the work here at present is to be found in the bulbous plants, of which enormous quantities are grown, and out of the stock a few bulbs find their way to some of the exhibitions of spring flowers, where the firm is very successful. The effects of a bad season in Holland were to be seen here among the Hyacinths, but, notwithstanding, a number of good solid spikes could be detected. The favourite red varieties are Koh-i-noor, Macaulay, Marina, Princess Amelia, Fabiola, Cavaignac, and Garibaldi. Blues: King of the Blues and King of the Blacks, Princess of Wales, an improvement on Starlight, as the spike is heavier; Sultan, Lord Derby, Charles Dickens, Czar Peter, Grand Maitre, &c., and a great number of the various shades of blue are disposed of. Of yellows the best were to be seen in Ida, Obelisque, and King of Yellows, while the best white was La Grandesse.

Tazetta Narcissi are largely grown. Princess of Wales, white, with a good orange cup, and fairly large, is a striking variety; and others noticeable are Bazelman major, Her Majesty, Isaac Newton, President Garfield, Belle Aurore, Laura, pale cinnamon, with a bright yellow cup, Jaune suprême, and Grand Monarch.

Among Tulips there were several very fine samples of popular varieties. Pteris cretica received attention, and zonal Pelargoniums, Hydrangea Dr. Hogg, and Crassula coccinea complete the large subjects at this nursery.

McArthur's Nursery, Maida Vale, W.

Under new and liberal management this establishment, honourably known for over a century, puts off its old garb, and energetically accommodates itself to the brisk habits necessary to do business successfully in our times. The whole of the houses have been remodelled, and new ones added, the heating and ventilation being put more in accordance with modern views of the requirements of plants.

It will be known to most gardeners that the special feature of this old nursery was that which is called "town work," such as that included in supplying plants for balls and parties, cut flower-work, &c., and in this branch of the trade it was supported by some of the best families. The old trade, therefore, is retained, and more commodious quarters are erected for showing off the plants and cut flowers of the season, especially those which are most attractive. The collection of good and cheap Orchids which has been added to the stock of plants already on the place, and to which some of the new houses are devoted, is a specialty in accordance with the taste of the times. In these houses a number of good species have been got together, the presence of the new Vanda Kimablliana showing a desire to keep up to date; some good forms of Odontoglossum crispum are in bloom, one very large form, with Indian yellow blotch on the lip, being especially distinct; O. Rossii majus, a very large O. triumphans, and other Odontoglossums, are in bloom in more or less quantity; also Sophronitis, Cattleyas, Cypripediums, &c. A very fine lot of plants of Azalea indica is just going out of flower. Fine Palms and Ferns are noticeable features.

Wm. Cutbush & Son.

At their Highgate nurseries this firm has its annual exhibition of Hyacinths now open. The plants are staged on a bench in the show-house, and each variety is massed, the interval and edging being of Crocuses and other dwarf flowers, the whole being arranged on an undulating mossy bank, which hides the objectionable pot. Novelties in Hyacinths this year did not turn out well, and the display is composed of old favourites, as Macaulay, which is one of the finest reds; King of the Belgians, La Grandesse, Obelisque, Grand Master, Von Schiller, &c., which are represented by numerous fine spikes. There are also banks of Tulips, which are very fine; and here, again, the old varieties are retained, and, indeed, are quite worthy of it.

Miscellaneous plants comprise Dielytra spectabilis, Azalea mollis, Staphylea colchica, and Lily of the Valley, among the chief. Hyacinths, it may here be said, are not generally so fine as they have been in recent years, the season in Holland having been somewhat unfavourable.

Cultural Memoranda.

EXACUM AFFINE.

The simplest way to have a stock of this plant is to sow seeds. It strikes freely enough from cuttings, but plants raised from seeds are more shapely. If two sowings are made, one in the beginning of the year, and the other about the month of August or September, a succession of flowering plants may be kept up. It would be difficult to find a plant with a freer disposition to make flower, as it blooms profusely up to the time that its constitution is on the wane.

Pot in a compost of fibrous loam, with the addition of some leaf-soil, not too far decayed, rubbed through a half-inch mesh, adding some crock which have been finely broken, and some sand, as the plants do not like stagnant water. During winter they should be grown in a warm house, but in summer they are well adapted for the embellishment of the greenhouse.

E. macranthum and E. zeylanicum are both well worthy of attention. They are stronger growers than the above. E. macranthum produces flowers 2 inches in diameter.

Abutilon insigne.

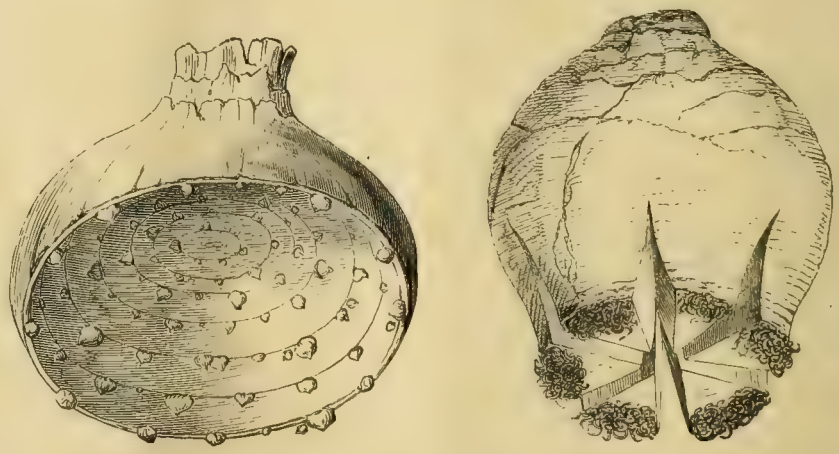
The arrangement of the flowers and the habit of growth render this plant most attractive and suitable for training to the rafters, or similar places, where the pendulous flowers can be seen to the best advantage; when trained in any other way the flowers become partly hidden amongst the luxuriant dark green foliage.

It will succeed when grown in pots, but the maximum of success is gained when it is planted out into a compost of good loam with a slight addition of leaf-mould and sand, using the two former in a rough lumpy condition. To those who have a spare suitable place this species may be recommended as one that few can be disappointed over. The flowers are of a dark purplish-crimson, with dark venation; both the stem and under-side of the leaf are covered with short brown hair. When the plant has finished flowering it should be pruned in closely and a new growth produced, to take the place of the old. If it has a large place to occupy, the pruning must be regulated accordingly. It sometimes goes under the name of A. igneum. It is a native of New Grenada. *W. Harrow, Botanic Garden, Cambridge.*

American and Continental.

ARUNDINELLA ANOMALA.

This is the Japanese Shiba-grass, and is employed in Japan as an evergreen lawn grass, which is cut twice in the year. It is said to make an excellent turf in a short period of time, and in this manner it is propagated, good seed being but rarely produced, and when obtained it does not produce the true grey-green grass. The plant grows from 3 inches to 5 inches in height. *Gartenflora.*



Figs. 71, 72.—Hyacinth bulbs, showing methods of propagation. (see p. 400.)

Castanea japonica.

A tree of moderate dimensions, with bright green leaves regularly denticulate, with prominent nerves, the underside being intersected by white veins. The tree is peculiar in appearance, is hardier than the common Sweet Chestnut, as well as much more prolific. The first fruits which the young trees carry are larger than the Italian Chestnuts, and the tree begins to bear in the third year. *Gartenflora.*

Benthamia japonica.

A deciduous tree which is said to be perfectly hardy. Under this name a shrub bearing yellowish red flowers, and rising to a height of from 6 feet to 7 feet, was introduced in 1847. This new species is said to be a high and handsome tree, whose extraordinary durable and hard wood is employed for the best kind of cabinet-work in Japan. It is said to carry numerous flowers resembling those of a single-flowered white Clematis.

Another novelty offered, and which succeeds the best in half shade, is B. j. foliis variegatis. *Gartenflora.*

Strawberry Dr. Veillard.

A large-fruited novelty of great earliness, coming into use fourteen days before May Queen. It is a very hardy plant, very fruitful, the last blossoms setting their fruit. The colour of the latter is dark red, the flesh rose-red, juicy, and perfumed. The

plant forces well. The Horticultural Society of Orleans gave it the Society's Medal on account of its unusually good qualities. M. Bruant, in Poictiers, France, is distributing the plant. *Gartenflora.*

Hydrangea stellata.

A new double Hortensia, in the hands of Peter Henderson, New York, U.S.A. The flowers are in colour deep rose-pink, and overlap each other like roof-tiles, their diameter being 1 1-10th inch, whilst the flower-head is of enormous proportions. The plant is quite hardy. *Gartenflora.*

An American Orchid Exhibition.

At the Eden Music and Winter Gardens, situated in the west end of New York, the third annual Orchid exhibition, under the superintendence of Messrs. Liebrecht & Wadley, New Rochelle, was held recently, and from a horticulturist's point of view, proved a great success, considering that Orchid culture is yet young in the United States. There was no competition, it being a purely business enterprise.

Being the first horticultural show that I had ever witnessed in the United States of America, I was somewhat desirous of observing in what points it would vary from one in the Old Country. It was astonishing to note so great a difference in the methods and manner of exhibiting the plants, there being none of that stiff formality so characteristic of the English flower show; but all was grace and elegance, even to the tables, which were not over-crowded, or in straight lines, showing off the exhibits to advantage. The largest and most meritorious exhibit was that of the firm of Liebrecht & Wadley, which met the eye directly on entering the hall, the greater part of which was displayed on the centre table, and which was decidedly oneof the chief features. Several large pieces of Lælia anceps Percivaliana, L. Dayana, the whole, with others too numerous to mention, interspersed with graceful Palms.

Jas. R. Pilcher, and W. A. Manda, the United States Nurseries, Short Hills, N.J., of Cypripedium fame, had over 100 species and varieties in their exhibit; also fine Cattleya Trianæ in variety.

Of the amateurs W. S. Kimball, Esq., Rochester, was well to the fore with an interesting collection of cut blooms of Orchids. Frederick Man, Weehaukeen, N.J., showed, amongst other Orchids of note, a fine collection of blooms of Cattleya Trianæ and Lælia albida

A fine piece of Cattleya Trianæ alba was exhibited by Mr. H. de Forrest, Summit, N.J. It had twenty well formed flowers, and over 100 pseudobulbs.

From the collection of John Eyerman, Esq., Easton, Pa., came some fair representatives of Cattleya Trianæ, a good variety of C. T. alba, and some well grown Calanthe vestita ocu'ata gigantea, and Phalænopsis Schillerianum was conspicuous.

Altogether there were some 600 or 700 species and varieties exhiblted, the majority being Cattleyas, Cypripediums, Oncidiums, and Dendrobiums. *From our New York Correspondent.*



Fig. 73.—Shortia galacifolia: hardy perennial: flowers white, flushed with rose.

SHORTIA GALACIFOLIA.

For many reasons this was the most interesting plant shown on Tuesday last at the Royal Horticultural Society. It was exhibited for the first time in this country by Mr. Elwes, and was sufficiently attractive to win the award of a First-class Certificate. It has, however, much higher claims on the attention of a society than this award would indicate, so that a Botanical Certificate would have been more appropriate. As the plant is one of so much interest we reproduce (fig. 73) the illustration originally sent us by Messrs. Woolson & Co., of Passaic, New Jersey, together with portions of the article published in our columns on May 7, 1881—an article founded on the communications of the late revered Asa Gray.

"The history of this plant is little short of romantic. Originally found by Michaux in the mountains of North Carolina nearly one hundred years ago, it was described by Dr. Asa Gray more than forty years since, from imperfect materials in the Paris Herbarium, transmitted by Michaux. Till lately it had never been met with again, so that it had come to be looked on somewhat as a botanical 'Mrs. 'Arris.' Meanwhile, Dr. Maximowicz sent from Japan specimens of a plant which he called Schizocodon uniflorus, but which Dr. Gray at once recognised as the same as his Shortia galacifolia; or, if not the same, then its brother.

"The occurrence in Japan of the same, or a very closely allied North American species, furnishes another to the already numerous list of plants common to the Atlantic States and North America, and to Japan. So close is this resemblance in the flora, that Dr. Gray lays it down as a general rule that any plant special to the temperate regions of the Atlantic States, is represented in Japan or the neighbouring parts of North-east Asia by the same, or by a very closely allied representative species. There is, further, a close correspondence between the flora of the Miocene epoch and that of the existing north temperate zone. Around the Pole in Miocene times existed a flora, traces of which are still found fossil, closely analogous to what is now found much further south, both on the eastern and the western continents, having been driven down by the increasing cold of the North.

"The Shortia, then, is not merely a pretty herbaceous plant, but it furnishes one of the clues to the understanding of a remarkable fact in botanical geography, and to the interpretation of one phase in the past history of the globe. That such a plant

should be dying out, that it should be found in small numbers, is not surprising. Knowing what we do now it need not have surprised us if Michaux's specimen had proved to be the last. But, leaving aside the Japanese specimens, the Shortia has again been discovered in North Carolina. A specimen may be seen in the Kew herbarium, entitled 'Hyams' sparkling Shortia,' the lucky finder, Mr. M. E. Hyams, having detected it in 1877 in McDowell County, growing in a solitary patch, a few feet square, and nowhere else so far as known at present. No one who compares the Japanese Schizocodon uniflorus will doubt their identity.

"Botanists have a not unnatural dread of rarities like the present becoming exterminated by the greed of collectors for commercial purposes, and we do not wish to minimise the danger. On the other hand, it may be pointed out that by introducing the plant into cultivation a much better chance is afforded of perpetuating it than if it were left in its original fastnesses, all unprotected by the care which the loving cultivator bestows on his pets. Again, if the plant is to die out, as it may do even in gardens, it will not vanish till it has been made to tell its history to the botanist, till it has been registered in his archives, and depicted in this gallery of plant portraits. It will be interesting to see whether the plant will thrive under cultivation, for it is just possible that a plant which seems to be dying out, or to find its necessary requirements in a very restricted locality, may baffle the gardener's art. We prefer, however, to think that the gardener, will be the means of perpetuating the plant for generations to come.

"Shortia galacifolia is a dwarf herbaceous plant with a creeping cylindrical root-stock, from which issue numerous fine rootlets, and tufts of long-stalked, evergreen, leathery, glabrous cordate, roundish, remotely toothed leaves, which in the dried specimen are rather broader than long (1½ by 1¾ inches). The flowers occur singly on the ends of leafless stalks or scapes, emerging from among and exceeding the height of the tuft of leaves. The bell-shaped flowers have three small bracts close to calyx. They are about an inch in diameter when expanded, pure white, shading into rose colour as they wither. The botanical structure is interesting by reason of the imbricate calyx, the verticillate petals, and the curious row of petaloid staminodes representing probably a second row of stamens. For further details on these points we may refer to Dr. Gray's paper,* merely adding that Shortia has a fallacious superficial resemblance to Primula or Pyrola, but is included with Galax and others in the order Diapensiaceæ, of which the best known species is Diapensia lapponica. Diapensiaceæ are usually placed near Ericaceæ, but it seems clear that so many links are missing, that this little group in its present state is not very close to any other group."

India.

ROYAL BOTANIC GARDEN, CALCUTTA.

We have received the official report of this establishment for the year 1887-1888. The report shows that steady progress was made during the year. Among the plants cultivated in the garden, the largest demands were made for the Rhea and the Rain-tree (Pithecolobium Saman). Mahogany trees were also propagated and distributed to a great extent. Many valuable contributions from well-known botanists were made to the Herbarium during the year. Among these, the set of plants of the large natural order Euphorbiaceæ, which were placed at the disposal of Sir Joseph Hooker, are of special value, as they have been returned by him bearing in his own handwriting the names given to them in his *Flora of British India*. The library of the Botanic Garden also received a valuable acquisition in the transfer to it from the Royal Gardens at Kew, through the courtesy of the Director, Mr. Thiselton Dyer, of the correspondence of Dr. Wallich, extending from 1794 to 1849.

The annual report of the Government Cinchona plantation and Cinchona factory in Bengal for the year 1887-1888, was submitted by Mr. Gammie, the acting Superintendent, at the same time, and from which we take a few extracts:—

"The policy of replacing the red bark, or Cinchona febrifuge-yielding plant, by the Ledgeriana and hybrid varieties, which yield quinine, was steadily adhered to."

"The number of Cinchona plants, including the nursery stock, at the Government plantations on April 1, 1888, was 5,335,504, of which 2,182,000 were of the kind known as succirubra, or red bark, and 2,950,200 were hybrid and Calisaya Ledgeriana. The crop of the year amounted to 290,410 lb. dry bark, of which 221,090 lb. were red (succirubra), 62,241 lb. were Calisaya, and 6910 lb. were hybrid bark. The attempts to naturalise the species of Cinchona which yield the hard Carthagena and cuprea barks have hitherto been unsuccessful; but the three new varieties—verde, morada, and zamba morada—which were procured from South America and sent out to this country by the Secretary of State in 1883, have been cultivated with success. The quality of the bark yielded by these plants is greatly inferior to that of the Calisaya Ledgeriana, and the introduction of these varieties is considered to be one of the most important and promising experiments which have been made at the plantation."

"The year was marked by the discovery of a process for the manufacture of sulphate of quinine, which is expected to produce a permanent reduction in the price of the article."

"The out-turn of medicine at the factory, which is regulated by the demand, was 6916 lb. of ordinary Cinchona febrifuge, 1 lb. of crystalline febrifuge, and 331½ lb. of sulphate quinine."

Plant Notes.

BEGONIA SCHARFFII.

Sir J. Hooker, in *Bot. Mag.*, t. 7028, says that this Begonia is one of the most magnificent of the of the genus, and we might add that this will be generally cultivated when better known; when once seen to perfection it is sure to be desired. To those who are unacquainted with it, or have not seen a figure, we might contrast it with that of B. metallica, though it is in every way superior to that species. It bears enormous fine heads of flowers, which last a long while in perfection, and has a good strong constitution. Cuttings should be inserted when the growth is somewhat firm, and taken off about 4 or 5 inches in length. *W. Harrow, Botanic Garden, Cambridge.*

Anoiganthus breviflorus and Cyrtanthus lutescens.

Some time ago I noted in the *Gardeners' Chronicle* the flowering of the Anoiganthus at Kew for the first time in Europe, and I then stated that this plant had been distributed in England as Cyrtanthus lutescens. The Kew plant was obtained under this name. Within the last fortnight three possessors of plants of the former have applied to Kew for an explanation of the name Cyrtanthus lutescens as applied to their plants, and to another quite different Cape bulb; and, as the Anoiganthus is certain to become a popular garden plant, it may be worth while to again point out that all the plants sent to England from Natal by Mr. Adlam as Cyrtanthus lutescens are, so far as I can ascertain, Anoiganthus breviflorus. The characters of this plant are:—Bulb and foliage almost as in Vallota, but longer; scape stout, a foot to a foot and a half high, bearing from four to eight funnel-shaped flowers on stalks 1½ inch long, the ovary three-angled, ¼ inch long, the limb 1½ inch long, gradually widening upwards, and divided almost to the base into six oblong segments; stamens and pistil hidden inside the corolla; colour rich canary-yellow. The plant is almost hardy, and is very free-flowering. It is in flower at Kew now, and a figure of it will shortly appear in the *Botanical Magazine*. Cyrtanthus lutescens, also in flower at Kew, is a smaller plant, the leaves linear, the scape slender, supporting an umbel of stalked, narrow, tubular flowers, 1½ inch long, with spreading, reflexed segments, the anthers showing at the top, and the stigma projecting a quarter of an inch beyond. The colour is lemon-yellow, paler on the segments. Although a pretty plant, this is not so good as the Anoiganthus. It was introduced by Wilson Saunders, through his collector, Mr. Cooper, from the Cape, and flowered in 1863.

Coffea bengalensis

An interesting, free-flowering stove shrub, for many years cultivated at Kew, where it now flowers in one of the stoves. It is a yard high, copiously branched, deciduous, the new leaves developing with the flowers. These are in clusters at the ends of all the branchlets, and are formed like the flowers of a Jasminum, but much larger, being nearly 2 inches across the obovate lobes; they are pure white and sweet scented. This species, although of no value economically, is entitled to a place in all collections of stove plants. It was, according to Roxburgh, cultivated for some time in India under the idea of its being the real Coffee plant of Arabia. C. travancorensis and C. myrtifolia are also pretty flowered, fragrant stove plants, which are cultivated at Kew, where they flower annually. The last named is almost unknown in English gardens, but is not uncommon in Belgium. It is dwarf and compact in habit, the leaves are small, as in Gardenia radicans, and the flowers are clustered and pure white. It is catalogued by Makoy & Co., from whom the Kew plant was obtained several years ago.

Godwinia gigas.

A plant of this remarkable Aroid is now in flower in the T-range at Kew. Like all the Aroids of the section to which Godwinia belongs it has a large fleshy tuber, a single leaf from 6—10 feet high, the stalk stout, erect, beautifully mottled, and supporting a blade which spreads all round, umbrella-like. This blade is divided into three main branches, and these again branch into numerous pinnatifid divisions. The leaf is of annual duration, and the flower is developed immediately after the leaf dies. The peduncle is about a foot long, stout, mottled like the leaf-stalk, and supporting a large boat-shaped spathe, which is open only near the top, and is deep vinous-purple in colour, yellow at the base. The spadix, which is enclosed, is club-shaped and covered with numerous small flowers. This plant is a native of Nicaragua, from whence it was introduced and flowered for the first time by Mr. Bull in 1872. [This plant was figured and described in the *Gardeners' Chronicle*, January 18, 1873. Ed.] Godwinia is a near ally of Dracontium and Amorphophallus. It ranks next to A. Titanum in its dimensions, the last-named being the largest of all tuberous-rooted of Aroids. There is a fine example of it in the Kew collection, as well as life-size drawings of the entire plant in the museum. Another species, new to the collection, has just flowered at Kew, namely, A. Eichleri, it is comparatively small, but has a powerful and most offensive odour. A figure of it has been prepared for the *Bot. Mag. W.*

Plants and Their Culture.

Some Bulbous Stove Plants. — Hymenocallis macrostephana is a useful bulb, which should be grown in quantity where cut flowers are much in request, on account of its fragrant pure white flowers, and the long time they last after being cut. It requires much the same kind of treatment as Pancratium fragrans, but it is freer blooming than that allied species. The plant is a valuable decorative plant in the warm conservatory, in which house it blooms freely three or four times a year. With annual repotting, done in the spring, and a liberal supply of liquid manure when growing, and the pots are full of roots, it flowers well. It is advisable

* A. Gray, in *Proc. Amer. Acad.*, 1870, viii., 243; et in *Ann. Sc. Nat.*, ser. 6, t. 7. tab. 15.

to have the bulbs sorted when repotting them, the large ones being put into 6 inch pots singly, and the smaller ones being put in threes into 8-inch pots; and the small offsets in pans to grow on. In many cases small pots will be preferred to large ones; and when it is desired to retard any part of the stock they may be removed to a cooler house and kept dry. A suitable compost for them consists of two parts turfy loam, one of peat, and one of decayed cow or sheep manure, and sufficient sand to keep the soil open. Water must be sparingly applied until the plants commence to grow freely, and if the pots are plunged in a warm bed it will be found greatly to assist them. Our plants are plunged in cocoa fibre over the hot-water pipes, in a house set apart for them, shade being afforded them during bright sunshine, syringing being done twice a day, and the paths kept damped down. In winter less moisture, and all the light and sun possible are afforded the plants. Thrips are troublesome, but these insects should not be allowed to gain headway or the plants will not make much progress. It will be found advisable if the bulbs should not flower satisfactory, to give less manure water, and a rather drier treatment for a time.

Winter-blooming Begonias.—Cuttings should be taken as early as possible, as they strike very readily now. Insert the cuttings in 3-inch pots, using a light sandy compost, and placing the pots in a gentle bottom-heat, and when struck they should be potted singly into 3-inch pots, and finally shifted into 5-inch, using loam, peat, leaf-soil, and silver-sand, liquid manure being applied twice a week when the pots appear to be full of roots, and the points should be pinched out several times during the season so as give a bushy habit. They require rather careful watering during the early stage, and should get plenty of heat in a forcing-house. Begonias which flower in the winter time, when the proper kind of treatment is adopted, are fuchsioides, nitida, erecta multiflora, Ingrami, Pearcei, manicata, insignis, semperflorens, dichotoma, Wagneriana, and Knowsleyiana. It is necessary that the plants get all the light possible in the autumn to ripen their shoots, and if after blooming the plants are kept drier at top and root, for about one month, they will produce bloom and continue to flower till the spring. It is the best plan to propagate annually, as it is found that young plants bloom better than old ones in large pots. *G. Wythes, Sion House, Brentford.*

The Flower Garden.

Needful Notes for the Week: *Climbers.*—Under this head I include not only climbing plants proper, but all plants adapted to the furnishing of walls, trellises, or screens, such as Berberis Darwinii, Ilex Fortunei, Escallonia macrantha, Ceanothus americanus and C. azureus, Euonymus radicans variegata, and Magnolias, all of which, though not climbing plants in the strict sense of that term, are sufficiently so as to be amenable to that mode of treatment, and in places where there are many walls, trellises, and verandahs to be furnished, it is desirable, by way of variety, that at least some of them should be of use. Berberis Darwinii we have covering a wall of east aspect, and it is always beautiful, and when in blossom it is, I think, unequalled by any climber, not even excepting Roses and Clematises. Ilex Fortunei is a first-rate plant for a north aspect, and only requires its main branches to be occasionally nailed in, so that the plant shall grow flat against the wall. Escallonias, Ceanothuses, and Magnolias are all of them excellent for furnishing walls which are sheltered from cold winds and are sunny, and no other, as they are not quite hardy, and, indeed, in the northern parts of the country slight protection in winter is necessary. The small-leaved variegated Euonymus radicans is the perfection of a plant for covering low walls, and it really requires no training, as after the first tacking to the walls the new growth clings with all the tenacity of Ivy. At this season, before new growth commences, all of them, if they are used as climbers, require to be looked over to see that their main branches are well secured, after which all out-growing and fore-right shoots should be shortened back with the shears, in the same way as it is usual to cut Ivy before it commences to grow. This trimming up of Ivy should be done forthwith as I note that it has already began to grow. My plan is to clip off the young shoots and leaves close in to the stems, and by that means ensure the exclusion of all vermin, and an entire new leaf growth in a short time. The common, and Veitch's Virginian Creepers—the latter usually taking care of itself as regards training, need no further attention than to remove strong shoots here and there, and to see that they do not encroach on other plants, choke up water-spouts, &c. All this kind of work gets attention paid to it, when Ivy cutting is in hand. Wistaria sinensis and Clematises differ from the foregoing in that they need a considerable amount of summer training, and are, I think, better adapted for furnishing trellises, arched and otherwise, than any of the foregoing. If there is space to be covered all young shoots of the Wistaria should be tied in at their full length, and any that are not required should be cut close back; the spurs thus formed throw out innumerable weak shoots, which, hanging loose, look very graceful. To some growers the pruning of Clematis simply means to cut them down to the ground line. How such persons ever hope to get a big trellis well furnished, I am at a loss to imagine. The only pruning the Clematises require is the cutting out of any dead shoots, the twining shoots being trained in such a way that they will most readily furnish the trellis. It may be that when the plants get old and the shoots much matted together, severe cutting back may be desirable; but timely attention paid to summer training will avoid the necessity for it. Climbing Roses of all sections should now be pruned, the borders top-dressed with rich manure, and if the borders are made arid by overhanging projections from receiving the full amount of rainfall, they should be watered to the saturation point. *W. Wildsmith, Heckfield, Hants.*

Fruits Under Glass.

Peaches.—The trees in the first house will be stoning; it is now time to see there are not too many fruits left. In thinning let the fruit stand about 10 inches or a foot apart, according to the strength and the size of the tree, and variety, always saving, however, the finest and best placed. Give, whenever possible, full exposure, and after the stoning remove any leaves that may shade the fruits, and place short pieces of lath under those that hang apex downward, so as to bring the upper part of the fruit up to the light. The borders, if shallow, should be watered once a fortnight with warm manure-water; tie in any shoots needing it, but keeping them away from the fruit; take the points out of those which are too strong, and which are robbing the weaker ones. A night temperature of 60° to 65°, and by day 70° to 75°, can still be kept up, and when the stoning is completed the temperature may be raised, but on cold nights, rather than make the pipes too hot, the thermometer need not rise so high. Give air in the morning after syringing when the temperature rises towards 70°, gradually increasing the amount admitted till midday, shutting up with the thermometer at 75°, so that with sun-heat alone the temperature will be maintained at 80°, and syringe the trees. In very early houses, planted with the Waterloo and Alexander Peach, more air will be necessary as soon as the fruit shows colour, and the syringing must then be stopped. Avoid cold draughts.

Second House.—The fruit in this house will be swelling rapidly; keep, therefore, a growing atmosphere, syringing twice a day, closing the house early in the afternoon. Look over the trees for a few stray fruit that may still be spared, or for shoots that may require regulating; see if the border wants watering, and keep a temperature of 60° by night, a little higher or lower according to the weather; and 65° to 70° by day when the sun shines, giving air gradually as the temperature rises, and as gradually reducing it.

Third House.—The same remarks hold good here as in the earlier house, the thinning, syringing, and watering being carefully attended to. A night temperature of 55° to 60°, and 60° to 65° by day, and a few degrees higher with sun-heat, but without fire-heat. In later house disbudding and pinching the shoots, thinning fruits, &c., and otherwise bearing in mind previous instructions, will all that need be mentioned here. The temperature may be 55° at night and 60° by day, a rise of 10° with air with sun-heat.

The late house for September and October fruits should be kept as cool as possible. Give air early in the morning, keeping it on till 5 or 6 o'clock in the afternoon. If the weather be very mild both top and bottom ventilators may be opened to their full extent. *W. Bennett, Rangemore, Burton-on-Trent.*

The Hardy Fruit Garden.

Hints in Season: *Figs.*—Where Figs are grown out-of-doors on walls the pruning and nailing of the trees may now be proceeded with, the shoots which are likely to produce the most fruit, being now readily ascertainable. In cold localities, assuming that protection has been afforded the trees in the winter, the pruning may not take place for another fortnight, but first gradually remove the material used, and so expose and harden the branches and fruiting-shoots. In pruning the trees much depends on the condition of the roots and the nature of the soil in which they are growing. If the roots are much restricted—or are close to a hard walk or road, which the roots cannot penetrate to any distance, the trees are less apt to make unfruitful wood and the pruning may be more severe. But if, on the contrary, the roots have an unlimited run, less pruning of the branches should be done, and the lifting and shortening of the roots should then be practised instead, so that a check may be given to growth and short, hard, fruitful wood induced. Do not shorten back any of the young shoots, as it is on these that the fruits are produced. Keep the whole of the trees well furnished with these young growths, and replace some of the oldest of the branches annually, but not by means of suckers, as more fruitful wood may be obtained from the proper branches of the tree.

Standards in bearing should be very sparingly pruned; in fact, the less the knife is used the better it will be for the trees, so long as they are kept within bounds. All rank, spongy growths springing up in the centres should be cut out, as also all suckers from about the roots. If inclined too rankness, they should at once be checked by cutting asunder some of the roots.

Planting may now be successfully carried out, and whatever is to be done in this respect, avoid by all means the use of rich soils, otherwise strong, unfruitful wood will certainly result. A nice sunny spot should be selected for the trees; an abundance of drainage is requisite, and the soil, if possible, should be a moderately heavy loam, with plenty of old mortar or chalk added. The roots are best confined to a somewhat narrow border, and the trees do exceedingly well when planted almost close to the sides of walks, when the surrounding ground is so hard that the roots can scarcely enter it. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

Operations to be Performed: *Potatos.*—The main crop of these should now or soon be placed in the ground, and if the land be heavy a liberal dressing of charred soil and wood-ashes will be found of great benefit in keeping away slugs and wireworms; but on loamy soil this dressing may be dispensed with. The best preventive of slug ravages is deep cultivation, as then the creatures are buried deep, and perish. The greatest foe to successful Potato cultivation is undoubtedly the blight, and although many methods of cure have been recommended, but little benefit has arisen from the adoption of any of them. There is no doubt that the crop when on maiden loam is freer from its ravages than when growing on land which has been often cropped with Potatos, and that is one cogent reason why on farms where the Potato does not occupy the same ground for three or more years the disease is less virulent; and this can in a measure be accounted for as the germs are in less force, or their energies are in a measure impaired by the absence of a suitable host plant. Early planting and early harvesting of the tubers is doubtless the soundest practice, strong rank manures being avoided. Thomson's manure I have found very safe to apply to the crop, and good results are secured by its employment; and a liberal distance apart when planting the sets, so as to secure a robust growth. A common practice is to plant Greens between the rows of Potatos, but this practice cannot be condemned too severely, as it cannot be accomplished without lessening the amount of sun and air which should reach the Potato plants. Adequate measures for the protection of early planted tubers will be necessary where they are just coming through the soil, and the readiest way to give it, is to draw the dry soil over the tops, but where the plants are so far advanced that this cannot be done, hoops and mats or dry bracken will be found necessary if frosts threaten. *Wm. M. Baillie, Luton Hoo, Beds.*

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THE GARDENERS' CHRONICLE,

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APPOINTMENTS FOR THE ENSUING WEEK.

SHOW.

WEDNESDAY, April 3 { Royal Caledonian, at Edinburgh (three days).

MEETING.

THURSDAY, April 4—Linnean Society.

SALES.

MONDAY, April 1 { Lilies, Bulbs, &c., at Protheroe & Morris' Rooms.

TUESDAY, April 2 { The Second and remaining Portion (Unreserved) of the Sunbury House Collection of Established Orchids, at Protheroe & Morris' Rooms.

WEDNESDAY, April 3 { Lilium auratum, and various other Lilies; Carnations, Picotees, Ferns, and Greenhouse Plants, at Protheroe & Morris' Rooms.
Roses, Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms.

THURSDAY, April 4 { Roses, Carnations, Picotees, Fruit Trees, &c., at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., by Protheroe & Morris.'
Imported and Established Orchids, Lilies, &c., at Stevens' Rooms.

FRIDAY, April 5 { Established and Imported Orchids at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—45°.9.

The Hyacinth.

It is right and proper to fit the programme to the season, but if we cannot adapt the season to the programme the result is not so satisfactory as might be desired. The Royal Horticultural Society is not to be blamed for the fact that the sunless and wet skies of the last autumn interfered somewhat with the brilliancy of the display of Hyacinths on Tuesday last. This was not so good as usual, though there was quite enough of beauty and interest in the other plants shown to compensate for any deficiency in the Hyacinths. Moreover, it was arranged that two gentlemen from Holland were to address the meeting on the subject, and their remarks were to be supplemented by a paper on the cultivation of the Hyacinth in England by Mr. Douglas. The Hyacinth, therefore, was duly honoured, and the programme was properly carried out. Mr. Egbert Kersten, introduced by Mr. Morris, the Chairman, opened the proceedings with a paper in which he dealt with the natural history of the Hyacinth, its treatment, its growth and preparation for the English market, as well as for exhibition purposes in Holland. Some 5000 men are employed, it appears, in the neighbourhood of Haarlem in the bulb culture, and four sizes of bulb are selected—first-class named sorts, bedding sorts, named mixed sorts, and miniature bulbs. The methods of propagation followed are the natural formation of new bulbs or offsets, and the artificial methods of inducing the formation of new bulbs by the processes of scooping out the base of the bulb or by slicing

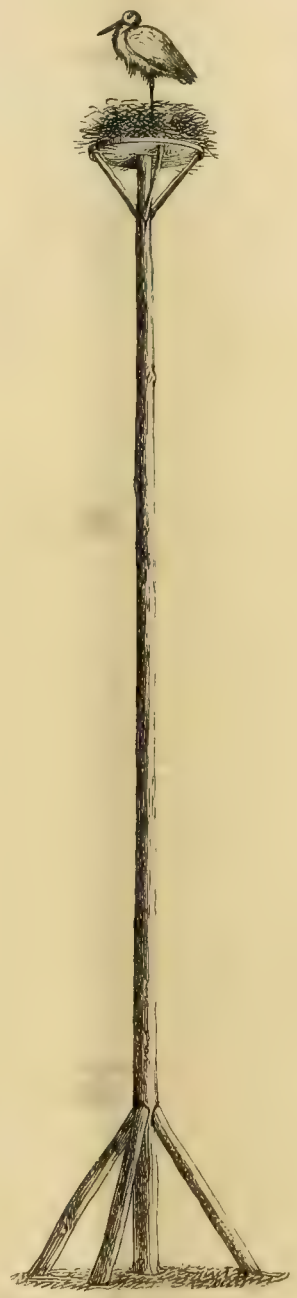


Fig. 74.—The Guardian of the Bulb-fields.

it, as shown in our illustrations (figs. 71 and 72, p. 396). A period of six years is required to produce saleable bulbs in this way, while the reproduction by seed is even a slower process, requiring eight years. The seeds do not, as a rule, reproduce the variety, and the process of raising from seed is little used except by the few who raise new seedlings. Double Hyacinths produce no seed as a rule, but in this country, at any rate, double Hyacinths are not now in favour, the greater elegance of the single flowers deservedly giving them a higher place in popular estimation.

Mr. Barnaart travelled over part of the same ground as his fellow-countryman, and dealt largely with the history of the subject, but was imperfectly heard.

Mr. Douglas followed with some remarks on the Hyacinth, its history and culture. Some reference was made to the cultivation of the Hyacinth in England for commercial purposes, and Philip Miller was quoted as a strenuous advocate for the English culture of the Hyacinth. It was stated that the main difficulty the English cultivator had to contend with was, not the climate—which was much the same in England as it is in Holland—but the soil, which is totally distinct, being in Holland, a loose, deep sand, of a very uniform degree of moisture. The culture of the Hyacinth out-of-doors was described, and suggestions offered as to the planting of the bulbs in beds, or clumps, in the borders of distinct and decided colours, whether they be pale blue or deep blue, pale rose, pink, blush, or deep red; whilst a goodly number of bulbs of really good varieties is to be preferred to the same number in many varieties. The bulbs should be planted with the crowns 3 inches under the surface, with a little sharp sand under and over each bulb; the soil should be deep and rich. Each spike requires to be supported with a neat stick, as they so readily snap in a high wind. For pot culture, the soil should be prepared a month or six weeks before using it; the bulbs, after being planted in their pots, should be plunged well over the rims out-of-doors; the early-flowering varieties should be potted in September, the latest in October. Stress was laid upon the fact that Hyacinths, like other bulbs and plants, should be forced by starting them in a low temperature, to be gradually increased. A pan of a single dark red Hyacinth exhibited by Mr. Robert Sydenham, of Bristol Road, Birmingham, was alluded to as illustrating a very simple method of culture pursued by him for several years. Six bulbs are planted in a shallow pan, in a mixture of two parts cocoa-fibre refuse to one of shell shingle, there are no holes in the bottom of the pans for drainage so that not much water is needed, and the compost is kept sweet by lumps of charcoal being placed between the bulbs. Tulips, Scillas, and Crocuses were also stated to do admirably in these pans.

Instructions were also given as to culture in glasses; water from a well was recommended instead of rainwater; a few pieces of charcoal being added to the water, and the bulbs should not be immersed in the water; the glasses should be filled to that extent that the base of the bulbs scarcely touches the water. It was further observed, that the glasses with the bulbs in them should be kept in a dark place for four or five weeks; and by the end of that time the roots would have touched the bottom of the glasses.

As all these papers will be published—speedily, we hope—in the *Journal* of the Society, we forbear from making any further extracts from them, but as all three to some extent covered the same ground it will be for the Editors to consider how far this repetition can be avoided in the printed record. In the meantime those interested in the subject will find an excellent article in our columns on the subject by Mr. Polman Mooy, so far back as May 15, 1841, on which occasion we gave an illustration of a double Hyacinth such as were then fashionable, and which shows how little variation has been introduced in essentials since that time. Furthermore a series of articles in the *Gardeners' Chronicle* for 1863 from the pen of the late

Robert Fortune detailing the methods of culture and propagation which have not undergone any material change since that time. In 1864, at p. 343, we gave a full report of Mr. William Paul's lecture before the Horticultural Society which, as report says, "was repeatedly cheered." Similarly the history of the Hyacinth was treated of in our columns in 1871 by the specially competent hand of Mr. Krelage, and those interested in the subject cannot do better than consult the article at p. 874, 1871. The history of the Roman Hyacinths was in like manner given in our columns on February 1, 1879, p. 145. Further particulars are given in the number for April 28, 1877, at the time of the last great Amsterdam International Exhibition. In the course of a visit we made to the bulb fields at this time, we made the sketch of the bulb grower's friend (fig. 74) and his habitation, such as may be seen in many a bulb-field in the vicinity of the very charming city of Haarlem—the metropolis of Dutch bulbs—where the visitor will find no small amount of interest of varied character quite apart from the bulbs.

The Royal Horticultural Society:—

Orchid Sub-Committee.—The first meeting of this body took place on Tuesday last, under the presidency of Sir Trevor Lawrence, who briefly explained that the sub-committee was organised with a view of meeting the requirements of the Orchid growers. The course of procedure is to be the same as at the other committees. We have heard some doubts raised as to the necessity for this step, but judging from the first meeting, it seems likely to work well, and if this instalment of Home Rule will save any further disintegration and "dissipation of energy," we shall in the interests of horticulture be glad. Mr. James O'Brien was appointed Secretary to the Committee.

Coltsfoot.—Some wag exhibited a small pot of the common Coltsfoot at the Royal Horticultural Society on Tuesday. The wonder is that no one has thought of growing this brilliant harbinger of spring before. Grown in large pans it would assuredly prove very ornamental.

London Fog.—Mr. Dyer initiated at the Scientific Committee an interesting discussion on the effects of fog as witnessed in the Royal Gardens, Kew, where it had become necessary to wash the roofs of the houses by hand, no mere play of the hose being sufficient to remove the greasy deposit. The effect on flowers, especially Orchids, was discussed by Mr. Dyer and Mr. Veitch, and eventually it was arranged that the chemical members of the committee should furnish a brief statement as to the reasons why "London fog" is so particularly injurious. Probably a sub-committee may be formed to collect information as to the extent of damage, and the particular plants affected.

Gardeners' Royal Benevolent Institution.—We have pleasure in publishing the following reminder from the indefatigable secretary of the above institution *à propos* of the fiftieth year of its existence:—

"Your readers are by this time aware that the year 1889 is the year of the Jubilee of the Institution, and also the manner in which it is proposed to celebrate its foundation. The committee have not entered into the matter lightly, but they have consulted many of the subscribers, who have pronounced in favour of the proposed manner of its celebration.

"The committee are fully alive to the many difficulties that surround them, but they are not without hope of ultimate success; and they, in conjunction with the Treasurer, are sparing neither time nor trouble to secure it, and the staff of the Institution—that is, one man and one boy!—is trying its utmost to second them, but whose united exertions will be of no avail unless the co-operation of the gardeners, for whose benefit the Society was founded and exists, is secured.

"We have promises, as the advertising columns of this journal show—of over £1000, provided the balance be forthcoming on the 13th of June, otherwise the £1000 will be lost, and our efforts and trouble will be of no avail. We have just eleven weeks for work. The time, in view of what there is to do, is short, but it is still long enough if all who have the Institution at heart, and possess feelings of sympathy for the suffering of their fellow creatures, will assist the committee, bearing in mind what Mr. Clayton in his letter of last week truly observed, 'the many can assist the few.'

"Let us unite on this special occasion to assist in making seventeen poor souls, who now, in the sere and yellow leaf of life, have through no fault of their own, fallen into distress and want, happy and comfortable for the remainder of their days. Many of these poor people have stood two or three elections.

"Let any one picture to himself their distress at hearing they have been again unsuccessful; the old proverb is very appropriate, 'Hope deferred maketh the heart sick.' Again, I say, let us one and all join hand in hand to commemorate this our fiftieth year. The shillings of the employed will be as welcome as the pounds of the employer. Surely through the length and breadth of glorious Old England, the land of the charitable and the good, there is enough *esprit du corps* among the 'brethren of the spade' (following Mr. Wildsmith) to show that there will be no trouble in completing this grand undertaking.

"The majority of us will be gathered to our fathers long before another fifty years roll over us, but that the Institution will survive that time I have not the slightest doubt, and it will be a grand thing for our survivors when they celebrate the centenary (as I am sure they will) to turn to our archives and say that the horticulturists of England nobly did their duty fifty years ago.

"I am always to be found at No. 50, Parliament Street, and shall be pleased at all times to afford any information, and show our books to any one who will favour me with a call. *Edw. R. Cutler, Secretary, Gardeners' Royal Benevolent Institution.*"

—— We are informed that a committee has been formed at Manchester, consisting of Messrs. Bruce Findlay, R. Tait, F. Robinson, and E. Griffiths Hughes, to collect subscriptions for the forthcoming Jubilee Festival.

The Gardeners' Orphan Fund.—A numerously attended meeting of the united committee to carry out the floral *fête* at the Wholesale Flower Market, Covent Garden, in aid of the Fund, took place at the Caledonian Hotel, Adelphi, W.C., on Friday, the 22nd inst., Mr. Geo. Deal presiding. The Hon. Sec., Mr. A. F. Barron, reported that H.R.H. the Duchess of Teck, the Duchess of Bedford, Lady George Hamilton, and Lady Goldsmid had been pleased to have their names announced as patronesses of the *fête*. It was resolved that the *fête* should take place on Wednesday, May 22, the price of the tickets of admission to be 5*s*. each, and the number limited to 2000.

A New "Moss," for Orchids.—Readers interested in Orchids may like to know more of a new Orchid fibre, of which a sample has been sent to Kew, by Mrs. P. L. Cherry, of Astora, Oregon, along with the following memoranda:—"I send a sample of moss, which is found here in abundance, and is getting to be quite an industry here. It is called 'California Eureka Orchid Fibre,' but it is all found on the Colombia River bottom lands. It varies in thickness, but the sample sent is about the average." The sample is a brick-like piece, 8 by 4 inches, and 3 inches in thickness. It is composed entirely of the roots of Ferns and grass, and a large proportion of sphagnum moss, all woven tightly together and forming a spongy mat. It smells sweet, absorbs and holds water like a sponge, and, being perfectly natural it ought to prove durable. Until it has been tested we cannot be certain that Orchid roots will like it. Apparently it is used for Orchids in America, and we should be glad to learn what Orchid growers there think of it. The cost of good peat in England is becoming almost as prohibitive to many people as is the cost of many of the Orchids themselves.

Exhibition Fixtures.—The spring show held by the Bath Floral *Fête* Committee will take place on May 15, the Rose show on July 4, the autumn show on September 4 and 5, and the Chrysanthemum show on the 13th and 14th. The summer show of the Ealing, Acton, and Hamwell Horticultural Society will take place on July 10, and the Chrysanthemum show on December 6.

Society of Arts.—A paper on "Fruit Culture for Profit in the Open Air in England" will be read by Mr. Wm. Paul, F.L.S., at the meeting of the Society of Arts, John Street, Adelphi, London, on Wednesday, April 3, at 8 P.M.

The Orchidéenne.—The sixth meeting of this Society took place on Sunday, March 10, 1889, when the following awards were made:—

First-class Diplomas of Honour, for Odontoglossum Wilckeanum var. albens, to M. Vuylsteke, of Loochristi (unanimously conferred); for Odontoglossum Lucienianum var. cordatum, to M. Linden, of Brussels; for Odontoglossum Pescatorei var. Lindeni, to M. Warocqué, of Mariemont.

Second-class Diplomas of Honour, for Odontoglossum Rossi var. Mommi, to M. Charlé, of Forest.

First-class Certificates of Merit, for Odontoglossum Andersoni var. Warocqueanum, to M. G. Warocqué, of Mariemont; for Odontoglossum Halli var. leucoglossum, to M. Peeters, of Brussels; for Odontoglossum Président Zhaldua, to M. Vuylsteke, of Loochristi.

Second-class Certificates of Merit, for Odontoglossum Pescatorei var. maculatum, to M. Halkin, of Brussels; for Cypripedium bellatulum var. Mariæ, to M. J. Hye, of Ghent.

First-class Cultural Certificates, for Dendrobium Hilli, to M. Linden, of Brussels (unanimously conferred); for Cypripedium villosum, to M. Peeters, of Brussels (unanimously conferred).

Second-class Cultural Certificate, for Cattleya amethystoglossa, to M. Peeters, of Brussels.

Amaryllis at Messrs. Veitch's. — The houseful of these gorgeous bulbs is now quite ablaze with bloom, nearly the whole of the large number occupying the central space having expanded their flowers. Some new things come out each day, and amongst them some very rich colours, combinations of colour, and distinct markings are observable. The display will probably last in perfection for about four weeks longer.

Royal Botanic Society.—A meeting of the above took place on the 23rd inst., I. J. Gassiott, Esq., in the chair, when a trade sample of Coffea arabica, from the island of St. Thomé, West Africa, was presented by Mr. E. W. Parsons, manager of the West African Telegraph Company.

Dutch Bulbs.—Our friends, the Dutch, smile confidently the while they tell you that although the climate of Holland in the bulb district is substantially the same as our own, and we have abundance of the requisite kind of soil, they have no fear of our wresting the trade from them. The Dutch have long experience, which goes for a great deal, and they know full well how conservative is the course of trade. Nevertheless there are acres and acres of soil on our eastern coasts, just opposite Holland, exactly suited to bulb culture. We do not venture to recommend our distressed agriculturists to effect "the salvation of agriculture" by bulb-growing, because we believe it can be done cheaper in Holland; and, moreover, we know by family tradition of an experiment of this kind having been undertaken some fifty years ago near

Sandwich, an admirable locality. Excellent bulbs were raised, comparing well with Dutch samples, but the grower was too conscientious to call them Dutch bulbs, and so the wholesale dealers would not buy them. We have an impression, though we are not by any means sure, that some of these bulbs eventually found their way to the nursery of the late Mr. Van Houtte, at Ghent!

Epping Forest.—A deputation from the Leyton Local Board recently waited by arrangement on the Epping Forest Committee to represent to that body various complaints that had been made to the Leyton Local Board with regard to the state and condition of that part of the forest in Leyton, and to suggest some improvements which would tend to make it more attractive as a place of recreation and amusement. Mr. Gallaher exhibited a map of the forest in Leyton, and summarised his views thus:—1. To drain some of the damp marshy parts where the water lies stagnant. 2. To make the "hollow ponds" near Whipps Cross Road ornamental pieces of water. 3. To place here and there a number of seats. 4. To make a pathway across from Whipps Cross Road, to the Woodford Road, to be passable in winter as well as in summer. 5. To have one of the keepers of the forest continually in that part during the day. Mr. Morris said, during the winter months, and after heavy rainfalls in the summer, water collects, and becomes stagnant, to the injury of health. He would simply ask the conservators to have the holes filled up near the end of Leytonstone, the land surface drained, a few seats provided, and rendered a little more attractive by planting a few trees and shrubs, judiciously selected, in keeping and harmony with those now existing in the forest. The next portion of forest that requires attention is of much larger area, possessing a frontage from A. to Forest Lodge or to Whipps Cross Road, of about 5000 feet, as well as a frontage from Whipps Cross to the Eagle Pond of upwards of 3500 feet. This portion of forest is unsurpassed for its natural picturesque beauty, and being of easy access, would prove a greater acquisition to the general public than portions of the forest more distant. These portions of the forest are principally of gravelly subsoil, therefore the greatest care must be exercised in not draining deeply, or excessively, otherwise the magnificent Oak and other trees, the result of more than a century's growth, and which now luxuriate in the greatest perfection, will die for want of moisture. Mr. Morris suggested that Mr. McKenzie should make an inspection and report upon the matter.

An Alpine Garden.—Under the auspices of the Swiss Alpine Club, and the Association for the Protection of Plants, a garden has been established and named Linnæa, for the purpose of growing alpine plants, and inculcating the necessity of protecting them from ruthless destruction. The garden is situate at Fionnay, at an elevation of 1500 metres in the Commune of Bagnes, Valais. A start has been made, but in addition to seeds, the addition of the fertilising ingredient called money is required. We shall be happy to forward any subscriptions to M. Correvon.

The Rain Tree.—This tree, says Mr. Prain, the acting Superintendent, Royal Botanic Garden, Calcutta, is a native of America, the history of whose introduction is narrated in the Garden Reports from 1878—1881. Its timber is not valuable, but it grows rapidly, gives excellent shade, and is a useful nurse if planted with slower growing trees, to be cut down when the latter are sufficiently established. The reason for the suddenly increased demand was the statement that the Rain-tree will grow on Usar soil, and that such soil can thus be reclaimed. Usar soil is barren: what is apparently meant is that the tree will grow on soil impregnated with *reh* salts. Such soil is not necessarily infertile, though without special treatment it may not afford crops except during the rains. The effects of the presence of trees may easily explain the absence of efflorescence of the *reh* salts, without much improvement in the nature of the soil, nor would it be surprising to find that after a series of years of Rain-tree cultivation analysis of the soil showed little change. But the cultivation of the tree is simple, and must increase the amenity of such districts, while its profuse crop of sweet pulpy pods, which cattle greedily eat, ripening as it does in April and May, supplies a valuable fodder when usually fodder is most scarce.

Dieffenbachia.—Mr. Ernest Bergman has published in the *Journal of the Horticultural Society of France* an account of the varieties of Dieffenbachia in cultivation. The sixty-three varieties, according to a note of M. Duchartre, are referable to five species only, according to Engler's classification:—1, D. seguina; 2, D. picta; 3, D. humilis; 4, D. Œrstedtii; 5, D. macrophylla; and 6, D. imperialis. M. Bergman gives a descriptive catalogue of the varieties, with directions for their cultivation and propagation.

What about the Filbert Crop?—The failure of this crop is often due to the fact that the male and the female flowers respectively flower at different times instead of simultaneously. About London the male catkins are unusually late in flowering this season.

Early Narcissus Poeticus.—Mr. Baylor Hartland, of Cork, sends us a handful of the sweet-smelling Narcissus Poeticus præcox. He states that it had been in full flower since the end of February out-of-doors, and that it grows 3 feet high. He thinks it to be distinct from either N. ornatus or N. angustifolius (angustifolius and ornatus will not flower for three weeks), and came to him five years ago from Lower Italy, and has remained true to character ever since.

Linnean Society.—At the evening meeting, to be held on April 4, at 8 p.m., the following papers will be read:—1. "On Myxomycetes," by A. Lister, F.L.S.; 2. "On Helcion pellucidum," by R. J. Harvey Gibson, F.L.S.; 3. "On the Deep-water Fauna of Firth of Clyde," by W. G. Hoyle.

Flowers in Seasons.—As flowers of spring Violets rank deservedly high in everyone's estimation, and none more so than the varieties of which Mr. D. Wadds, gardener, Birdsall, York, sent some flowers for our inspection. These consisted of Lady Hume Campbell, a strong-growing double flower, lasting longer in perfection than Marie Louise, which itself is a very beautiful Violet. The former is lighter in colour than the latter, and approaching near to that of De Parme. Marie Louise is, as everyone knows, of a beautiful purplish-violet colour, double and large; White Queen, like Cannell's Swanley White, is a pure white double flower, which should always be grown where white Violets are liked. The Czar was excellent, large, and delicious of perfume.

Orchids at the Bath Spring Show.—The Orchids formed the chief attraction at the show held in the Assembly Rooms, Bath, on March 20. Messrs. Cypher, of Cheltenham, staged (not for competition) a grand group composed of over 200 plants in bloom tastefully arranged with graceful Palms, Ferns, &c. Perhaps the two most remarkable plants in the whole show were a magnificent specimen of a fine variety of Dendrobium Ainsworthii, with over a hundred blooms, in a fine collection sent by Mrs. Studd, of the Royal Crescent (a new exhibitor), and a magnificent plant of Oncidium macranthum, with which the Rev. E. Handley took 1st prize for a single specimen; and the 2nd prize was secured by Mr. R. B. Cater, for a fine specimen of Cattleya intermedia. Messrs. Cooling & Son, Bath, had also in their group of plants arranged for effect (1st prize) some good Orchids and Amaryllis. In the class for six Orchids the Rev. E. Handley was 1st, and Mr. J. S. Holmes 2nd. In the three Orchid competition Mr. R. B. Cater was 1st, and Mr. J. Jolly was 2nd. The Rev. E. Handley was 1st for a specimen Orchid, and Mr. R. B. Cater was 2nd. Mrs. Studd also received certificates for a fine Masdevallia Veitchii grandiflora and a good form of Cypripedium Regnieri, and altogether a noteworthy display of these favourite plants were got together.

Watford Chrysanthemum Society.—We are informed that at a meeting held on the 12th inst., it was decided that the annual exhibition of Chrysanthemums should be held at Watford on November 19 and 20.

Preston and Fulwood Horticultural Society.—The eleventh spring show of this Society was held in the new public Hall, Preston, on the 20th and 21st inst. As an exhibition it was quite a success, and the best show which the Society has yet held. The sum of £110 was offered in prizes; and there were seventy-nine classes, very few of which had less than three entries each. The most valuable prize—one of £5 5s.—was that for a group of Orchids mixed with Ferns, and which was taken by Mr. Beddoes, gr. to E. G. Wrigley, Esq., Howick House. It consisted chiefly of Cattleya Trianæ in variety, there being a good display of flowers on a base of Fern. Groups of plants staged for effect on a space not exceeding 100 feet were well contested in both nurserymen and gardeners classes. The classes for Azalea indica, both in the case of nurserymen and of gardeners, were better than they have been before at Preston. There was a good show of Hyacinths, though, in former years, these have been quite as good if not better in quality. The same remark may be applied to Tulips. A splendid specimen Orchid, Dendrobium nobile, was sent from Howick House, which could not have had less than 500 flowers.

Glasgow and West of Scotland Show.—This was held on the 27th inst. Nurserymen showed well and extensively. Cyclamens were largely contributed. Azaleas, although good, showed signs of being touched by the frost during removal to the exhibition; Orchids, alpine plants, and bulbs formed the remaining features, vegetables being only sparingly shown.

Botanic Garden, King William's Town.—The annual report shows a greatly improved condition of the garden, and of the conservatory. The Curator, Mr. Leighton, announces his intention to resign—a circumstance which the committee greatly regret.

South Kensington.—We notice that the plants in the Conservatory at South Kensington, the late property of the Royal Horticultural Society, are to be sold by auction on Tuesday, April 9, by order of the Commissioners. Messrs. Horne Son & Eversfield, 84, Basinghall St., E.C., are the auctioneers.

Publications Received.—*Naturalists' Voyage Round the World.* By C. Darwin, F.R.S. (London: John Murray, Albemarle Street.)—*The Pansy, and How to Grow it.* By James Simkins. (London: Simkin, Marshall & Co.)

Trade Notices.

BURNT ASH LANE NURSERIES.

The partnership hitherto subsisting between B. B. Maller, T. J. Maller, and H. F. Maller, has been dissolved so far as concerns Thomas John Maller, by mutual consent; and Messrs. B. B. Maller and H. F. Maller will continue to carry on business under the old style of B. Maller & Sons.

—— We learn that Messrs. Thompson and Uff have taken over the seedsmens' and florists' business lately carried on at "The Rosarium," Ashbourne, Derbyshire, by Messrs. A. W. Godwin & Sons.

Book Notice.

The Best Forage Plants, &c. By Dr. F. G. Stebler and Dr. C. Schröter, translated by A. N. McAlpine. (London: David Nutt, 270, Strand.) 4to, thirty plates.

This is a work which may be confidently recommended to the notice of our agriculturists. It was prepared by Dr. Stebler, the Director of the Seed Control Station at Zurich, and it has been copiously illustrated by Dr. Schröter, of the same city. The introduction comprises a description of the orders Gramineæ and Leguminosæ, but no special reference is made to the miscellaneous herbage which plays so large a part in mixed pastures—a rather serious omission, as their relative prevalence and power of growth so materially influence the development of the grasses and Leguminosæ. The varying effects of wet or dry seasons, and the influence of various manures are manifested to the full as much in the case of the weeds of the pasture as in the other plants. No adequate idea, indeed, can be obtained of what takes place in pasture or meadow-land from the study of isolated plants or species of plants. It is necessary to study the plants of our pastures not only singly but also in combination, as they occur under ordinary circumstances. Most important is the study of the structure of the roots and stems in combination with their mode of growth when isolated, but more especially when growing in association with other plants. At the present moment an old controversy is being revived as to the value of Rye-grass. While some condemn it on the ground that it speedily dies out, others point triumphantly to the fact that the grass in question forms a large proportion of the best pastures. We do not doubt either of these statements. We know the last to be true, and we have every confidence in the correctness of those who allege that the grass in question dies out after a few years. Both statements, however, require testing in order to get an answer to the question why the Rye-grass dies out in the one case, and how it is that it is so abundant in the other? Mr. Faunce de Laune tells us that it is so prevalent in some pasture because the animals eat other grasses first, and only fall to on the Rye-grass and the Dutch Clover when the supplies of other herbage fall short. This is a point for the grazing farmers to investigate; for our parts, we should think such an assumption about as reasonable as the opposite one, that the animals reserve these particular plants as a *bonne bouche* after satisfying their hunger on the other! The real secret, we believe, lies in the mode of growth of the plants, and the particular time at which it occurs, as modified not only by climate, soil, and season, but by association with other plants, and the compulsory adaptation of the habits of one to the habits of others. When such adaptation becomes no longer possible, the weaker plants disappear, and the others takes its place. The records of the Rothamsted meadow experiments, begun in 1856, contain a fund of information on this subject, and if the full record in the *Philosophical Transactions of the Royal Society*, for 1882, is somewhat inaccessible to most readers, an abstract may be found in the useful summary of the Rothamsted experiments made by Professor Fream (Horace Cox), or in the volume devoted to *Plant Life* in the late Mr. Morton's series of Agricultural Handbooks (Bradbury & Agnew).

The coloured plates in the present volume do give some indication of the mode of growth of the several plants, but the root-development which is so important, is inadequately treated as indeed it is in all similar works. One useful feature consists in the woodcut illustrations of the principal impurities. Mention is made of some ingenious Hamburgh seed doctors who mix small stones of the size and shape of Clover seeds with the genuine article, colouring them appropriately to heighten the illusion. The book, originally written for Swiss pastures, many of an alpine character, would have been improved by the omission of some details of little importance in this country and by the addition of fuller references to the circumstances of English agriculture and to the recent literature of the subject, so far as this country is concerned, but it contains so much that is calculated to be of great value and importance that we do not hesitate to commend it strongly to the notice of our readers.

THE MADRESFIELD GRAPE.

(Concluded from p. 383.)

We have yet to deal with the most critical period, and where so many fail—amateurs especially—that is, when the berries just begin to change colour—it is at this stage that the skin of the berry sometimes cracks, rendering the berries useless. Now, what is the cause of this pernicious cracking, and by what means can we prevent it? These are all-important questions, and many are the remedies suggested. Some will tell you that boring through each shoot with a gimlet between bunch and rod is a preventative and cure; others say, cutting a notch half-way through the shoot will so check the flow of sap that cracking will cease; others, again, advise the withholding of water to the roots during this period; some advocate a free unrestricted run of laterals, and others attribute the cause to soils—all of which I have proved to be fallacious and misleading.

Barron, in his book on *Vines and Vine Culture*, say:—"If allowed to hang long, the berries are somewhat liable to crack." Now, this is a most remarkable error, by such an authority, seeing that cracking (if any) takes place just as colour changes, and long before ripeness, whereas, if the Grapes are kept very long after being ripe, the opposite—shrivelling—actually takes place.

Thompson says, in *The Gardeners' Assistant*, "If mildew be allowed to vegetate for even the short space of three days, the berries are rendered incapable of natural distension, and cracking follows; but of this I have no experience, and desire to have none."

In point of fact, none of our "books on the Vine" give any definite information upon so important a detail, still a good deal has appeared in the gardening papers, and many conflicting opinions have been expressed, from time to time, nevertheless, I adhere to the old maxim that "prevention is better than cure," and I am prepared, and do boldly and fearlesly assert that the cracking of Madresfield Court berries is wholly and solely due to atmospheric influences completely within the growers' own control, which he can and should avoid, by the following timely precautions.

It frequently appears to be overlooked that there is such a thing as an atmosphere out-of-doors which is at times, close, stagnant, and heavily charged with humidity. It may be for a few hours only, and is followed rapidly by a different temperature, such as is often noticeably in thundery weather, when we have known large quantities of Plums, Cherries, Gooseberries, and other outdoor fruits crack wholesale. It is during the prevalence of such atmospheric conditions out-of-doors, or similar conditions indoors, artificially obtained at this critical period, that the mischief may be done, very quickly, indeed, and almost unawares, unless the grower is prompt in using the counterbalancing precautions, with the help of the hot-water pipes and the judicious admission of air night and day.

This liability to crack can best be avoided by the gradual reduction of atmospheric moisture a few days previous to, and in anticipation of, the first berry commencing to colour, by maintaining a gentle circulation of dry, warm air, and by keeping up the necessary temperature night and day (bright sunshine excepted) by warmth in the heating apparatus, thus promoting a genial, buoyant, and enjoyable atmosphere, seldom quite closing the top ventilators. It is really astonishing, if the Vines be healthy and the leaves of proper substance, what a comparatively dry and airy atmosphere they enjoy from this stage onwards without danger. It is at all times desirable to follow Nature as far as possible, and if the foliage has hitherto been allowed to become dry at least once in the twenty-four hours, the leaves will now possess that texture and strength that will enable the Vine to finish off to perfection its crop of luscious fruit.

It is advisable to grow Madresfield Court Vines in a house by themselves, and allow them to extend but on the other hand very good Grapes can be, and are, produced in houses of mixed Vines.

Defective ventilation has much to answer for notably in the excrescences on the under sides of the leaves, and very frequently in the attacks of certain insects. Shanking, too, may to this sometimes be partly attributable, although this is more generally a root question—or it is the result of over-cropping, and its consequent debility.

Plants in vineries are always objectionable and lead to compromises which are in many cases and in these days of *multum in parvo* perhaps inevitable, but are none the less unsatisfactory. As regards manures a good deal has been said lately about the value of artificial fertilisers, especially nitrate of soda (probably of the greatest advantages to makers), but my present opinion is unfavourable to their use being sceptical in respect of any permanent gain accruing to the Vines. Where it is get-at-able and can be applied without its being a nuisance I prefer ordinary house sewage or liquid farmyard manure.

I am unaware of any complete experiments or whether it is possible by grafting, inarching, or other means to improve this fine Grape, although I am aware of several incomplete cases of inarching Madrefield Court Vine on to other varieties of Vines, but I am a believer in the influence of stock on the scion generally. Possibly others may be able to throw some light upon so interesting an experiment. I have now in hand a small case in point, where Madresfield is inarched on to a layered Muscat, which, by the way, makes the very best o stocks. I shall watch the results with curiosity and will report them to the members of the Association. The beauty of the foliage of this Vine deserves a word in passing, notably the deep serrations, the coating of white down on the under side of the leaves, and the brilliant colour taken on by them when maturing. When quite ripe this luscious Grape may be cut and kept fresh and good in bottles for two months in a cool dry room in the usual way, whilst if a tablespoonful of syrup be added to the water in each bottle the flavour of the Grapes will remain unimpaired.

The substance of my experience may be summed up thus:—Given moderate-sized inexpensive vineries, simply but perfectly heated and ventilated, roots may be inside, outside, or both, as convenient laborately made borders are unnecessary but should be made piecemeal, the soil firm, and the whole under the control of the grower; moderate extension and renovation of rooting area yearly, using every available means to encourage roots near the surface; abundance of water always, and liquid-manure during the season of growth (colouring period excepted), sound mulchings of spent Mushroom manure, careful and judicious ventilation, as detailed; extensive pruning and training, and thorough ripening of the wood, early and careful stopping, thinning and disbudding, using due discretion in cropping.

These are some of the most salient points in successful cultivation, and I can safely predict that whoever will intelligently follow out the hints here given will assuredly be rewarded with satisfactory crops, and free from cracking.

PLANT PORTRAITS.

Godetia Fairy Queen, *Illust. Monatshefte* and *Moniteur d'Horticulture*, March 10.

Masdevallia Tovarensis, *Lindenia*, t. 171.

Odontoglossum Cervantesi lilacinum, *Lindenia*, t. 172.

Oncidium iridifolium, *Lindenia*, t. 169.

Papaver lævigatum, *Illust. Monatshefte* and *Moniteur d'Horticulture*, March 10.

Polystachya pubescens, *Lindenia*, t, 170.

ART EXERCISED ON FERN STEMS.

M. Godefroy, we suppose, fears to satiate his readers with the quaint forms and charming colours of Orchids, and so deems it advisable to lay before them occasionally a foil to so much beauty which shall serve to rest the eye and enable it the better to appreciate the beauties of Orchids after a short diversion. At any rate, he published some time ago illustrations of some figures rudely carved out of Fern stems by the natives of the New Hebrides. Those of our readers familiar with the old *Penny Magazine* must remember the queer figures from Easter Island therein depicted; and, moreover, they will be astonished to find under the portico of the British Museum at the present day the real originals, but in those long past days, the woodcuts gave no idea of the colossal dimensions of the figures. Possibly the size was mentioned in the text, but while the memory of the illustrations remains that of the text has vanished. We allude to them now to point out the resemblance there is between these colossal stone figures and the rudely carved Fern stems which we have taken the liberty of copying from the pages of M. Godefroy Lebeuf's *Le Jardin* (fig. 75). When we say that they are carved in Tree Fern stems we have given sufficient indication of their size. In Messrs. Veitch's museum at Chelsea there are several really elegant vases made from Tree Fern stems.

Home Correspondence.

VIOLAS AND PANSIES AS BEDDING PLANTS.—The wet summer of 1888 served to illustrate in a remarkable manner the usefulness and the effectiveness of the tufted Pansies as bedding plants. While many of the ordinary subjects usually employed for summer bedding had a woe-begone appearance owing to the wet and lack of sunshine, the Violas were already gay and effective alike in sunshine and rain. I saw beds of them in many parts of the country, and the same testimony could be borne whatever the locality in which they would be found. But varied and effective as they undoubtedly are, somehow many gardeners appear slow to recognise their usefulness as bedders. The late Mr. John Fleming, as far back as thirty years ago, recognised the great usefulness of bedding Pansies, which in their days would probably be more properly termed Violas or tufted Pansies, and his Cliveden Blue and Cliveden Yellow, both of which are now superseded by others of the same habit and shades of colour, while his old Cliveden purple is still worth growing for the purpose of forming effective masses. With these Mr. Fleming made excellent effects in the spring garden. The improvement in the Violas within the last ten years has been wonderful, and such lovely shades of colour have been produced, combined with a dense short jointed habit of growth, good constitution, and freedom of bloom, that a flower garden might be formed wholly of Pansies, and not be either formal or wanting in diversity. But success with Violas depends to a large extent upon planting at the right time, and treating the plants properly when planted, and where these two points get attended to their value as decorative plants would be greatly enhanced. They flourish best in a rather deep stiffish soil, with some good manure at their roots which should be placed 9 inches or so below the surface, to induce the roots to travel down in search of it. The soil having been prepared by deep digging and the laying down of this dressing of manure, planting can be done in March, if the weather be suitable, or in April. Plants divided in the autumn and the young rooted pieces planted up in nursery beds, make excellent stuff for planting in beds in spring. At the time the flower beds are planted with Hyacinths and Tulips for the spring display, Violas can also be planted as a carpet, and to succeed the bulbs, but it is necessary the plants be strong, and that they be placed in the ground long enough to become thoroughly established before the winter sets in. Mulching for the winter should be effected with leaf-soil, well decomposed manure, or cocoa-fibre refuse. Planted at this time of the year Violas come into bloom early, following the Dutch bulbs; and when the latter have gone out of flower, and ripened their bulbs, they may be lifted without disturbing the Violas much, and others that will last through the summer may be put in their places. In this way a good display can be maintained from April until the fall of the year. Those who have not seen a bed of the blue and white blotched Viola Countess of Kintore mixed with silver variegated Pelargoniums, can have no idea of the chaste beauty of such a combination; or Mrs. Gray, White Viola, with a rose or pink-coloured Pelargoniums or Viola Queen of Lilacs, or Viola elegans, with yellow Calceolarias or dwarf yellow Tagetes. A comprehensive list of good varieties would number about sixty, so that there is a large choice. Among some blooms sent from Mill Lane Nursery, Solihull, during the past summer, I was particularly struck with the brightness and beauty of the colours of such varieties as Ethel Baxter, Pytho, Sir Joseph Terry, York and Lancaster, Blue Cloud, Spotted Gem, and others, mainly new introductions, which supply colours undreamed of a few years ago. The summer treatment of Violas consists in affording the plants good waterings in dry weather. As some of the old shoots cease to flower they can be cut away, and thus space is left for the young growths to rise and yield a succession of bloom. Cuttings may be put in on a cool shady border in the open ground, during July and August, to be in readiness for the planting in October. In a bed of light soil and plenty of sand the cuttings strike readily. To grow Violas and Pæonies successfully it is essential the plants be taken up any autumn, or second season at most, cut well back, then parted, removing all old roots and stems, planting them out in nursery beds close together, for early and spring use. *R. D.*

THE RIBSTON PIPPIN.—I have two trees of this kind growing against a south wall which are very fine specimens, covering many square yards, and producing many hundreds of fine fruit annually, weighing from 6 to 9 oz. each, and as beautiful in form and colour as it is possible for Apples to be. The Ribston appears to have been known to the monks in the monasteries of Normandy and Brittany, and who called it the Reinette de Bretagne. I have also heard it called the Normandy Pippin. I think Mr. W. H. Rogers—see recent numbers of *Gardeners' Chronicle*—is right in supposing it was originally introduced from France. I offered you the evidence of having seen it at Mont St. Michel, in Normandy, some time ago. This seventh wonder of the world has, at different stages of its existence, been a monastery, a military garrison, and a state prison. I saw a large tree there of the variety some years since, which was possibly planted by the monks who once inhabited the mount, for within the outward austere conduct of their lives there is a germ of discretion which generally leads them to select the best of everything, and that may be the reason that they selected the Reinette de Bretagne Apple, *i.e.*, our Ribston Pippin, as the best of its kind, and we must allow that their judgment was not at fault in this particular, the different features of growth, productiveness and flavour being considered. True, the trees are subject to canker, but not more so than many other varieties. This fell disease and its cure remain a riddle to this day. It too often happens that the subsoil of gardens where Apple trees thrive best is clay, and I have noticed that as soon as the roots get down to it the trees begin to lose their branches and get disfigured, the decay gradually going on until the trees are only fit to be rooted out. I have stayed it by transplanting the trees so affected and removing them to a more congenial site, or by trenching down under the roots, removing the clay, and replacing it with coal and wood ashes or other loose material as will constitute a good drainage, thus removing the cause and reinvigorating the trees. It is not moisture which injures the trees, as is too often supposed; but it is essential to their well doing that moisture should not be stagnant, as this will certainly cause the decay of the fibrous roots from which the feeders spring. I have the evidence of a row of Royal Russet Apple trees growing near to a cart-road, which, two years ago, were much disfigured by canker, whole branches being destroyed by it. I adopted the plan named above by cutting a drain 5 feet deep parallel with the line, 2 feet at the bottom being composed of strong yellow clay, filling the bottom with loose material, replacing the soil and connecting the drain with another running at right angles. Looking at these trees now I am pleased to see that the decay is arrested, and a number of vigorous shoots have started from the main branches, whilst the spurs have a healthy look, and give promise of a fair crop of fruit. It is an old and a true adage that health casts off disease, and by using the best means to promote the health of the trees, we also assist to restore them to vigour and health. If very fine fruit is required, it is necessary to keep the branches thin and to remove all superfluous growth, as well as thin out the fruit as soon as it is fairly set. *C. B. Saunders.*

THE COLOUR OF M. NIEL ROSE BLOOMS.—I would like to know if any reader of these pages, especially those who have had long experience of the above-named Rose, have remarked the paleness of colour in the flowers on very young plants? So far as my observations go, I have not observed the deep rich canary gold of its flowers on very young plants, whatever may have been the stock on which they were worked, or on own roots. On year-old plants the colour is not what we expect to find at all, and is much nearer to that of Gloire de Dijon. Three years ago I planted some two-year-old plants, which furnished only pale-coloured flowers for two years after planting; this season, however, the blossoms are deeper in colour, and are more like those which a Maréchal Niel should be. I know of one very large plant in the Midland Counties which is said to be nearly forty years old, and which still produces annually about 1500 or 2000 well-formed blooms of a rich canary-yellow. Another very old plant occupies an unfavourable position just outside the town of Kidderminster. This, unlike the last-named plant, is planted out-of-doors against the wall of the dwelling; in winter time the roots and a portion of the stem are frequently under water, but this does no apparent harm, for the tree produces quantities of richly coloured flowers every year. My blooms are this season of a deeper colour than usual, owing probably to the plants having been well supplied with sewage. *J.*

WHITE ARUMS.—I have been watching with interest the remarks on Arum culture which have appeared in these pages, but so far as I can remember, Mr. Ashton is the first one to mention size of pot, and as he seems to value large spathes and I do not, I should like to know if smaller pots would reduce the size of the spathes without diminishing their numbers. Why should not healthy blooming plants be grown in 7 or 8-inch pots for the winter? There is also one other point not touched upon yet; I think some strains produce flowers more freely than do others and I have started an experiment to find this out, but if the ground has already been gone over, I should like the conclusions others have found on the subject. *S. J. S.*

RHEUMATISM AND THE STINGS OF BEES.—A very nice supply of bee literature is furnished from week to week in the *British Bee Journal*. Amongst other wonderful discoveries of the present day, it appears to have been reserved for Dr. Tere to have discovered a cure for rheumatism in the sting of a bee. Those who have hands which refuse to catch hold of a thing properly through that painful disease, listen. He says he has tried his remedy upon 173 patients and been uniformly successful. As we have no means of contradicting him, his word must be accepted till we can disprove it. Hear ye, therefore, the words of the learned doctor. Herr Tere says, to the above 173 patients he applied 39,000 stings. The number seems to us rather appalling, but the doctor endeavours to inspire courage by saying that after the first sting, the pain is felt less and less, till at last it is gone. When the pain of the sting is gone, the rheumatism departs with it. Though I have had no experience of rheumatism, and therefore no need of cure, I can vouch for the pain getting less and less, after each sting in my own case. Before dismissing the subject we might say that we have frequently heard cottagers who have had rheumatism, and been stung accidentally, say that as the pain of the sting subsided, so did the rheumatism follow suit. *W. Chitty.*

A METHOD OF PRESERVING APPLES AND PEARS.—Apples and Pears will often be turning in too rapidly, and my aim is to keep them in first-rate condition some months longer than can be done on fruit-room shelves and on warm, dry, boarded floors in spare rooms, and such like places. I prepare a mixture as follows:—2 or 3 bushels of cocoa-nut fibre, 1 lb. of powdered charcoal, 1 oz. of powdered sulphur, and ½ oz. of salycylic acid, all duly mixed. Place a layer of this about 1 inch thick on the damp bricks or stones in as cold a cellar as you have—temperature, say, 35° or 40° at this time

of the year—then spread out the fruit evenly, then more of the mixture just to cover the fruit, and another layer of fruit, and so on. The fruit must be hand-picked, and treated as tenderly as eggs. My Jargonelle Pears are picked just before they begin to spoil on the trees, and before the birds spoil them. The ripening of the fruits will be retarded by their being placed in these antiseptics, on the cold, damp floor of bricks or stones; the materials must be damp but not wet. The smaller unripe Jargonelles will be left on the trees a little longer, and when picked I shall treat them in the same way. These small Jargonelle Pears, like other small ones, have been liable to shrivel, and were usually thrown away, until I adopted this plan, which prevents their drying-up, as they absorb the moisture from the damp mixture, and come out with good flavour months after the larger ones here disposed of. I consider this is following Nature as nearly as can be. All growers have noticed that those Apples and Pears which have fallen from the trees often only partly ripe, and which have got covered with dead leaves or litter, have been found to be in a good state of preservation in the spring, although generally grub-eaten. I send you this that other fruit growers may try, or improve upon the mode. *Wm. Moody Bell.*

THE SEEDING OF PLANTS.—When a healthy plant is perfecting seeds its vigour is spent in that direction until the seeds are ripe, but when that is accomplished the force of the plant goes in other directions. It is in the nature of all perennial plants to do this, and I have no hesitation in asserting that the effort to produce seeds does always leave a weakness that is seldom overcome, although an unhealthy plant or one declining in vigour may be permanently injured in this way. As an instance of this the following case affords a good illustration. It was stated in my hearing that it is not advisable to take more than two pods of seeds from a Hippeastrum, or the plant would be permanently injured by over seeding. This remark was made ten years ago, and the same season I selected five flowers from a healthy half-grown bulb with two spikes, and each flower produced a large seed-pods; the five pods contained upwards of 700 seeds. Next year the bulb was of large size, and produced three spikes with fifteen flowers. I saved five pods again from the same plant, and the bulbs produced offsets and sixteen flowers the following season. I have the bulb now. It is the largest in our collection, and it is at the present time producing three spikes, as it has done every year since. *J. Douglas.*

LIFE IN CONTINENTAL NURSERIES.—In these days, when so much has been said and written as to the desirability of raising the standard of the gardening profession, I believe that one factor which would contribute in some degree to that end is but little thought about. I refer to the advantages that are to be derived by a sojourn in some good Continental nursery or garden. Judging from my own experiences in a French nursery, where I was treated with the greatest kindness and courtesy, I am strongly of opinion that the rising generation of gardeners should make it one of the objects of their ambition to spend some time in Belgium, France, or Germany. While abroad in any of these countries, not only do you have an opportunity of observing the methods and ways of working of our Continental *confrères*, but, if a man cares to apply himself, he can also become proficient in another language besides his own, which is an accomplishment not to be despised. And even apart from these advantages, travel is generally beneficial, and it must be confessed that we Britons have need of this to help to brush away our insular prejudices and improve our manners. At the present time it is a fact, that for every Briton you meet who can speak any language besides his own, you will find a dozen amongst our Continental neighbours. I have met many young gardeners in France and Belgium who could speak and write two and three languages. The question which naturally arises is, Why do so few of our young men go to the Continent, and what is the nature of the influences which deter them? First in importance I think we may put the question of expense. If a young man be fortunate enough to get an appointment where special qualifications are wanted, he will probably be as well paid on the Continent as at home; but as an ordinary hand in a nursery the pay is small—insufficient, indeed, to enable the greater number of young men to live as they have been accustomed to do in their native country. Therefore, it is necessary before going abroad to have a few pounds to spare for current expenses after leaving sufficient to pay the expense of the journey. With many this question of expense is a serious one, and I have often thought that it might be a good thing if some of our horticultural associations were to give a few money prizes, to take the shape of travelling scholarships, to be competed for by young gardeners. Comparing Belgium and France, the former is the cheaper country as regards the cost of living. It is also more home like, the general habits of the people being more like our own than those of the French. The pay in Belgium, however, as a rule, is a little lower than in either France or Germany, but notwithstanding the smaller pay you can live better and cheaper in Belgium than in either of the other countries above mentioned. Good and comfortable lodgings can be obtained in a Belgian town in private houses at from 50 to 60 francs per month, the franc being equal to 9½*d*. The ordinary wage in the nurseries is about 12 francs per week for a working day of from eleven and a half to twelve hours in summer, and from daylight till dark during the winter months. In Belgium there is no regular Sunday work, other than the usual necessary work of watering, airing, &c. In Germany the pay is about 40 marks per month with board, the mark being equal to 11¾*d*. The working hours are much the same as in Belgium, with the addition of regular work on Sundays until mid-day. In France, the usual pay is about 15 francs per week, for a working day of eleven and a half hours, and regular work until mid-day on Sundays. From the above statements it will readily be seen that a Continental nursery is not a "bed of Roses," the long hours of labour being exceedingly wearisome at first until you begin to get accustomed to it. These long hours with so much Sunday work, are against the British workman, but where a special arrangement cannot be entered into, it has to be made the best of, and on the whole, the time will be found to pass both pleasantly and profitably, there being so much of interest to see and hear. Certainly it is true that for a time after going to a foreign country where one does not know the language there is a considerable isolation, but this also has to be borne and it is a drawback which gradually, and in most cases speedily disappears. In Belgium and especially in Ghent—that great and prosperous centre of horticulture—you find many individuals who speak English, and a new comer will generally find some one to assist him to procure lodgings. Ghent, of all the Continental towns, is the place to see nursery work, but if a man wishes to acquire proficiency in a useful language then Belgium is not the country to go to, as the prevailing language is Flemish, which is of little use elsewhere. Certainly the commercial and educated classes speak French, but in a nursery one is surrounded all day by Flemish speaking workmen, which makes it likely that Flemish will be learnt before French. France has numerous horticultural establishments, many of which have world-wide reputations, and in most of these nurseries much that is interesting and useful may be learnt. If German is the language that it is desired to acquire, there are many good estalishments in that country, and in Austria, in Berlin, Hamburgh, and Erfurt, and Vienna, and elsewhere. As I mentioned previously, the social conditions of France differ very considerably from our own, and consequently residence there is a great change to a Briton. There is hardly such a thing as private lodgings, as we understand the term, the system prevailing savouring more of the boarding-house. Generally a young man lives in a *café* or hotel, and has a bedroom to himself, all meals being taken at the common table. Others prefer to have a bedroom in a private house, but take their meals at the most convenient *café*. In a respectable *café* board and lodging (*chambre à coucher et pension*) cannot be had below 60 francs per month, and even at that figure the living is not by any means luxurious. For 80 to 90 francs per month you can obtain quarters of a superior kind, but at the first-named figure you can live comfortably. The early part of spring is the best time to get a situation on the Continent, at that season men being in greater demand than at others. It is also the pleasantest time of the year, and the time when most can be seen of the work carried on. *J. Wilson, jun., Greenside Nursery, St. Andrews. N.B.*



Fig. 75.—The evolution of art as practised on tree fern stems.

EARLINESS OF THE SEASON.—In passing through Cockfield (Suffolk) last week, March 13, I was delighted to see the Coltsfoot in full bloom on the sunny side of the railway embankment, making it look quite gay with its bright heads of yellow flowers. I was told on inquiry that it had been in bloom quite a fortnight, that is rather earlier than it was first seen near London, viz., March 9. It is said that in this village a wild Primrose has never been found growing. I have no doubt that those who are in possession of Dr. Babbington's *Flora of Suffolk* (now lately published, I believe) will be able to find if such be correct. *C. Cundy.*

THE DEVELOPMENT OF THE EDGED AURICULAS.—I have lately received an interesting letter from Mr. Philip J. Worsley, who is spending the winter in the Engadine, Switzerland, in which he informs me that, as every piece of evidence as to the date at which the edged forms of show Auriculas first appeared, has its value to those who are interested in the question of their origin, he mentions, at the risk of restating a well-known authority, a work on botany in Latin and German, containing a series of copper-plate illustrations of sixty-two pips of garden Auriculas, hand-coloured, besides two pages of illustrations of trusses and leaves of Auriculas, published in the year 1737. The title runs—"Phytanthoza Iconographica, sive conspectus aliquot millium Plantarum, A. Joanne, Guilielmo Weinmanno Dicasterii ratisbonensis Assessore Collectarum quorum denominationes explicantur a D. Joanne Georgie Nicolas Dieterice. Ratisbonæ MDCCXXXVII." Mr. Worsley goes on to say:—"The Auriculas illustrated shows selfs of yellow, crimson, and brown colours, with well-defined circular white paste. Several of the pips are most irregular in outline, and have angular pastes. A large number are brindled, that is to say, the body colour is variegated in a radial direction, in lines, spots and dashes, the colours being mixed of red, yellow, green, and white. Among these there is but one edged flower—a green edge, of large size; the edge is wide and clean, the body colour is crimson. There is no grey or white-edged flower among the whole sixty-two, although many of the selfs are shown to have the body-colour thinly sprinkled with meal, chiefly about the inner edges. Apparently the

white and grey-edged Auriculas were not known at this date in Bavaria, although so near to the probable original source of the garden Auricula." The book above mentioned is in four large volumes. The arrangement of the plants is alphabetical. There is also an interesting series of Pinks, wild and cultivated. It would appear from the foregoing that the green-edged Auricula is the older form, and perhaps the one at that time cared for. But one can understand that the meal would persist in appearing upon the edge, and in course of time it came to be a recognised type; while the thickening of the meal gradually led to the selection of what are known as the white-edged flowers. *R. Dean.*

SOCIETIES.

ROYAL HORTICULTURAL.

March 26.—The meeting on Tuesday last was of a very interesting nature, exhibits being numerous and varied. Orchids were largely shown, and the new Orchid section of the Floral Committee which met for the first time, had its time well occupied. In the afternoon papers dealing with the Hyacinth were read by Messrs. Egbert Kersten and Jhr. A. E. Barnaart, two well known Dutch growers. Mr. J. Douglas followed with a paper on Hyacinth cultivation in England; all three of which will appear in the *Journal* of the Society. It is to be regretted that, owing to the unfavourable season last year, that bulbs were not up to the general exhibition standard; and Messrs. J. Veitch & Sons, Chelsea, S.W., alone were exhibitors of a collection of Hyacinths.

Floral Committee.

Present at the Floral Committee: W. Marshall, Esq., in the chair; and Messrs. R. Dean, J. Laing, H. Herbst, J. Walker, T. W. Girdlestone, G. Nicholson, R. B. Lowe, J. Fraser, P. Blair, and G. Paul.—At the Orchid Committee: Sir Trevor Lawrence, Bart., M.P., in the chair; and Messrs. H. J. Veitch, J. Douglas, G. Hill, C. Pilcher, J. Dominy, H. Ballantyne, H. M. Pollett, J. Baines, J. O'Brien, M. T. Masters, J. Roberts, F. Sander, and F. Moore.

Sir Trevor Lawrence, Bart., M.P., had a very interesting collection of Orchids, embracing several good plants, all well grown and in excellent condition. There were the new hybrid Dendrobium melanodiscus, described in our issue for March 9, p. 29; Oncidium superbiens, the flowers of which are about 1½ inch across, glossy. The petals and sepals triangular, with a long claw, deep brown, with a yellow apex, and a yellow median band on the outer surface of the sepals, the petals whitish, with several large brown spots, the lip bearing a prominent lilac crest; Cattleya Trianæ eboracensis, with ten flowers, was a good centre-piece; Cymbidium devonianum, with a spike of dull brown flowers; the bright yellow Spathoglottis Kimballiana, and several Odontoglossums, such as O. crispum vars., O. Ruckerianum, O. Pescatorei, and Dendrobium Wardianum, with Masdevallias and others, were also prominent.

A pretty object was Oncidium bifolium majus, of which a good specimen came from Messrs. F. Sander & Co., St. Albans. The numerous bright clear yellow flowers were very striking.

Cyrtopodium punctatum was shown by J. Hudd, Esq., Gordon House, Blackheath Park, the plant carrying a vigorous spike of clear yellow flowers, the petals being just tinged with green.

From the Rev. E. Handley, Bath, came a plant of Oncidium macranthum, with a spike of twenty-six flowers of good size; and a mass of Cymbidium eburneum, with twenty good flowers, was sent by Mr. J. Douglas, Great Gearies, Ilford.

W. C. Pickersgill, Esq., Blendon Hall, Bexley, contributed three very large and clean flowers of Lycaste Skinneri varieties with delicate colourings; and a good spike of Odontoglossum crispum prettily marked.

The peculiar looking Cyrtopodium Saintlegerianum (illustrated for our issue for August 18, 1888) was represented by a large well flowered spike from Mr. Cummins, gr. to A. H. Smee, Esq., Wallington, who also contributed under the name of Odontoglossum rigidum, a spike about 2½ feet or more long, bearing a few yellow flowers about three-quarters of an inch long, the petals and sepals small lanceolate, and the lip spreading; also Masdevallia Chestertoni, green with purple-brown spots and a prominent terra-cotta lip, for which this species is remarkable; a bloom of Cattleya Schroderæ alba was also shown.

From Mr. Bruce Findley, Manchester Botanic Gardens was a plant of Cattleya Trianæ variety, with the two petals streaked with a crimson line for about 1½ inch from the apex downwards. The lip too, was of a good deep colour, the ground colour being a good rosy-lilac.

Finely marked and coloured Oncidium triumphans were contributed by S. B. White, Esq.; and Sir Charles W. Strickland, Bart., Hildenley, Yorkshire, sent a specimen of Cattleya citrina with three bright flowers.

An unnamed Cymbidium came from Mr. W. Swan, gr. to G. C. Raphael, Esq., Castle Hill, Englefield Green; it was a fine vigorous plant with Iris-like leaves of deep green colour, with spike 18 inches long, bearing smallish green flowers, the lip more yellow than the other segments, and the throat purple-brown. The plant is of a very pleasing appearance.

An exhibit attracting much attention was that of H. J. Elwes, Esq., Preston, Cirencester, who had a specimen of Shortia galacifolia, which he had brought over from North America, having collected it on the Alleghany Mountains last year, and it has now flowered in a cold frame. (See fig. 73. p. 397.) There was also a flower of Tulipa Kaufmanniana, a native of Central Asia. The segments are about 3 inches in length, and ¾ inch wide, erect, deep orange-yellow at the base, and for about one-third of the length fading into a pale sulphur-yellow. It will doubtless be a welcome addition to the border, as it is said to be quite hardy.

A bunch of Fortune's yellow Rose, was a conspicuous object, receiving much notice. The brownish colour should find much favour now-a-days. This Rose is an excellent one for training in a house, as could have been seen at Chiswick twenty years ago. It is a very free flowerer; a wall also is a very suitable position.

An effective group of miscellaneous plants, occupying half the length of the Hall, was staged by Mr. George Phippen, The Nurseries, Reading, Hyacinths, Tulips, Lily of the Valley, and Primula obconica being the chief flowering plants, and these were varied by Geonoma gracilis in profusion.

From Messrs. J. Laing & Son, Forest Hill, S.E., there was a gracefully arranged group of Cliveas, with Orchids, Crotons, and Geonoma gracilis, edged with Adiantums. The Cliveas were very fine, especially Mrs. Laing, which has a good heavy truss, the individual flowers being large, expanding, full red-orange and a yellow throat; and John Laing, very deep scarlet-orange, full truss, and flowers of good substance; Sulphureum, pale salmon, with a sulphur-yellow throat, showed well in contrast. The Orchids in the group comprised Cattleya Trianæ, Cymbidium eburneum, Dendrobium Wardianum, Odontoglossum Rossi majus, &c.

A few brightly coloured hardy Primroses were shown by Mr. R. Dean, Ealing, W., and of these the most noteworthy were:—The Mikado, red-chocolate ground, with a fringed white edging and yellow eye—a very pretty object; Prosperine, rosy-magenta, with a streak of white through the centre of each petal, giving it a very singular look.

Mr. F. Ross, Pendell Court Gardens, Bletchingley, showed Franciscea calycina and F. grandiflora, and and magnificent flower heads of Brownea grandiceps, B. coccinea, and B. c. hybrida, these last making a bold show, especially B. grandiceps, which was 6 inches across, and not fully open; B. c. hybrida is a supposed hybrid between the others, and has trusses of intermediate size, with the fine colour of B. grandiceps. B. coccinea has numerous small trusses. All have crimson or deep rose-coloured flowers in globular heads, and have bold pinnate foliage.

A group of a varied nature was sent by Messrs. Paul & Son, Old Nurseries, Cheshunt, in which forced Polyantha Rose Mignonette, fringed Musk Rose, the York and Lancaster, and the green-flowered Rose were prominent; also fine examples of forced Lilac Marie Louise, small plants, with a profusion of flower. Alpines were largely contributed and included Saxifraga Malyi, which has tufts of clear yellow flowers borne on scapes 2 or 3 inches long, and well above the foliage; S. oppositifolia minor, and S. o. major, the flowers of the latter being three times as large as those of the former, and making a very attractive rock plant, with its conspicuous deep rosy-purple flowers. Other plants were S. coriophylla, S. lutea purpurea, Hepatica triloba vars. Anemone pulsatilla, Scilla bifolia rosea, Iris reticulata, &c.

A large collection of hardy herbaceous plants was contributed by Messrs. Barr & Son, King Street, Covent Garden, W.C., numerous favourite Narcissi, including cyclamineus, nanus and minor, formed the major part of this display. There were also Myosotis dissitiflora alba, pure white; Erythroniums, Scillas, Cyclamen Atkinsi vars., Crocus vernus vars., and Anemone coronaria in bright colours.

A number of Cyclamen of medium quality in pots were shown by Mr. Hibburt, gr. to W. Clay, Esq., Kingston; and Messrs. J. Carter & Co., High Holborn, had plants of the quilled Cineraria Emperor Frederick and cut blooms of good size and colour from their collection.

Messrs. J. Veitch & Sons, Chelsea exhibited the only extensive group of Hyacinths in the Hall, and although these were pronounced to be a little less robust than those shown by them and others last season, there were many flower spikes of much excellence amongst them. It need hardly be said that the collection consisted of single flowered varieties. They were shown, for greater ease in comparing the bloom in groups of three each, and this is decidedly an improvement on the usual mixture. In whites there were Mont Blanc, a large spike; Alba superbissima, a medium-sized spike; Lady Derby, great breadth and length of spike; La Grandesse, still one of the best; Snowball equally as good as the last named; Madame Van der Hoop, a new variety; has full bells; Christine Henrica—a fine blush-white; Mrs. Goschen has a short and compact spike; and L'Innocence has a fine spike.

In light blues may be mentioned Duchess of Edinburgh, a broad, compact, and long spike of porcelain tint; Grand Maitre, a spike of closely set small bells, and long and narrow; De Candolle, a tall and narrow spike, lilac blue; Lord Derby, a fine broad truss, with enough bells, but not crowded with them.

Of dark blue varieties, mention may be made of The Sultan, a close, compact, flower, darker than King of Blues, which last was also shown in medium sized compact spikes; William III., a fine dark, with closely set bells; King of Blacks, is very dark, and had a large spike with compactly set bells; Prince of Wales is a tall spike of medium width and of a pleasing deep tint, the white eye being a distinct feature.

In purple or some shade of it were James Watt, with a small but compact spike; and L'Esperance, magenta coloured, smallish bells, a nice, compact spike.

The red or pink coloured varieties consisted of Macaulay, an excellent full spike; Koh-i-noor, one of the best of its colour, and a splendid spike. Charles Dickens (there was also a blue variety of this name shown) was well known, and it is still good enough for a show-flower; Garibaldi had a fair spike, rather narrow: the whole plant is low in stature, and the color of the flowers a shade of crimson; King of Reds is paler than the last named, but is pleasing; it had a compact spike; Salmon King had a compact full truss; La Joyeuse; Princess Helena had crumpled bells, and compactly set, the colour being a shade of rose. Von Schiller has a stripe in the petals more distinct than that in Koh-i-noor, which variety it resembles in other points; General Pelissier is a good crimson; Vuurbaak is well known; Etna is red with a paler edge to the petal, and has a short compact spike; Challenger is amaranth coloured, and has a full compact spike.

Yellow varieties were Bird of Paradise and Ida, both old—spikes long and narrow, but with bells compactly set together; Autocrat (new) has a full compact truss of a lemon colour, an improvement on the last-named. Yellow Hammer (new) is paler than Autocrat, and has bells closely set—it is a good one for a yellow variety.

The new varieties of Amaryllis shown were Terentian, a beautifully formed brilliant, but yet dark crimson—it differs from most in having no other colour interiorly; Faust, a crimson with white stripes; Ceres, same colour banded white; Juvenal. Roscrea. Valida, and others.

Messrs. Veitch also had plants of the very decorative Boronia heterophylla, and a hybrid Dendrobium named D. micans; the parentage of the latter is stated to be D. Wardianum and D. lituiflorum. The plant shown had a pseudo-bulb in appearance like that of Wardianum, which is about 3 ft. long, surmounted by some half-dozen flowers resembling a fine D. nobile in form and colour, the lip, however, is more expanding; the throat is very deep purple, the rest white with a purple suffusion on the median lobe. The sepals and petals are white with purplish suffusion at the apices. The growth of the plant strongly recalls that of D. lituiflorum.

Awards.

First class Certificates.

To Clivea John Laing, from Messrs. J. Laing & Sons (7 votes).

To Amaryllis Terentian, from Messrs. J. Veitch & Sons (unanimously).

To Saxifraga Malyi, from Messrs. Paul & Son (7 votes).

To Primrose The Mikado, from Mr. R. Dean (5—4 votes).

To Shortia galacifolia, from H. J. Elwes, Esq. (unanimously).

To Oncidium superbiens, from Sir Trevor Lawrence.

To Dendrobium micans×, from Messrs. J. Veitch & Sons (unanimously).

Award of Merit.

To Hyacinth Yellow Hammer, from Messrs J. Veitch & Sons.

To Dendrobium melanodiscus×, from Sir Trevor Lawrence.

To Cattleya Trianæ var., from Mr. Bruce Findlay.

Botanical Certificate.

To Masdevallia Chestertoni, from A. H. Smee, Esq.

Medals.

Silver-gilt Banksian, to Mr. G. Phippen, for a group of Hyacinths, Tulips, &c.

Silver Banksian, to Messrs. J. Veitch & Sons, for a group of Hyacinths; to Messrs. J. Laing & Sons, for group of Cliveas, &c.; to Messrs. Barr & Son, for group of Daffodils.

Fruit Committee.

Present: Sir C. W. Strickland, Bart., in the chair; and Messrs. R. D. Blackmore, H. Weir, Ph. Crowley, J. Willard, F. Q. Lane, G. Wythes, A. H. Pearson, T. J. Saltmarsh, W. Warren, G. Bunyard, C. Ross, Ch. Haycock, J. Hudson, J. Cheal, J. Wright, P. Barr, R. Hogg, and G. W. Cummins.

This committee had only two exhibits to engage its attention, the chief being a dish of Black Hamburgh Grape, well coloured, and the bunch of good size and form, from W. F. Hume-Dick, Esq., Thames Ditton Park (gr. Mr. W. Palmer), for which a Cultural Commendation was awarded. Messrs. W. & J. Brown, Peterborough, showed a dish of Shillaker's seedling Apple, which was passed.

Horticultural appliances were shown by Messrs. Chas. Toope & Co., Stepney Green, London, E., who had their Simplex Fumigator, which consists of a copper pipe like an ordinary smoking pipe with a cap over it, to which a tube is attached for blowing down. The Asbestos Hot-water-pipe Propagator is a zinc box to fit over the ordinary heating pipe, and in it is a layer of asbestos shreds which are kept moist and so evolve a vapour to the seeds, and placed on a shelf above.

The Sphincter Grip Armoured Hose Co., Limited, 63, Fore St., E.C., had a sample of their hose which has a casing of wire externally.

CRYSTAL PALACE.

March 23.—The first spring show was held under most favourable conditions of weather, last Saturday being bright and warm. There was a good attendance of visitors, but whether the floral display or the photographic exhibition was the chief attraction cannot be said. The exhibition was rather modest in size, and the general quality, perhaps, a trifle below last year's standard.

Cyclamen formed a strong feature of the show, Mr. D. Phillips, Langley Broom, Slough, leading well in the amateurs and the open classes; Mr. J. Odell following well in the latter case. In the non-competing exhibits they figured well, Mr. B. S. Williams, Victoria and Paradise Nursery, Upper Holloway, N., having a good selection of his fine strain; there were also Primulas and some well-flowered Cliveas in this group. Mr. James, Farnham Royal, Slough, also sent some good Cyclamens and Cinerarias; and from Mr. Hibburt there was a quantity of rather small specimens with bright flowers.

Cinerarias from Mr. J. Ford, gr. to Sir C. Piggott, Bart, Wexham Park, Slough, were large and profusely flowered good greenhouse decoration plants, with which he led in the open class. This exhibitor was a good 2nd in the amateurs' class for twelve, following on Mr. A. Carter, gr. to Alderman Evans, Ewell Grove, Ewell, who made a good show with well-flowered plants.

Messrs. H. Williams & Sons, Fortis Green, Finchley, swept off the leading prizes in the nurseryman's section for Hyacinths, Tulips, and Narcissi (Tazetta), with good specimens of each for this season, all being of the most popular varieties. They were 2nd for Lily of the Valley with good samples, but in pots of too large a size, Messrs. J. Laing & Sons, Forest Hill, S.E., receiving 1st with well-flowered compact lots.

Mr. T. Penfold, gr. to Rev. Canon Bridges, Beddington House, Beddington, had an excellent evenly-flowered lot, which won the leading place in the amateurs' class.

Mr. W. Monk, gr. to J. R. Higgins, Esq., Eastlands, Dulwich, was the best amateur exhibitor of Tulips and of Narcissi (Tazetta), his Tulips being of fine quality. The Narcissi were of medium size, but well coloured.

The best twelve Hyacinths from an amateur were those of Mr. J. Rodbourne, gr. to Baroness Heath, Coombe House, near Croydon, who lead in a competition of seven. Gertrude and King of the Blues were very fine here. The same exhibitor contributed a non-competing group of Lachenalias in baskets, and plants of Primula obconica in pots.

Messrs. J. Laing & Sons were placed 1st for a group of miscellaneous plants for an effective and delicate arrangement of Dendrobium Wardianum, Cattleya Trianæ, and other Orchids, with Gloxinias, and various Palms and Ferns; Mr. H. James, Castle Hill Nursery, Norwood, being 2nd, with Azaleas, Pandanus, small Palms, and various Orchids.

The leading lot of twenty-four greenhouse Azaleas was from Mr. C. Nunn, gr. to J. Soames, Esq., Greenwich Park; and Mr. R. Wells, Sydenham, was placed 2nd, both having small, fairly well flowered plants.

From Messrs. Paul & Son, Old Nurseries, Cheshunt, came the prize lot of Amaryllis, which contained some finely formed flowers of good colour. This firm also contributed a good collection of forced Roses, and numerous pretty alpines.

A large collection of cut Daffodil blooms from Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, made a good display; and several boxes of cut Camellias from Messrs. Wm. Paul & Son, Waltham Cross, were conspicuous.

LINNEAN.

March 21.—Mr. Carruthers, F.R.S., President in the chair; Messrs. H. B. Hewitson, W. Narramore, W. J. Rabbits, and M. B. Slater, were elected Fellows.

Mr. T. Christy exhibited the pod (36 inches in length), of an Apocynaceous plant received from the Gaboon as Strophanthus, but believed to be allied to Holarrhena.

Mr. W. B. Hemsley furnished a report on the botanical collections made on Christmas Island during the voyage of the *Egeria*. This includes a complete list of the plants collected, with remarks on their general distribution, the author being of opinion that the flora of this island, which lies about 200 miles south of the western end of Java, was more nearly related to that of the Malayan Archipelago than to that of Australia.

Mr. R. A. Rolfe commented on three species of Orchids which had been brought home by this expedition, all of which were new. Mr. Thiselton Dyer, referring to Mr. Lister's Report to the British Association on the Zoological collections from this island, in which it was stated that the character of the avi fauna was Australian, considered that this was not borne out by an examination of the flora, which was decidedly Malayan.

A paper was then read by Mr. R. A. Rolfe on the sextual forms of Catasetum, with special reference to the researches of Darwin and others. The purport of Darwin's paper (*Journ. Linn. Soc.*, 1862) was to show that Catasetum tridentatum had been seen by Schomburgk to produce three different kinds of flowers belonging to the same number of supposed genera, all on the same plant, and that the three represented respectively the male, female and hermaphrodite states of the species. Mr. Rolfe showed that Schomburgk's remarks applied to two distinct species — C. tridentatum and C. barbatum, the females of which resemble each other so closely that they are thought to be one and the same, namely, Monacanthus viridis. Neither of these, however, belonged to the true plant of that name, which was really the female of another species, namely, C. cernuum—a fact hitherto unsuspected. The key of the situation was that the females of several species resembled each other very closely, and to three of them the name Monacanthus viridis had been applied.

PRESTON SPRING FLOWER SHOW.

Wednesday, March 20.—The 11th spring flower show and floral *fête* in connection with the Preston and Fulwood Horticultural Society, was opened in the Preston Public Hall by the President. The prizes given by the Society were valued at over £100, and there were a larger number of entries than was the case last year. The principal prize-winners were Mr. J. B. Dixon, Preston; Mr. L. Rawsthorne, Hutton Hall; Mr. R. Smith, J.P., Longridge, and Mr. W. P. Sinclair, M.P., Liverpool.

READING.

An exhibition of flowers arranged by Mr. G. Phippen, The Victoria Nurseries, Reading, was held in the Old Town Hall on the 20th inst., and attracted a large number of visitors. Mr. Lees, gr. at The Wilderness, staged some well-flowered Spiræas, Azaleas, and some pots of white Cyclamen, the whole group being nicely relieved with foliage. Mr. Turton, gr. at Maiden Erlegh, had a nice group of plants, including an Anthurium, choice Begonias, Cinerarias, Palms, and good spikes of Hyacinths. From the Caversham Rectory conservatories came a group, including Dendrobium species, a Cattleya, and some Palms, with Cytisus in the background. All the other exhibits were from Mr. Phippen's extensive nurseries. The show of Lilies of the Valley grown in boxes was very fine; in all there were no fewer than from 6000 to 7000 spikes. The cut Tulips numbered about 5000, and the Hyacinths in pots about 800, comprising most varieties in commerce. There was also a very choice lot of miniature and other Hyacinths.

RICHMOND SPRING FLOWER SHOW.

The first show of spring flowers held at Richmond, Surrey, took place on the 21st and 22nd inst., at the Castle Assembly Rooms. Many varieties of Narcissus were exhibited. Hyacinths and Tulips were also in abundance, in company with splendid collections of Cyclamen, Azaleas, and Orchids.

Messrs. Williams & Sons, of Finchley, carried all before them in the classes for Hyacinths and Tulips; local exhibitors, however, deserve a word of praise for their productions, many of which were highly creditable. Chinese Primulas were shown by Messrs. Williams & Sons, Mr. Brown, and Mr. Bates.

The miscellaneous groups of plants were a great feature of the show, and there was a close fight for first honours between Messrs. Williams & Sons, Mr. James, and Mr. Fordham. The Cyclamen of Mr. Henry Little and Mr. Clay were much admired, and the same may be said of the stands of flowers and foliage contributed by Mr. Chard and Mrs. Herbert Chapman; the bouquets of Messrs. Perkins & Sons, Mr. Bray, and Mr. Chard.

For a collection of Orchids Mr. Henry Little was awarded a silver medal. Among the chief specimens were the Cymbidium Lowianum, Cattleya Trianæ, Cypripedium Boxalli, Dendrobium Wardianum, Odontoglossum Alexandræ, with others of equal beauty. A good display of Narcissus, including some new varieties, was sent by Messrs. Barr & Son, of 12 & 13, King-street, Covent Garden, who also exhibited a number of hardy Cyclamen and other plants of spring flowers, and Messrs. Collins Brothers & Gabriel, of 39, Waterloo-road, S.E., and Mr. Thomas S. Ware, Tottenham, showed large numbers of spring flowers. Mr. W. Poupart received a prize for a very choice group of Narcissus, Hyacinths, and Tulips.

EDINBURGH BOTANICAL.

The Society met on Thursday, March 14, in 5, St. Andrew Square, Dr. Craig, President, in the chair.

Mr. William Evans called attention to his find of Zostera nana at Aberlady on the Firth of Forth. Mr. A. Bennett, F.L.S., communicated the finding of Calamagrostis sticta var. borealis, Hartm., in Scotland; Obituaries of Dr. Boswell, of Balmuto, by Dr. Cleghorn; of Dr. Crichton, of Arbroath, by W. Bell;

and of John Allan, of Tanhill, by Dr. McFarlane, were read.

Mr. Lindsay gave in his report on temperature and Vegetation at the Royal Botanic Garden for February, which was as follows:—

"During the month of February, the thermometer was at or below the freezing point on twenty mornings, indicating collectively 103° of frost, as against 121° for the corresponding month last year. The lowest readings were on the 10th, 18°; 11th, 18°; 12th, 20°; 16th, 24°; and 24th, 24°. The lowest day temperature was 33° on the 9th, and the highest 55° on the 1st of the month. Slight falls of snow occurred on seven days and rain on four days. A good many spring plants have come into blossom, but vegetation generally, is making slow progress. There is no perceptible change on the buds of deciduous trees. A few hardy shrubs are fairly well advanced such as species of Ribes, Cratægus, and Nuttallia. Flowers of Rhododendron præcox and Nobleanum were injured by frost on the 10th, but so far, extremely little injury has been done by frost this winter, many half hardy plants are still quite safe in the open borders without protection of any kind having been afforded them. The following spring plants annually recorded, came into flower, viz.:—Scilla præcox, on February 1; S. sibirica on Feb. 3; Eranthis hyemalis, on Feb. 3; Rhododendron Nobleanum, on Feb. 6; Tussilago alba, on Feb. 14; Crocus susianus, on Feb. 14; Bulbocodium vernum, on Feb. 18; Sisyrinchium grandiflorum, on Feb. 20; Corylus Avellana, on Feb. 22; Symplocarpus fœtidus, on Feb. 22; Crocus vernus, on Feb. 23; Iris reticulata, on Feb. 25; Sisyrinchium grandiflorum album, on Feb. 26: Tussilago nivea, on Feb. 27. On the rock garden twenty-seven species came into flower during the month, amongst which were — Corbularia nivalis, Corydalis angustifolia, Cyclamen Atkinsi, Crocus annulatus, C. Olivieri, C. suaveolens; Galanthus Elwesii, Leucoium carpaticum, Narcissus minimus, Ranunculus anemonoides, Saxifraga Burseriana."

Mr. Bullen communicated his "Record of Temperature, Vegetation, &c., in the Botanic Garden, Glasgow, for February, 1889":—

"On the second day of the month the almost unbroken record of mild weather for the time being came to a close with a sharp snowstorm from the west, accompanied by a high wind and 4° of frost at night. Since then frost has been registered on twenty-one nights. The lowest readings were 20° and 21°, or 12° and 11° of frost during the nights of the 9th and 10th respectively; these were the only days on which the temperature did not rise above the freezing-point, 1° and 3° being registered at noon each day. The day temperature was frequently high, with bright sunshine, 40° to 48° being frequent in the shade during the third week of the month. The total night readings were 98°, or 10° more than the total readings for the same month last year. If we except the snowstorms of the 2nd and 8th, the rainfall has been light. One of the most striking features of the season has been the sudden changes of temperature and of weather; but frosts and snow showers have been so frequent vegetation has been thoroughly retarded. The plants recorded as being in an advanced state of growth during February last year are this year comparatively dormant."

Exhibits were as follows:—From the garden: Brownea coccinea, in flower; Eugenia dysenterica, in flower and fruit; Grevillea biternata, pot of Galanthus Sharlockii, and a cut flower of the double-flowered Sparmannia africana.

H. E. Hole, Esq., of Quorn Lodge, Loughborough, sent flowers of Snowdrop, Snowflake, Cineraria, Lily of the Valley, and Tobacco, which were coloured in a remarkable way by the absorption of aniline dyes.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending March 25, is furnished from the Meteorological Office:—

"The *weather* has been in a cloudy and unsettled condition very generally. A good deal of rain has fallen in most parts of the kingdom; in the E. of England, the S. of Ireland, and the Channel Islands, the fall has been less heavy than elsewhere, in the two last-named districts the fall has been less than the average.

"The *temperature* has been rather below the mean in 'England, S.W.' and the 'Channel Islands'; in most other parts of the kingdom it has been above, and in 'England, E.' an excess of 3° is shown. The highest of the maxima were registered generally on the 24th, and varied from 54° in the 'Channel Islands' to 63° in the 'Midland Counties,' and to 66° in 'Scotland, E.' (at Aberdeen). In 'England, E.' (at Rothamsted), a reading of 66° was recorded on the 25th. The lowest of the minima occurred on the 22nd, and varied from 25° in Scotland, and the 'Midland Counties' to 30° in 'England, E.,' and to 33° in the 'Channel Islands.'

"*Rainfall* has been rather less than the mean in the S. of Ireland and at Scilly, but more in all other districts, espncially over the W. of England.

"*Bright sunshine* has been more prevalent than it was last week, but the percentage of the possible duration has continued low generally; in some parts of England 29 per cent. has been recorded, but in 'Ireland, W.' the per centage was only 15, and in 'Scotland, W.' 12."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending March 25.	Temperature. Accumulated. Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1889.	Below 42° difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1889.	Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Deg-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	0 av.	10	25	— 24	+ 50	3 +	66	13.4	12	17
2	2 +	17	23	— 25	+ 34	2 +	50	4.7	22	23
3	2 +	23	13	— 45	+ 42	7 +	43	4.8	29	23
4	3 +	37	14	— 84	+ 112	1 +	43	3.6	29	22
5	1 +	32	15	— 78	+ 96	4 +	39	5.6	28	21
6	0 av.	28	13	— 98	+ 107	2 +	43	4.9	24	19
7	1 +	20	10	— 17	+ 3	2 +	54	10.3	23	23
8	0 av.	23	11	— 52	+ 20	1 +	46	6.0	22	22
9	1 —	26	13	— 86	+ 99	2 +	45	9.0	29	25
10	1 +	22	8	— 18	— 10	4 +	61	7.9	15	19
11	0 av.	28	9	— 28	+ 13	2 —	51	8.3	22	26
12	1 —	26	2	— 40	— 7	1 —	55	6.6	23	30

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, March 28.

Trade still dull. Good samples of Grapes realising better prices. *James Webber, Wholesale Apple Market.*

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.
Abutilons, 12 bun.	3 0	6 0
Anemone, Fr., 12 bun.	1 6	4 0
Arum Lilies, 12 blooms	2 0	4 0
Azaleas, 12 sprays	0 6	1 0
Bouvardias, per bun.	0 9	1 0
Camellias, white, 12 blooms	2 0	4 0
— red, 12 blooms	0 9	2 0
Carnations, 12 blms.	2 0	3 0
Daffodils, dbl. 12 bun.	4 0	6 0
— single, 12 bun.	3 0	6 0
— French, 12 bun.	2 6	4 0
— various, 12 bun.	4 0	9 0
Eucharis, per dozen	3 0	6 0
Gardenias, 12 blooms	4 0	9 0
Heliotropes, 12 spr.	0 6	1 0
Lilac, white Fr., bun.	4 0	6 0
— lilac coloured, p. bunch	3 0	5 0
Lily-of-Val., 12 spr.	0 6	1 0
Marguerites, 12 bun.	3 0	6 0
Mignonette, 12 bun.	2 0	4 0
Narcis., paper-white, (French), 12 bun.	2 0	6 0
— double, 12 bun.	1 6	3 0
Pelargoniums, 12 spr.	1 0	1 6
— scarlet, 12 spr.	0 4	0 6
Primroses, 12 bun.	0 9	1 0
Primulas, dbl., 12 sp.	1 0	1 6
Roses, Tea, per doz.	2 0	6 0
— coloured, dozen	2 0	4 0
— red, per dozen	4 0	9 0
— Safrano, dozen	2 0	4 0
— do., (Fr.), doz.	1 0	3 0
Snowdrops, 12 bun.	1 0	3 0
Tuberoses, 12 blms.	2 0	4 0
Tulips, 12 blooms	0 6	1 0
Violets, 12 bunches	1 0	1 6
— dark, Fr., bunch	1 0	2 0
— Parme, Fr., bun.	2 6	3 6
Wallflowers, 12 bun.	4 0	6 0
— French, 12 bun.	1 0	2 0

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0
Arum Lilies, p. doz.	9 0	15 0
Azaleas, dozen	24 0	42 0
Cineraria, per dozen	8 0	12 0
Cyperus, per dozen	4 0	12 0
Dracæna terminalis, per dozen	30 0	60 0
— viridis, per doz.	12 0	24 0
Erica, various, doz.	12 0	30 0
Euonymus, in var., per dozen	6 0	18 0
Evergreens, in var., per dozen	6 0	24 0
Ferns, in var., doz.	4 0	18 0
Foliage plants, various, each	2 0	10 0
Ficus elastica, each	1 6	7 0
Genista, dozen	8 0	12 0
Hyacinths, dozen	6 0	9 0
Lily-of-Val., doz. pts.	10 0	18 0
Marguerites, doz.	6 0	12 0
Palms in var., each	2 6	21 0
Pelargoniums, dozen	12 0	18 0
Primulas, per dozen	4 0	6 0
Tulips, dozen pots	6 0	9 0

Fruit.—Average Wholesale Prices.

	s. d.	s. d.
Apples, half-sieve	2 0	4 0
— Canada and Nova Scotia, per barrel	7 0	17 0
Grapes, per lb.	1 6	5 0
Lemons, per case	12 0	21 0
Pine-apples, Eng., lb.	1 6	2 0
— St. Michael, each	2 0	8 0
Strawberries, per lb.	8 0	12 0

Vegetables.—Average Retail Prices.

	s. d.	s. d.
Asparagus, English, per 100	12 0	...
— French, bundle	21 0	...
Beans, Jersey French, per lb.	3 6	...
Beet, red, per dozen	1 0	2 0
Carrots, per bunch	0 6	...
Cauliflowers, each	0 3	...
Celery, per bundle	1 6	2 0
Cucumbers, each	1 0	...
Endive, per dozen	3 0	...
Green Mint, bunch	1 0	...
Herbs, per bunch	0 6	...
Leeks, per bunch	0 4	...
Lettuce, per dozen	1 6	...
Mushrooms, punnet	1 6	...
Mustard and Cress, punnet	0 4	...
Onions, per bunch	0 5	...
Parsley, per lb.	1 0	...
Peas, French, per lb.	1 0	...
Potatos, per cwt.	4 0	5 0
— kidney, per cwt.	4 0	5 0
— new French, lb.	0 6	...
Rhubarb, bundle	0 6	...
Seakale, punnet	2 6	...
Shallots, per lb.	0 6	...
Spinach, per bushel	5 0	...
Tomatos, per lb.	2 0	...
Turnips, per bunch, new	0 5	...

Potatos.—Beauty of Hebron, 70*s.* to 80*s.*; Imperators, 60*s.* to 65*s.*; Dunbar Magnums, 130*s.*; Lincoln, do., 70*s.*; and Dunbar Regents, 110*s.* to 120*s.* per ton.

SEEDS.

London: *March* 27.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that an active business is now passing in farm seeds. Choice samples of red Clover seed and Alsike, both grown in Canada, and excellently well suited for the English climate, are now obtainable in London on exceedingly moderate terms. The supplies of French red Clover seed are falling off. In Trefoils, on account of their scarcity, a substantial upward jump is observable. Rye-grasses, both Italian and perennial, continue extremely cheap. Tares are in improved request. A sudden and considerable improvement alike in value and demand has occurred in blue Peas; Haricots still depressed; bird seeds are also slow; Rape seed advancing; Sanfoin, too, is higher.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending March 23:—Wheat, 30*s.* 5*d.*; Barley, 26*s.*; Oats, 17*s.* For the corresponding week in 1888:—Wheat, 30*s.* 6*d.*; Barley, 29*s.* 6*d.*; Oats, 15*s.* 6*d.*

FRUIT AND VEGETABLES.

Spitalfields, *March* 27.—Savoys, 2*s.* to 6*s.* per tally; Cauliflowers, 1*s.* to 1*s.* 6*d.* per dozen; Sprouting Broccoli, 1*s.* 3*d.* to 1*s.* 9*d.* per sack; Brussels Sprouts, 1*s.* to 1*s.* 6*d.* per half-sieve; Turnip tops, 1*s.* to 2*s.* per sack; Swede tops, 1*s.* 6*d.* to 2*s.* do; Spinach, 1*s.* to 1*s.* 6*d.* per bushel; Greens, 1*s.* to 2*s.* per dozen bunches; Turnips, 1*s.* 6*d.* to 1*s.* 9*d.* do.; Carrots, 1*s.* 9*d.* to 2*s.* do.; Radishes, 4*d.* to 9*d.* do.; Parsley, 4*s.* 6*d.* to 5*s.* 6*d.* do.; Horseradish, 1*s.* 3*d.* to 1*s.* 6. per bundle; Rhubarb (forced), 1*s.* to 1*s.* 6*d.* per dozen bundles; do. (natural), 2*s.* 9*d.* to 3*s.* do.; Celery, 12*s.* to 14*s.* do.; Parsnips, 9*d.* to 1*s.* per score; Beetroots, 1*s.* to 1*s.* 3*d.* per dozen; Seakale, 1*s.* 3*d.* to 1*s.* 6*d.* per punnet; American Apples, 9*s.* to 12*s.* 6*d.* per barrel; English do., 3*s.* 6*d.* to 7*s.* per bushel; English Onions, 6*s.* to 7*s.* per cwt.; Spanish do., 4*s.* to 6*s.* per case; Bordeaux do., 4*s.* 6*d.* to 5*s.* do.; Dutch do., 3*s.* 6*d.* to 5*s.* per bag; Belgian do., 3*s.* 6*d.* to 4*s.* 3*d.* do.; Endive, 1*s.* to 1*s.* 6*d.* per dozen; Carrots, 20*s.* to 26*s.* per ton; Mangels, 16*s.* 6*d.* to 19*s.* do.

Stratford: *March* 26—Both trade and supply have been good during the past week. Prices:—Cabbages, 2*s.* to 3*s.* per tally; Savoys, 2*s.* 6*d.* to 3*s.* do.; Turnips, 20*s.* to 30*s.* per ton; Carrots, household, 24*s.* to 30*s.* do.; do., cattle feeding, 15*s.* to 18*s.* do.; Parsnips, 40*s.* to 50*s.* do.; Mangels, 12*s.* to 18*s.* do.; Swedes, 11*s.* to 17*s.* do.; Onions, English, 120*s.* to 140*s.* do.; do., Dutch, 3*s.* 9*d.* to 4*s.* 6*d.* per bag; do., Bordeaux, 4*s.* 6*d.* to 5*s.* per case; Apples, English, 3*s.* 6*d.* to 6*s.* 6*d.* per bushel; Watercress,

6*d.* per dozen; Celery, 6*d.* to 1*s.* per roll; Carrots, 2*s.* to 3*s.* 6*d.* per dozen bunches; Rhubarb, 1*s.* 6*d.* to 2*s.* per dozen bunches; Radishes, 6*d.* to 9*d.* do.; Cress, 2*s.* per dozen baskets.

POTATOS.

Borough and Spitalfields: *March* 26.—A steady demand for best samples; other sorts sell without alteration. Scotch Regents, 80*s.* to 120*s.*; English, 65*s.* to 100*s.*; Hebrons, 60*s.* to 100*s.*; Magnum Bonums, 65*s.* to 100*s.*; Dunbar, 100*s.* to 120*s.*; other varieties, 60*s.* to 80*s.* per ton.

Spitalfields: *March* 27.—Quotations:—Scotch Magnums, 67*s.* 6*d.* to 90*s.*; Magnums, 50*s.* to 80*s.*; Hebrons, 55*s.* to 65*s.*; Regents, 70*s.* to 110*s.*; Imperators, 60*s.* to 70*s.*; Champions, 55*s.* to 65*s.* per ton.

Stratford: *March* 26.—Quotations:—Scotch Regents, 80*s.* to 105*s.*; do., Magnums, 70*s.* to 110*s.*; English Magnums, 60*s.* to 80*s.*; do. Regents, 65*s.* to 80*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, old prime, 124*s.* to 128*s.*; do., best seconds, 80*s.* to 120*s.*; do., inferior, 36*s.* to 70*s.*; prime old Hay, 108*s.* to 126*s.*; new, 90*s.* to 105*s.*; inferior, 50*s.* to 70*s.*; old straw, 42*s.* to 48*s.*; new, 24*s.* to 40*s* per load.

NOTICES TO CORRESPONDENTS.

Intelligent Readers, *do* please Note *that letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the* Publisher, and not to the Editor, but that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

*** *Photographs or drawings of gardens, or of remarkable plants, trees, &c., are solicited.*

Address: *E. O. F.* The Professor's address is Botanic Garden, Hamburgh. As yet nothing has reached us.

Ants in a Fern-Basket, &c.: *Gardener.* Drown them out by soaking the basket in a tub of warm water. The insects on the Coleus leaves which you sent to us are mealy-bugs (Coccus adonidum). The Cocci are a rather numerous genus, and give the gardener much trouble to extirpate them—and extirpated they must be, if he is to attain success with his plants indoors. As remedies, sponging and syringing with soft-soap, water, and tobacco-water—strong solutions for leathery-leaved plants, and weak ones for those of soft and delicate texture of leaf and stem; and remembering that in the resting period somewhat stronger solutions may be employed than at other times. Methylated spirits applied with a camel-hair pencil is effectual, but tedious in application. If your Coleus are the only plants affected, the most economical plan would be to burn them, and make a fresh start with clean plants.

Books: *E. O. F.* The *Orchid Manual*, 6th edition, by B. S. Williams, Paradise Nursery, Upper Holloway, London, N.

Correction.—In our notice of the patent Combinare Knee Pad (p. 370), in our issue for March 23, the maker's name should have been Mr. T. Stoward.

Gas Lime: *E.* In our next issue an account of the manner in which this is employed by a gardener will appear in the "Home Correspondence." It may be said that it should be dug in.

How Mushroom Spawn is made: *I. H. M.* It would occupy too much of our space were we to enter so fully into the subject as is necessary. Buy *Mushrooms for the Million*, by J. Wright, published at the office of the *Journal of Horticulture*, 171, Fleet Street, E.C., price 1*s.*

Hyacinth Bulbs: *J. T. Smith.* Such instances are common this year, owing to the bulbs not having been ripened thoroughly last year, as the weather was unfavourable.

Insects: *E. J. E.* The leaves of Cattleya Mendelli sent us were covered on the underside with the burrows of the larvæ of some apparently dipterous insect. (The specimen forwarded in a dried state got smashed during examination under the microscope.) Owing to the solidity of the leaves the burrows made by the insects are confined to slender tubes on the under surface of the leaves, and not spread out as in most other instances of subcuticular attacks; and most of them are twisted along their whole length in a remarkable manner, thus resembling twine, owing to the peculiar internal structure of the leaves. *I. O. W.*

Ivy Leaves: *A Subscriber.* You will be quite safe in using the Ivy leaves as you propose to do.

Names of Plants: *J. Lunt.* 1, Cupressus Lawsoniana variety; 2, Juniperus virginiana pendula; 3, Cupressus Corneyana; 4, Cupressus species; 5, Juniperus species; 6, Retinospora filifera.—*G. W. R.* Cattleya Trianæ Schroderi; Masdevallia Chestertoni.—*J. J. W.* Narcissus minor, true; Helleborus, a weak plant, probably olympicus.—*A Suscriber.* 1, Davallia pulchra; 2, Aloe verrucosa; 3, Euomymus radicans variegata; 4, Sempervivum tectorum; 5, Stachys lanata; 6, Saxifraga umbrosa.—*J. R.* Please send an old bulb and a fresh flower, as we cannot reconcile your statement as to its growth.—*O. Orpet.* 1 and 2, varieties of Dendrobium aggregatum.—*T. Trollope.* Epidendrum cochleatum.—*J. G. H. B.* Odontoglossum luteo-purpureum. Never pack flowers in cotton-wool.—*F. S. M.* Broughtonia sanguinea.—*D. M. L.* 1 and 2, send shoots with leaves as well as flowers; 3, Dendrobium fimbriatum oculatum; 4, Corokia Cotoneaster; 5, Leptospermum sp.; 6, Brexia spinosa. Owing to being so carelessly packed, the tickets were loose from the other specimens. The Fern is Adiantum cultratum. The small white-flowered plant is Eupatorium riparium. The woolly-leaved plant is Centrosolenia bullata. Why do you send specimens for naming to the publisher?—*M. B.* 1, Cœlogyne cristata; 2, Gaultheria Shallon; 3, Buddleia globosa; 4, Benthamia fragifera; 5, one of the Hemlock Spruces; we cannot say which from the specimen sent.

Odontoglossum Pescatorei: *G. Palmer.* A very fine variety; but not O. P. Veitchii.

Scotch Fir: *H. & S.* Likely to do great damage. Destroy by fire all the fallen branches, and such as you can get at. Other remedies, we fear, are likely to be ineffectual.

White Rockwork. *F. T. W.* Make a thin wash of Roman or Portland cement, and after covering the rocks with a coat of that material sprinkle any kind of clean coarse sand over it, so that the effect of stone may be produced. If one coat is not enough, give two.

CATALOGUES RECEIVED.

V. Lemoine et Fils, Rue du Montet, Nancy, France—General Spring list.

J. Cheal & Sons, Lawfield Nurseries, Crawley, Sussex—Dahlias.

Samuel Fox Armitage, High St., Nottingham—Grasses, Clover, &c.

A. M. C. Jongkindt-Coninck, Tottenham Nurseries, Dedemsvaart, near Zwolle, Holland—Wholesale list of Conifers, Fruit Trees, Herbaceous Plants, &c.

Communications Received.—E. M.—W. B. H.—E. J.—De B. C.—G. W.—F. R.—C. C.—W. F.—C. W. D.—W. P.—G. F. W.—M. W.—J. V. & Sons.—G. P.—Botanical Society of France.—F. S.—J. H. K.—Dr. B., Vienna.—F. A. M.—G. M.—W. C.—J. W.—R. R.—H. E. A.—J. B. & Son.—C. D. (not of public interest).—J. C. & Co.—B. S. W.—R. A. R.—J. Anderson.—D. T. F.—R. B. White.—W. R.—J. J. W.—H. W. W.—H. J Ross.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquiries in the current week.*

DIED.—We regret to announce the death recently of Mr. Charles Bullock, late of Springfield, Wolverhampton. He was known in florist's circles as a cultivator of the better kinds of Polyanthus. His father was the raiser of P. Lancer.

Barr's Spring Catalogue. Now Ready, of
THE BEST HERBACEOUS PLANTS,
for Borders, Rockwork, and Cutting, contains a select List of HIGH-CLASS AND EASILY cultivated plants only.
Free on application.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

PRIMULA OBCONICA, greatly improved strain (crop 1888) for Present Sowing, per packet, 6*d.* and 1*s.* Large Trade packets, 2*s.* 6*d.*, 5*s.*, 10*s.* 6*d.*, and 21*s.* each. Primrose, Old Double Crimson Pompadour: see coloured plate in the *Garden*, Oct., 1888, Magnificent plants, 15*s.* per dozen, 1*s.* 6*d.* each.
W. BAYLOR HARTLAND, Seedsman and Florist, Cork.

ODONTOGLUSSUM NEVADENSE. A nice well-grown plant of this rare and beautiful Orchid for Sale. Five bulbs, and bearing just now five flowers. Price 30 guineas.
Apply to J. GARDEN, Nurseryman, 4, Avenue des Belles Vues; 4, Bois de Colombes (Seine), near Paris.

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Offers the following varieties of SEED POTATOS:—

Old Ashleaf	White Elephant
Rivers' Royal do.	Early Rose
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Mona's Pride	York Regent
Snowdrop	Scotch do.
Adirondack	Imperator
Village Blacksmith	Red Bog Early
Beauty of Hebron	Schoolmaster
Dalmahoy	Early Don

And other leading varieties. Prices on application to York Street, Borough Market, S.E.

NEW ROSES for 1889.

WM. PAUL & SON
beg to announce that their LIST of the above is now ready, and will be sent post-free on application. Specially worthy of note are
MARCHIONESS OF LORNE, H.P. (Wm. Paul & Son).—Plants ready in May, 10*s.* 6*d.* each.
SAPPHO, T. (Wm. Paul & Son).—Two First-class Certificates. Plants ready in May, 10*s.* 6*d.* each.
WHITE LADY, H.T. (Wm. Paul & Son). Plants ready in May, 3*s.* 6*d.* each.
WHITE PERLE, T. (white sport from Perle des Jardins) Plants ready in May, 5*s.* and 7*s.* 6*d.* each.
THE QUEEN, T. (white sport from Souvenir d'un Ami). Plants ready in May, 5*s.* and 7*s.* 6*d.* each.
The collection also includes other new Roses (English and Foreign) for 1889, and all the best new Roses of 1888.
WM. PAUL AND SON have also a fine stock of the leading older varieties of Roses in pots, for planting out for garden decoration and cutting, 10*s.* 6*d.* to 15*s.* per dozen, £4 to £5 per 100.
Rose Growers by appointment to Her Majesty the Queen,
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OLDFIELD NURSERY, BATH.

ASPARAGUS, GIANT and COLOSSAL. Strong plants now ready. Special Prices on application.
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(*Limited*).

£300 in PRIZES, MEDALS, and CERTIFICATES for FLOWERS, FRUIT, VEGETABLES, and HONEY. Open to Members of all Co-Operative Societies in the Kingdom. (£100 for produce grown from "One and All" Seed of the Agricultural and Horticultural Association, Limited).
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QUICK, stout, and abundantly rooted, transplanted, 21*s.* per 1000; ditto, strong, 27*s.* 6*d.* and 35*s.* per 1000; ditto, extra strong, 40*s.* per 1000.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ROBERT NEAL, The Nurseries, Trinity Road, Wandsworth, begs to offer, in extra quality, the following:—
SEAKALE for Planting, 5*s.* per 100, 40*s.* per 1000.
RHUBARB, for Forcing, 50*s.* per 100.
RASPBERRIES (Fastolf), 6*s.* per 100, 50*s.* per 1000.
VICTORIA PLUMS, Standards, 75*s.* per 100.
DAMSON (Farleigh), Standards, 75*s.* per 100.
PEACHES, Dwarf-trained, 18*s.* to 24*s.* per dozen.
ELDERS, Golden, 2 to 4 feet, extra fine, 20*s.* to 30*s.* per 100.
WILLOWS, Weeping, 8 to 14 feet, 6*s.* to 12*s.* per dozen.

APPLE TREES with Mistleto growing on them, 10*s.* 6*d.*, 15*s.*, and 21*s.* each.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ABIES DOUGLASII GLAUCA, 3 to 4 feet, 18*s.* per doz.; 4 to 5 feet, 24*s.*; 5 to 6 feet, 36*s.*
ABIES MENZIESII, 3 to 4 feet, 4*s* per doz.; 4 to 5 feet, 9*s.*
ABIES PARRYANA, 1½ to 2 feet, 24*s.* per doz.; 2 to 3 feet, 36*s.*
PINUS BOLANDERI, 2 to 3 feet, 9*s.* per doz.; 3 to 4 feet, 12*s.*
PINUS CEMBRA, 3 to 4 feet, 4*s.* per doz.; 5 to 6 feet, 6*s.*
PINUS CONTORTA, 2 to 3 feet, 4*s.* per doz.; 3 to 4 feet, 6*s.*; 4 to 5 feet, 9*s.*
All are from well-rooted, healthy plants; one plant of each variety for 6*s.*, or one plant of each size for 18*s.*, securely packed in mats.
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Grand New Japanese Chrysanthemum.
"THOMAS STEPHENSON."
A beautiful bronzy-crimson sport from "Criterion," indispensable for exhibition. A grand, full show flower; broad petals, slightly incurved at the tips, a lovely yellow shade on the reverse of the petals.
FIVE FIRST-CLASS CERTIFICATES. Orders booked from all the principal Chrysanthemum Growers. (See E. Molyneux's opinion, *The Garden*, 890, &c.)
Rooted plants ready end of March; 7*s.* 6*d.* each, 3 for 15*s.*
CATALOGUE of new and rare varieties, post-free.
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100 ALPINE and HERBACEOUS PLANTS, 25*s.* Descriptive CATALOGUE, Illustrated, with Cultural Notes, 72 pages (containing much interesting information). Post-free, 9*d.*
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50,000 PLUMS and DAMSONS; Standard and Dwarf-trained Morello CHERRIES, all fine grown trees. For price apply to
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Well-rooted, many-shooted, truly named, of matured vigorous growth, and of the best kinds. Bushes, R. S. & Co.'s selection, 8*s.* per dozen; 60*s.* per 100. Packing and carriage free for cash with order.

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all the best New and Old English and Foreign sorts, from 18*s.* to 36*s.* per dozen.

Descriptive List free on application.

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HEATH'S BULB MITE EXTERMINATOR.

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D. HARTLEY, Seedsman, Kendal.

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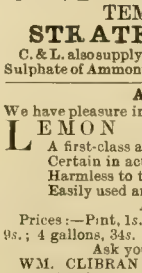
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Unsurpassed as an **Insecticide**, it kills effectually all parasites and insects which infest plants whether at the roots or on the foliage, without injury to tender plants—such as ferns, etc., if used as directed. Used as a WASH it imparts the gloss and lustre to the foliage which is so desirable on exhibition specimens.

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Is now used and highly recommended by nearly all the leading Gardeners.
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Quality, THE BEST in the Market. (All sacks included.)

PEAT, best brown fibrous	... 5*s.* per sack, 5 sacks for 22*s.* 6*d.*
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LOAM, PREPARED COMPOST / LEAF, or PEAT MOULD	... } 1*s.* per bush., 3*s.* per sack (sacks included).
SILVER SAND, coarse, 1*s.* 6*d.* per bush., 14*s.* half-ton, 24*s.* ton.	
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CRUSHED BONES, or Bone Dust		1/2	2/-	3/6	6/-	12/-
VIRGIN CORK (Best Quality only)		—	3/-	5/6	10/6	17/-

RUSSIAN MATS, BAMBOO CANES, PERUVIAN GUANO, NITRATE of SODA, HORTICULTURAL CHARCOAL, &c.
PEAT MOSS LITTER, cheapest and best Bedding for Horses and Cattle, £2 per ton. Extra large Sample Bales, 6*s.* each. Also prepared for Poultry Pens, Rabbits, &c., in Sacks, 1*s.* 6*d.* each; 10 Sacks, 12*s.* 6*d.*; 20 Sacks, 23*s.*
COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1*s.* 4*d.* each; 10 sacks, 12*s.* 6*d.*; 15 sacks, 17*s.* 6*d.*; 20 sacks, 20*s.*; 25 sacks, 24*s.*; 30 sacks, 27*s.*; 40 sacks, 35*s.*; 50 sacks, 40*s.*; Truck-load, loose, free on rail, 30*s.* Limited quantities of G., special quality granulated in sacks only, 2*s.* 6*d.* each.
SPECIAL MANURES, for Farmers, Agriculturists, Market Gardeners, and others (concentrated into a Dry Powder).
CHUBB'S "**PRODUCTIVE**" MANURE, in bags, **£3 per ton** (bags included); sample 1 cwt. bag, 4*s.*, producing extraordinary results, and worth four or five times the actual cost. Try it against any other manure, no matter what price.
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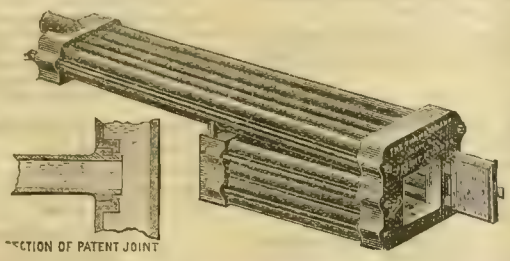
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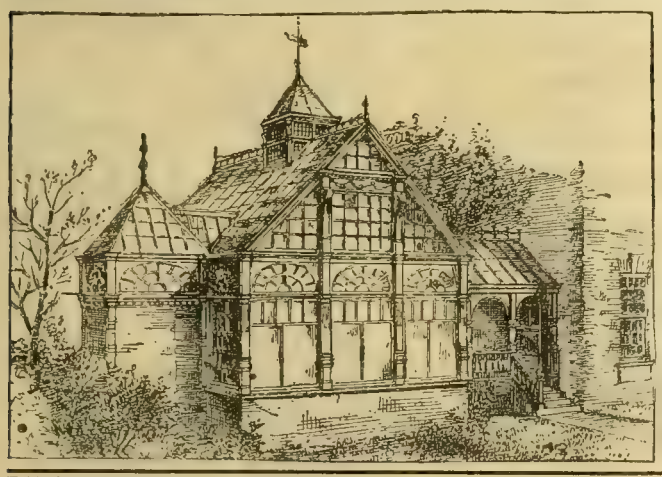
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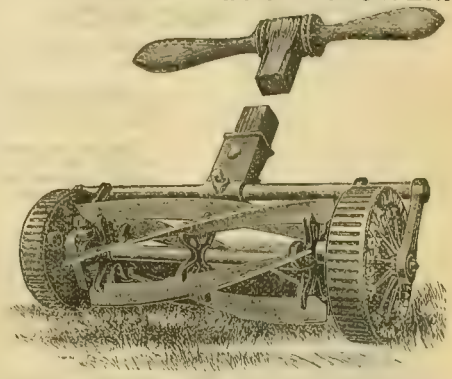
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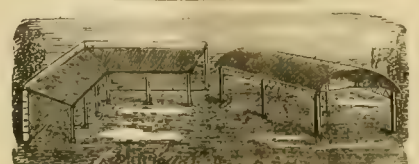
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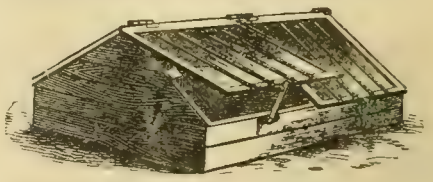
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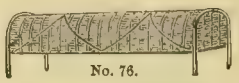
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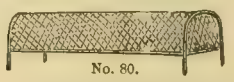
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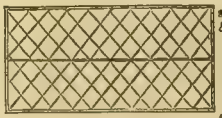

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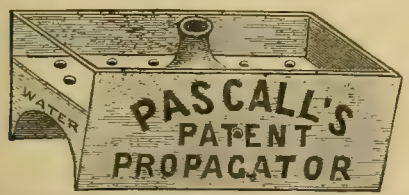
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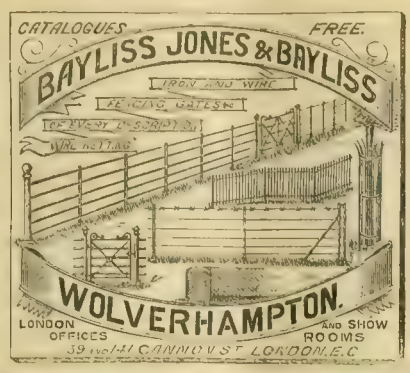
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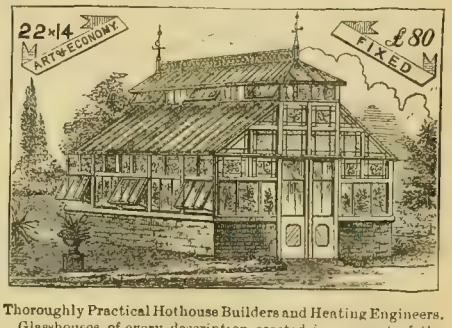
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And most of the Nobility, Clergy, and Gentry of the United Kingdom.

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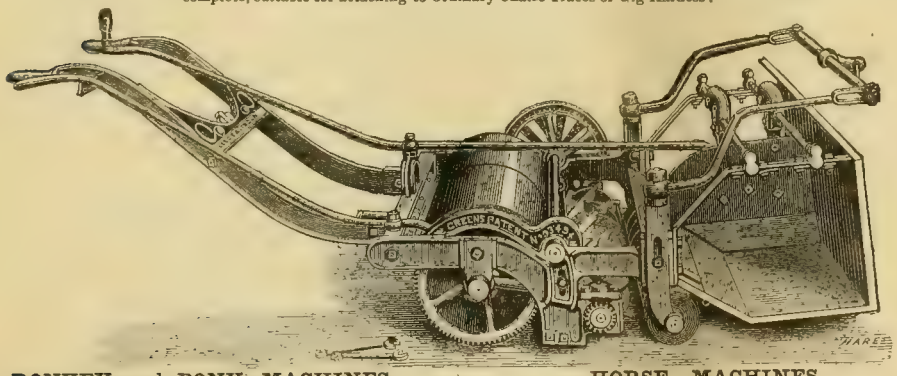
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Specially designed to meet a want which has long been felt in cutting the overhanging grass on the edges of walks, borders, flower-beds, &c., and do away with the tedious operation of cutting with shears.

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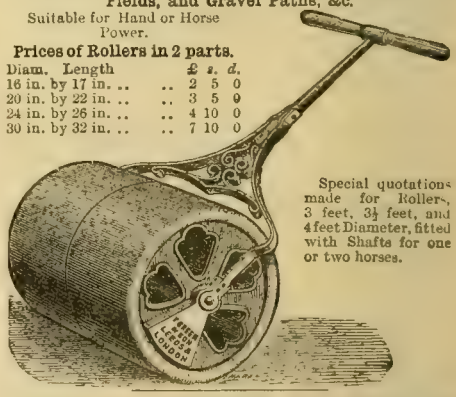
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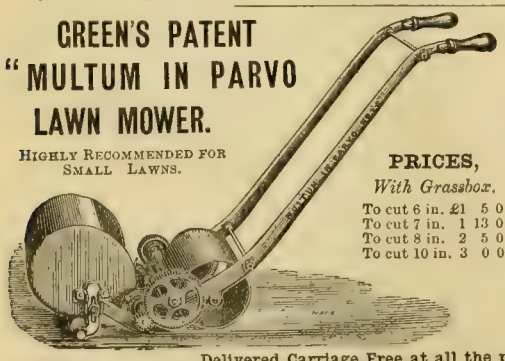
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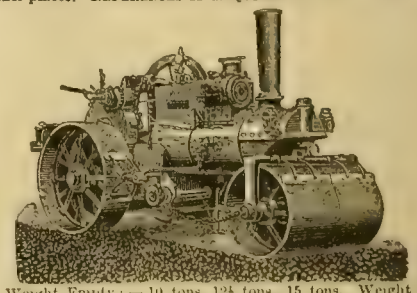
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,, Druryi
Lælia flava
,, autumnalis Buchanii
,, anceps alba
,, elegans
,, ,, Schilleriana
,, ,, alba
Odontoglossum × Ruckeriana
,, polyxanthum
,, cuspitatum platyglossum
Dendrobium stratiotes
,, Lowii
,, nobile nobilius
Cattleya Schroderii
Epidendrum prismatocarpum
Angræcum sesquipedale
,, Dubuyssonii
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,, HUMBLOTI,
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On view morning of Sale and Catalogues had.

Thursday, April 18.

PHAIUS TUBERCULOSUS, PHAIUS HUMBLOTII, the new and splendid PHAIUS HENRYI, all in grand order and condition, three of the most magnificent ORCHIDS known, ANGRÆCUM SESQUIPEDALE, CATTLEYA, GASKELLIANA, both well leaved and in superb health. Also a small consignment of ODONTOGLOSSUM CRISPUM in fine masses, and splendid condition, together with many other fine ORCHIDS.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to sell the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 18, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Isle of Wight.

To Nurserymen, Florists, Speculators, Builders, and others.

The VALUABLE and OLD-ESTABLISHED NURSERY GROUNDS, known as "Shide Cross Nursery," with comfortable Dwelling House, 8 large Glass and Forcing Houses (with heating appliances and every convenience for carrying on a lucrative business), Stabling for 7 Horses, and enclosure of Meadow Land, the whole containing an area of about 2½ acres. This property, being in a high and healthy position on the confines of the borough of Newport, commanding fine and extensive views of the interior of the Island and the Hampshire Coast, is admirably adapted for the erection of a gentleman's residence, and having extensive frontage to 2 Roads of 820 feet offers every facility for immediate profitable development as a Building Estate. It is also very suitably placed for persons requiring a Poultry Farm.

MESSRS. FRANCIS PITTIS AND SON will SELL by AUCTION, at the Bugle Hotel in Newport, on WEDNESDAY, April 17, 1889, at 4 o'Clock in the afternoon, by direction of the owner, Mr. Gould, the above VALUABLE FREEHOLD PROPERTY, with possession.

Vendor's Solicitor, R. ROACH PITTIS, Newport and Cowes.

Monday Next.

2000 Grand Bulbs of LILIUM AURATUM, from Japan, in splendid condition, and about 3000 various imported and English-grown LILIES, comprising unusually fine bulbs of LILIUM RUBRUM CRUENTUM, ALBUM KRŒTZERI RUBROVITTATUM, PLATYPHYLLUM LONGIFLORUM, and many others; awarded many First Class Certificates. A very fine collection of various IRIS, DAHLIAS, and about 1000 HARDY PLANTS and BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, April 8, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Tuesday Next, April 9.

UNRESERVED SALE, by order of the Executors of the late Mr. J. H. Bath, of Manor Farm, North Cray.

8000 ESTABLISHED ORCHIDS. Important to the Trade and large buyers.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, April 9, at half-past 12 o'Clock precisely, the first portion of this extensive Collection. The entire Collection comprises about 5000 Odontoglossum Alexandræ, Pescatorei, and triumphans, mostly unflowered; 3000 Cattleyas, Cypripediums, Dendrobium, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.

SALE BY SAMPLE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, April 10, a large quantity of SPRING FLOWERS, HERBACEOUS PLANTS, HOLLYHOCKS, PANSIES, &c., from Sample.

Samples will be on view morning of Sale. Catalogues of the Auctioneers, 67 and 68, Cheapside, E.C.

Wednesday Next.

A choice Collection of about 500 FERNS; 500 named CARNATIONS and PICOTEES from an English Nursery; and other STOVE and GREENHOUSE PLANTS; a great variety of English-grown LILIES and HARDY BULBS; 2000 LILIUM AURATUM, from Japan; IRIS, DAHLIAS, TUBEROSES, BEGONIAS, FREESIAS, ANEMONES, GLADIOLUS, Hardy ORCHIDS; 10,000 fresh seeds of CORYPHA AUSTRALIS; also a quantity of HOLLYHOCKS, PANSIES, and other Spring Flowers and Herbaceous Plants for SALE from Sample.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, April 10, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.

ODONTOGLOSSUM ALEXANDRÆ.

MESSRS. PROTHEROE AND MORRIS will include in their SALE by AUCTION, at their Central Sale Rooms, on FRIDAY NEXT, April 12, by order of Messrs. Shuttleworth, Carder & Co., a very fine lot of ODONTOGLOSSUM CRISPUM (ALEXANDRÆ) of the best type, including several extra masses. Also a quantity of Established CYPRIPEDIUMS, ODONTOGLOSSUM ALEXANDRÆ, and other ORCHIDS.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, April 12, by order of Messrs. Seeger & Tropp, the following ESTABLISHED ORCHIDS :—

CYPRIPEDIUM SEEGERIANUM, fine plant.
CYPRIPEDIUM GRANDE, with flower-spike, best variety.
CATTLEYA CALUMMATA, Bleu's Hybrid.
ODONTOGLOSSUM ASPERSUM VIOLACEUM, in flower.
CYPRIPEDIUM JAVANICO SUPERBIENS, Bleu's Hybrid.
PLEUROTHALLIS ROEZLI, fine plant.
MASDEVALLIA MACRURA. ODONTOGLOSSUM ASPERSUM-SPILOGLOSSUM, Rchb. fils, the rose-coloured lip is heavily spotted with pink.
CATTLEYA MOSSIÆ ALBA (WAGNERI), splendid plant, 2 flower sheaths.

On view morning of Sale, and Catalogues had.

Friday Next, April 12.

IMPORTANT SALE of unusually well-grown ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Messrs. W. Thomson & Sons, of Clovenfords, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, April 12, at half-past 12 o'Clock precisely, a magnificent lot of well-grown ESTABLISHED ORCHIDS, in splendid condition. Amongst the plants may be mentioned several especially fine Odontoglossum Pescatorei, many in spike, with 85 flowers; a very fine lot of Cypripedium, including grande, Morganiæ, Schröderæ, Wallisii (true), Measuresianum, Arthurianum, Œnanthum superbum, and others; Cymbidium eburneum, grand specimen; Parishii (true), elegans, Cattleya labiata, autumn flowering; Cœlogyne cristata alba, Lælia anceps Dawsonii and anceps alba, Oncidium macranthum, large plants; Dendrobium Leachianum, Vandas, Odontoglossum crispum, very fine plants; Aërides Lawrenceæ and Sanderianum.

On view morning of Sale, and Catalogues had.

Tuesday, April 16.

ORCHIDS IN FLOWER. Special Sale for Easter Decoration.

MESSRS. PROTHEROE AND MORRIS desire to announce that they will hold a SPECIAL SALE of ORCHIDS IN FLOWER, for Easter Decoration, on TUESDAY, April 16, for which they will be glad to receive Notice of Entries NOT LATER THAN THURSDAY NEXT.

Barnet.

In the High Court of Justice; Chancery Division, Cornwell *v.* Cornwell.

IMPORTANT TO BEGINNERS.

At a Nominal Reserve, to close accounts, the Old-established NURSERY BUSINESS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Hadley Nursery, High Street, Barnet, on TUESDAY, April 16, at 1 o'Clock precisely, in three lots, the Beneficial Interest in the LEASE of the NURSERY, known as the Hadley Nursery, High Street, Barnet, comprising 5 Acres of capital Land, 8 Greenhouses, Dwelling-house, and Seed Shop, held for 11 years at a Nominal Rent; also a valuable PLOT of FREEHOLD BUILDING LAND fronting the High Street, and the LEASEHOLD NURSERY of about 2 Acres at Barnet Common.

Particulars obtained on the Premises; of Messrs. HOUGHTONS AND BYFIELD, Solicitors, 85, Gracechurch Street, E.C., and Barnet; of Messrs. SCOTT AND BAKER, Solicitors, 10, Gray's Inn Square, W.C., and Hatfield; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Streatham Hill, S.W.

By order of the Executors of the late John Southgate, Esq.

UNRESERVED SALE of the whole of the well-grown STOVE and GREENHOUSE PLANTS, many fit for exhibition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, on the Premises, Selborne, Leigham Court Road, Streatham Hill, S.W., 3 minutes' walk from Streatham Hill Railway Station, on WEDNESDAY, April 17, at 12 o'Clock precisely, in consequence of the large number of lots, the whole of the well-grown STOVE and GREENHOUSE PLANTS, grand specimen Camellias, trained Azaleas, two magnificent Lapagerias (alba and rosea rubrum), a large quantity of Decorative Plants, Palms, Crotons, and Dracænas, a capital collection of Chrysanthemums, a magnificent strain of Herbaceous Calceolarias, Cyclamen, and Cinerarias, and other items.

May be viewed the day prior, and morning of Sale. Catalogues had of Mr. SALTER, the Head Gardener, on the Premises; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Highly Important Sale.

The Unrivalled Collection of SUCCULENT PLANTS, formed by the late J. T. Peacock, Esq., and enjoying a reputation probably unequalled in Europe.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executors to SELL by AUCTION, on the Premises, Sudbury House, Hammersmith, W., on WEDNESDAY and THURSDAY, May 1 and 2, at 11 for 12 o'Clock precisely each day, without reserve, the whole of the Valuable COLLECTION of SUCCULENT PLANTS, including many species that are unique, and others of extreme rarity, including the Entire Stock of the beautiful new Cereus, J. T. Peacock, Gasterias, Hawarthias, Agaves, Phyllocatus, Sempervivums, Mesembryanthemums, Opuntias, Yuccas, Echinocactus, &c.

Also 120 fine plants of Todea superba, several large Camellias, Lapageria alba and rosea, and other plants.

No plants will be sold privately prior to the Auction.

Catalogues may shortly be obtained of Mr. VICKERY, Head Gardener, on the Premises; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

Preliminary Notice.

The far-famed SUDBURY HOUSE COLLECTION of ESTABLISHED ORCHIDS,
Formed by the late J. T. Peacock, Esq.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Executors of the late J. T. Peacock, Esq., to SELL by AUCTION, without reserve, on the Premises, Sudbury House, Hammersmith, W., on MONDAY, May 13, and four following days, at half-past 12 o'Clock precisely each day, the ENTIRE COLLECTION of ESTABLISHED ORCHIDS, being the contents of twenty-three Greenhouses. For description of plants, see *Gardeners' Chronicle*, March 23 last.

No Plants will be sold privately prior to the Auction. The Collection may be inspected at any time by cards, to be obtained of the Auctioneers. Catalogues may be had when ready of Mr. VICKERY, the Head Gardener, on the Premises; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

Preliminary Notice.

The well-known COLLECTION of ESTABLISHED ORCHIDS, formed by the late Edwin Wright, Esq., of Gravelly Hill, Birmingham. Unreserved Sale, by order of the Executors.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, May 21, the well-known COLLECTION of ESTABLISHED ORCHIDS, formed by the late Edwin Wright, Esq.

Further particulars will appear.

The Celebrated Downside Collection of Orchids.

PRELIMINARY NOTICE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from W. Lee, Esq., of Downside, Leatherhead, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, June 4 and 5, the remaining portion of the above celebrated Collection of ESTABLISHED ORCHIDS.

Further particulars will appear.

London, E. (6881).

FOR IMMEDIATE DISPOSAL, FREEHOLD NURSERY situate in main road. Seven capital Greenhouses, all heated. Substantially built house, seven rooms, stable, and outbuildings. Price £800; part can remain.

Apply PROTHEROE AND MORRIS, 67 & 68, Cheapside, E.C.

TO BE SOLD, as a Going Concern, an Old Established NURSERY and FLORIST BUSINESS, near Leeds. Established 27 years. The Nursery consists of 8 acres of choice Nursery and Herbaceous Stock and four or five Plant Houses. First-class opening for a pushing man. Best locality in Yorkshire, no other Nursery within 60 miles. Satisfactory reason for leaving.

D. G., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

South Kensington, S.W.

CLEARANCE SALE of the PLANTS and OUTDOOR EFFECTS in and about the Conservatory and Grounds of the Horticultural Gardens.

MESSRS. HORNE, SON, AND EVERSFIELD are instructed by the Royal Commissioners of 1851 Exhibition to SELL by AUCTION, on the premises, Exhibition Road, S.W., on TUESDAY, April 9, at 10 for 11 o'Clock, the valuable GREENHOUSE PLANTS, PALMS, EVERGREENS, TREES, TURF, Terra-cotta and other VASES, FIGURES and PEDESTALS, a pair of handsome MAJOLICA VASES, Wire BASKETS, Iron ARCHWAYS, ROLLERS, and other GARDEN IMPLEMENTS, and a quantity of other effects.

May be viewed by Catalogues only, to be had of Messrs. HORNE, SON AND EVERSFIELD, 17, Great George Street, S.W.; and 84, Basinghall Street, E.C.

NOTE.—The handsome CONSERVATORY, 240 feet long, 64 feet wide, and 75 feet high, with wrought-iron framing, also the Glass Roofs and Materials of the adjacent Buildings, WILL BE SOLD THE FOLLOWING MONTH, but in the meantime Offers to Purchase the Conservatory, in one lot, for re-erection, may be made as above.

Brantingham Thorpe, near Brough, East Yorkshire.

IMPORTANT SALE of SPECIMEN and ESTABLISHED ORCHIDS, Cabinets of LEPIDOPTEROUS INSECTS, BOOKS on GARDENING, &c.

MESSRS. HEPPER AND SONS are favoured with instructions from Christopher Sykes, Esq., M.P., to SELL by AUCTION, at Brantingham Thorpe, near Brough, East Yorkshire, on WEDNESDAY, April 10, commencing at 12 o'Clock prompt, his Valuable COLLECTION of SPECIMEN and ESTABLISHED ORCHIDS, &c., comprising:—

Odontoglossum crispum, Pescatorei, vexillarium, vexillarium Cobbianum, Lindleyanum, gloriosum, Hallii, triumphans, cirrhosum, Rossi majus, tripudians, Sanderianum, Phalænopsis, pulchellum, Roezlii, citrosmum, &c.

Cattleya Gaskelliana, Mendelii, virginalis, Mossiæ, Trianæ, Percivaliana, gigas imperialis, crispa superba, Warseewiczia delicata, Sanderii, Dowiana Eldorado, maximu, Leopoldii, &c.

Dendrobium Wardianum, aureum, Bensoniæ, nobile nobilis, Lowii, Jamesianum, Dearei, &c.

Oncidium unguiculatum, tigrinum, aurosum, Forbesii, Papilio majus, Gardneri, prætextum, &c.

Cypripedium insigne, purpuratum, Robelenii, Spicerianum, caudatum, lævigatum, hirsutissimum, &c.

Lælia autumnalis, atrorubens, albida, Dayana, purpurata, anceps Sanderianum, &c.

Acineta, Ada, Angulos, Aërides, Angræcum Leonis, Camarotis, Calanthe, Cœlogne, Colax, Cymbidium, Cyrtochilum, Harpophylium, Masdevallia, Maxillaria, Miltonia, Mormodes, Peristeria, Phalænopsis, Pleione, Saccolabium, Sobralia, Stanhopea, Vanda, Zygopetalum, &c.; also a collection of splendid Nepenthes (Pitcher plants), Anthurium, Alocasia, &c.

A Slate Tank, containing one of the finest plants in the country of the rare Ouvirandra fenestralis (or Lattice Plant); a number of rare Ferns, &c.

Two Cabinets containing 737 specimens of Lepidopterous Insects. Herbarium of dried plants, about 60 volumes of books on Gardening, and two volumes of Stainton's *Moths and Butterflies*.

The collection is in fine healthy condition, and most of the plants are suitable either for public exhibition or private decoration.

Catalogues will be ready one week before Sale, and may be had of the Auctioneers, East Parade, Leeds, and 12, Piccadilly, Bradford; or of M. R. C. KINGSTON, at Brantingham Thorpe, and the plants may be seen on Monday and Tuesday, April 8 and 9.

WANTED, a General NURSERY BUSINESS (or Flower and Seed Shop).—Apply, H. R., 42, Clifden Road, Lower Clapton, E.

Yorkshire, West Riding.

On the confines of an important and thriving Market Town.

TO BE SOLD, as a going concern, and at a great sacrifice, to ensure an early Sale, a very Old-established NURSERY and FLORIST'S BUSINESS. The Premises comprise about 5½ Acres of capital Land, held at a very moderate rental and well stocked with useful Stuff. With Foreman's Cottage, Packing Barn, 3-stall Stable and Coach-house, Stone-built Offices and Store room. The Glass Erections comprise 6 useful Greenhouses, efficiently heated with Hot Water, also numerous Cold Frames, mostly covered with movable Glass Lights. Well supplied with Water. The Nursery is situate about 2 miles from the Town, and within 1 mile of a Railway Station. Satisfactory reasons will be given for Disposal. A splendid opportunity for acquiring a Genuine Business on exceedingly reasonable terms. The Vendor will be open to consider any reasonable offer to effect an early Sale.

For further particulars apply to Mr. F. CARTER, Accountant, &c., Nelson Chambers, Cloth Hall Street, Huddersfield.

To Market Gardeners and Others.

TO BE SOLD, with Possession, a ROOT CROP of 2 acres, 5 perches, of RHUBARB adjoining the Holborn Estate Almshouses at Tooting. Tenders for the same on or before MONDAY, the 8th inst., to the CLERK of the Holborn Estate Charity, 16, Houghton Street, Strand, W.C.

FIRST-CLASS WEST-END PREMISES, one door from Piccadilly, of the net annual value of £610, and held direct from the Freeholder for a long unexpired term, together with or without the goodwill of the Old-established Seed Business of Thomas Gibbs & Co., or Offers for the Trade and Use of the Name, apart from the lease, might be entertained.

Apply, on the Premises, 26, Down Street, Piccadilly, W.; or to Messrs. EDWIN FOX AND BONSFIELD, 99, Gresham Street, Bank, E.C.

TO LET, or might be SOLD, in North Lancashire, The HOMESTEAD, Melling, an Old-fashioned, substantial and commodious House, with good Garden, small Glasshouse, Cottage, Stable, Coach-house, and Field, all in good condition. Situate near Church, Station, and Post-office.

Apply to G. H. PETTY, Estate Agent, Lancaster.

TO FLORISTS.—Excellent site in prominent and fashionable position; neighbourhood of Show Gardens. TO BE LET on LEASE.

Agents, GEO. BERRY, SON, AND HISCOX, 82, Brompton Road, S.W.

Farnborough, Hants.

TO BE LET, on LEASE, for a term of years, a most desirable walled VEGETABLE and FRUIT GARDEN, of about 2 Acres, well stocked with well-trained Fruit Trees. Contains:—Tank-house with wrought-iron tank and pulsometer engine, with furnace, &c.; tool shed and loft over engine-house, with Rider's Patent Hot Air Engine, with apparatus and tank; Potato and Root-house; 2 Greenhouses, ¼ span, 26 feet by 16 feet, and 26 feet by 12 feet; Potting Sheds; Propagating House, span roof, about 31 feet by 11 feet; Early Peach House, ¼ span, in two divisions, 100 feet by 13 feet, with well-trained trees in full bearing; Melon and Cucumber-house, span roof, in three divisions, 60 feet by 14 feet; a span Vinery, in four divisions, with outside frames on each side, 200 feet by 20 feet; a similar Vinery, 200 feet by 16 feet. The Vines are in full bearing; the glasshouses are of modern construction, iron-framed, with sliding glass, and are supplied with heating apparatus and piping, long open pot and soil shed. This property has singular advantages, being on the high road to Aldershot, about ½ mile from Farnborough Station, L. and S. W. Railway. The whole of the produce has been readily disposed of on the spot, thus saving cost of transport to market and risk of loss. The expanse of glass admits of large increase in the cultivation of fruit and flowers, and more land can be rented if required.

Enquire HILL, SON, AND RICKARDS, 39, Old Broad Street, E.C.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

A BIG SALE.

UNDER NOTICE TO QUIT

FROM ST. JOHN'S COLLEGE, CAMBRIDGE,

AFTER TWENTY-FOUR YEARS' TENANCY.

RENTS REGULARLY PAID.

THE ABOVE ACTION HAVING BEEN TAKEN BY ST. JOHN'S COLLEGE,

CHARLES NOBLE

Has no alternative but to offer the Nursery Stock at Half Price.

Buyers must book to Sunningdale Station, S.W.R.

CHARLES NOBLE, BAGSHOT.

HARTLAND'S DOUBLE PERENNIAL SUNFLOWERS, varieties "Anemonæflora" and "Soleil d'Or," the former having a yellow Anemone-flowered flat and frilled centre, with the outer florets or guard-petals extended, and known in English gardens as *multiflorus plenus*. Plants, each 9*d.*; post-free, 3*d.* extra. The new plant, or "Quilled form," is bright orange, and the outline that of a Cactus Dahlia, the A. W. Tait type; and, to prevent confusion in the term "plenus," designated by me as "Soleil d'Or," or the Irish Quilled flower. Each, 1*s.* 6*d.*; extra size, 2*s.* 6*d.*, *post-free*. Illustrations of both forms, as drawn by Gertrude Hartland, can be had for a stamped envelope. I have been instrumental in getting distinctions for the first time observed by English florists in their Catalogues. Trade price on application.

WM. BAYLOR HARTLAND, Old Established Garden Seed Warehouse, 24, Patrick Street, Cork.

BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Seed saved from Prize Plants. In beautifully illustrated Packets, choice mixed, Single or Double varieties, 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet. Collections—Single, 12 named varieties, separate, 5*s.* 6*d.*; 6 ditto, 3*s.* Tubers, Named Singles, from 12*s.* to 42*s.* per doz.; Unnamed Seedlings, 12*s.* to 21*s.* per doz; Bedding, choicest, 6*s.* and 9*s.* per doz.; choicest Named Doubles, from 42*s.* per doz.; Unnamed, very choice, 24*s.* and 30*s.* per doz.; choicest Mixed, 18*s.* per doz. Order direct from us, to procure our splendid strain. CATALOGUES gratis.

JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE'S Special Priced LIST of the above comprises all the finest varieties in cultivation raised expressly for Seed purposes. The prices are unusually low this season, and may be had on application.

Seed Growing Establishment, Wisbech.

SMALL SHRUBS and CONIFERÆ.—Araucaria imbricata, 10 to 12 inches, 50*s.* per 100; Abies orientalis, 1-yr., 30*s.* per 1000; American Arbor-vitæ, 1½ foot, 60*s.* per 1000; Sweet Bay, 1-yr., 30*s.* per 1000; Scarlet Chestnut, 1-yr., 6*s.* per 100; Cupressus macrocarpa, 1-yr., 30*s.* per 1000; Lawsoni, 18 inches, 60*s.* per 1000; erecta viridis, 4 inches, 30*s.* per 1000; do., 1 foot, 12*s.* per 100; stricta, 1 to 1½ foot, 12*s.* per 100; Cedrus atlantica, 1-yr., 1-yr. transplanted, 10*s.* per 100; Escallonia macrantha, pots, 14*s.* per 100; Portugal Laurel, 1-yr. transplanted, 20*s.* per 1000; Limes, 1-yr. transplanted, 16*s.* per 1000; Pinus Cembra, 3-yr., extra, 16*s.* per 1000; P. Strobus, 2-yr., 2*s.* per 100; Scarlet Oak, 1-yr., 3*s.* per 100; Privet ovalifolium, 6 to 9 inches, 10*s.* per 1000; Retinospora plumosa, 10 to 12 inches, 10*s.* per 100; Thuia dolobrata, 8 to 9 inches, 80*s.* per 1000; do., 10 inches, fine, 12*s.* per 100. T. Ellwangeriana, 6 to 8 inches, 6*s.* per 100; Veronica Traversii, 6 to 8 inches, fine, 6*s.* per 100; English Yew, 1-yr., 1-yr. transplanted, 20*s.* per 1000; do., 8 to 10 inches, 7*s.* per 100. Irish Yew, 6 to 9 inches, 10*s.* per 100.

CARLIES MITCHELL, Nurseryman, Stranraer.

THE GARDENERS' ORPHAN FUND.

THE SECOND ELECTION.

FIVE CHILDREN

to be Elected to the benefits of this Fund,

consisting of an allowance of 5*s.* per week (subject to the conditions stated in Rule xiii.), will take place on

FRIDAY, July 19 next, at the

Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed Form, copies of which may be had Gratis of the Hon. Secretary, or any of the Local Secretaries. Such Form must be correctly filled up, duly signed, and returned to the Secretary not later than SATURDAY, April 20, 1889.

A. F. BARRON, Hon. Sec.

Royal Horticultural Society's Gardens, Chiswick, W.



£300 in PRIZES, MEDALS, and CERTIFICATES for FLOWERS, FRUIT, VEGETABLES, and HONEY. Open to Members of all Co-Operative Societies in the Kingdom. (£100 for produce grown from "One and All" Seed of the Agricultural and Horticultural Association, Limited).

Schedules on application to

THE SECRETARY,

3, Agar Street, Strand, W.C.

FOR SALE, Specimen Plants; ERICAS, ALLAMANDAS, DIPLADENIAS, BOUGAINVILLEAS, and CROTONS.

Apply, C. F., 46, Cliff Road, Leeds, Yorkshire.

STRAWBERRIES.—Strong Roots, 4*s.* per 100 Plants in small pots, 16*s.* per 100; ditto, in large pots 25*s.* per 100. Descriptive LIST free.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Fruit Trees.

50,000 PLUMS and DAMSONS; Standard and Dwarf-trained Morello CHERRIES, all fine grown trees. For price apply to

FLETCHER BROS., Ottershaw Nursery, Chertsey, Surrey.

100 ALPINE and HERBACEOUS PLANTS, 25*s.* Descriptive CATALOGUE, Illustrated, with Cultural Notes, 72 pages (containing much interesting information). Post-free, 9*d.*

STANSFIELD BROS., Southport.

Grand New Japanese Chrysanthemum.

"THOMAS STEPHENSON." A beautiful bronzy-crimson sport from "Criterion," indispensable for exhibition. A grand, full show flower; broad petals, slightly incurved at the tips, a lovely yellow shade on the reverse of the petals.

FIVE FIRST-CLASS CERTIFICATES. Orders booked from all the principal Chrysanthemum Growers. (See E. Molyneux's opinion, *The Garden*, 890, &c.)

Rooted plants ready end of March; 7*s.* 6*d.* each, 3 for 15*s.*

CATALOGUE of new and rare varieties, post-free.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

APPLE TREES with Mistleto growing on them, 10*s.* 6*d.*, 15*s.*, and 21*s.* each.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

100 Herbaceous and Alpine Plants for 25s.

RICHARD SMITH AND CO.'S SELECTION, as above, contains a most interesting and valuable assortment of beautiful and Hardy Plants for the Border or Rockwork, which produce flowers and render the garden attractive all through the year. Descriptive CATALOGUE post-free for 6 stamps.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

New Tea Rose.

SOUVENIR DE S. A. PRINCE.

A pure white sport from Souvenir d'un Ami.

This is undoubtedly the finest white Tea Rose that has been offered to the public of late years. It has all the good qualities of Souvenir d'un Ami, in addition to which it is of more robust habit, the foliage being of a dark glossy green. As an exhibition variety, Souvenir de S. A. Prince will supersede Niphetos, it always being of good shape, and not having the latter's bad tendency of opening quartered and green-centered. Three First-class Certificates.

Grafted Plants, ready in June, price 10*s.* 6*d.* each.

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KELLY AND WALSH (Limited), Exporters of ORCHIDS, Singapore, Straits Settlements.

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A. LIETZE'S NEW CALADIUMS, ORCHIDS, and PALM SEEDS.

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The Stock is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

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The Glass covers an area of upwards of **300,000** super. feet.

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FRUIT TREES

SEVENTY-FOUR ACRES.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, and other FRUIT TREES, as Standards, Dwarfs, Pyramids, Bushes, Cordon, and Trained Trees in great variety.

VINES, excellent Canes, 3*s.* 6*d.*, 5*s.*, 7*s.* 6*d.*, 10*s.* 6*d.*

Orchard House Trees in pots, PEACHES, APRICOTS, NECTARINES, &c., from 5*s.* FIGS from 3*s.* 6*d.*

DESCRIPTIVE LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season. Price, &c., free by post.

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THE PENNY PACKET SEED COMPANY'S
SEEDS AND PLANTS,

And you will pronounce them the Best in the Market, as none but genuine, good, new season's seeds are supplied.

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Has been pronounced the most **complete** and **economical** system of supplying seeds.

3000 VARIETIES CATALOGUED

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Also a Select List of

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Catalogue (500 *Illustrations*) *gratis and post-free.*

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The PENNY PACKET SEED COMPANY,
LOUGHBOROUGH, LEICESTERSHIRE.

THE REAL WHITE ELEPHANT

OR IMPROVED WHITE ELEPHANT POTATO.

This is a sport from Daniels' White Elephant Potato, but has the great advantage of having a pure white skin. It is one of the heaviest croppers grown. Cooks splendidly.

PINK PERFECTION.

The handsomest coloured round yet raised. A sure prize-taker.

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All the best of the old and new varieties in commerce. Over 200 varieties to select from, at moderate prices. Send for Descriptive CATALOGUE, containing lists for various purposes and other useful information. The most complete in the Trade.

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S E E D S,

Vegetable, Flower, and Farm,
CAREFULLY SELECTED,

AND FROM WHICH MAY BE EXPECTED

THE BEST RESULTS

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ILLUSTRATED LIST,

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MAY RIVERS.

Report of the Royal Horticultural Society, April, 4, 1888, when a First-class Certificate was awarded:—

"May Rivers is a Tea Rose, with large and deep blossoms, the outer petals creamy white, centre clear lemon-yellow."

Stong plants ready May 1st, 5*s.* each.

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MANGEL WURZEL.

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DANIELS' IMPROVED VICTORIA, Large, beautifully imbricated flowers of the most splendid form and colour:—		
An assortment of 16 distinct varieties	4	6
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Choicest mixed seed, per packet, 6*d.* and 1*s.*		

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An assortment of 24 superb varieties	5	6
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1400 species and varieties of Stove, Greenhouse, & Hardy Ferns.

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Grown from the True Newry Stock.

No better Strain existing.

¼ oz. Packets with Cultural Directions, for 2*s.* 6*d.* Postal Order

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Now is the time to plant:—

GLADIOLI, of which we grow 20 acres.			
PÆONIES,	do.	do.	5 ,,
PYRETHRUMS,	do.	do.	3 ,,
DELPHINIUMS,	do.	do.	3 ,,
GAILLARDIAS,	do.	do.	2 ,,

"The largest collection in the world," for which the highest awards of the Royal Horticultural and Royal Botanic Societies of London have been given.

See our MANUAL for 1889, Gratis and Post-free.

LANGPORT, SOMERSET.

NEW ROSES for 1889.

WM. PAUL & SON

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Rose Growers by appointment to Her Majesty the Queen,
WALTHAM CROSS, HERTS.

ROSES—20 ACRES,

Well-rooted, many-shooted, truly named, of matured vigorous growth, and of the best kinds. Bushes, R. S. & Co.'s selection, 8*s.* per dozen; 60*s.* per 100. Packing and carriage free for cash with order.

These World-famed ROSES cannot fail to give the greatest satisfaction.

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CELEBRATED STRAIN OF

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CACTUS, POMPON, and SHOW varieties, &c.

NEW DESCRIPTIVE CATALOGUE,
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Very Special Trade Offer.

Owing to the many thousands consigned to me this season I make this special sacrifice to make room for fresh arrivals.

Extra fine hard heavy flowering bulbs, measuring 8 inches round, 1 dozen, 3*s.* 6*d.*; 50, 11*s.*; 100, £1; 1000, £8.

SPECIAL QUALITY.—Every bulb selected, the very best, measuring 9½ inches round, 6, 3*s.* 9*d.*; 12, 6*s.*; 50, £1; 100, £1 15*s.* Better bulbs impossible. All carriage paid. Packed in cocoa-nut fibre.

Every bulb warranted sound

Direct, Japanese Importer,
W. H. HUDSON, West Green Road, Tottenham, London.
Mention *Gardeners' Chronicle*.

BEGONIAS.—Choice mixed single, all colours, grand Continental prize strain, fine tubers, 12, 3*s.* 3*d.*; 50, 11*s.*; 100, 18*s.*; double and semi-double, mixed, 12, 5*s.*; 50, 16*s.* Worth double. All carriage paid.—W. H. HUDSON, Tottenham.

ASPARAGUS,
GIANT
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Strong plants now ready.

Special Prices on application.

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QUICK, stout, and abundantly rooted, transplanted, 21s. per 1000; ditto, strong, 27s. 6d. and 35s. per 1000; ditto, extra strong, 40s. per 1000.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

100 CONIFERS in 50 distinct varieties ... ... for 50s.
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FLOWER SEEDS.—50 Pictorial Packets (every one containing different kind of seed), with full Cultural Directions, for 2s. 6d., post-free. (Usual price 1d. per packet.)—SUNBURY, Grove Park, Lee, Kent.

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Offers the following varieties of SEED POTATOS:—

Old Ashleaf	White Elephant
Rivers' Royal do.	Early Rose
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And other leading varieties. Prices on application to York Street, Borough Market, S.E.

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THE BEST HERBACEOUS PLANTS,
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80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2s. 6d. each; Beauty of Worcester, a magnificent purple, excellent for bedding, recently sent out by us, reduced price 2s. 6d. each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PELARGONIUM ZONAL LILLIPUT—
PRESIDENT AUG. VAN GEERT.
Beautiful novelty, with large flowers, lovely double white, colouring towards the centre in strong carmine; golden foliage.
Price: each 4s.; six plants, 16s.
ED. PYNAERT, Ghent, Belgium.

CABBAGE PLANTS, Autumn Sown, Shilling's Queen, Early Rainham, Drumhead, Savoy, 2s. 6d. per 1000, 4s. per 20,000, packed; 100, free, 1s. 3d. King Cos, Bath Cos LETTUCE, Aigburth Brussells Sprouts, 4s. per 1000, packed; 100, free, 1s. 6d. Strong FLOWER PLANTS—Wallflowers, dark Red, Purple, Brown, Yellow; Sweet Williams, Papavers, Pyrethrums, Dianthus, 3s. per 100, 25s. per 1000, packed; 1s. per dozen, free.
EDWARD LEIGH, Cranleigh, Surrey.
N.B. — Few hundred Early London CAULIFLOWER PLANTS, 3s. per 100, free. RED CABBAGE and TRIPOLI ONIONS, 1s. 6d. per 100, free.

JAPANESE LILIES.—EIGHT LOVELY KINDS.—Carters' Case of 50 fine Bulbs, as imported from the Japanese Bulb Farms. Price 25s., sent packing and carriage free to any Railway Station in England and Wales on receipt of Postal Order for 23s. 9d. Full names of the eight varieties on application to
CARTERS', Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

GARDENIAS.—We have some splendid large plants, from 2 to 4 feet high, good bushy stuff, well set with bloom buds, price 5s., 10s. and 15s. each. The best sorts in cultivation.
EUCHARIS AMAZONICA, in 10 and 12-inch pots, full of fine flowering bulbs, with clean dark healthy foliage, 10s. and 12s. 6d. per pot.
GLOIRE DE NANCY CARNATION.—Rooted Layers of this grand White Clove-scented Carnation, 30s. per 100; 6s. per dozen.
COLLINS AND SONS, Cumberland Park Nursery, Willesden Junction.

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SELECT LIST of Perennials, Biennials, and Choice Florist's Flowers, just published; and also AGRICULTURAL SEED CATALOGUE, which may be had free on application to
WATKINS AND SIMPSON,
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STRAWBERRIES IN POTS. Strong, to plant now for fruiting this year.
Names, with Special Low Prices on application.
DICKSONS, The Nurseries, CHESTER.
(Limited.)

FLOWERS WHICH EVERYONE CAN GROW
and with which Everyone will be Satisfied.

PANSIES.—Very fine fancy varieties, true to name, from our famous collection, 4s. per dozen, carriage paid.
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DAHLIAS.—Show, Fancy, Single, Pompon, and Cactus. Only the best varieties grown. These always give unqualified satisfaction. Cuttings, 2s. per dozen, carriage paid; strong plants, in May, 5s. per dozen, carriage paid.
NOTE.—One dozen of each of the foregoing (five dozen in all), correctly named, and well packed, will be sent, carriage paid, for 20s. Descriptive CATALOGUE on application.
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ANTHONY WATERER
INVITES AN INSPECTION FROM INTENDING PLANTERS TO
THE FOLLOWING TREES,
Having stout straight stems, fine heads, and splendid roots. All have been transplanted within wo years:—
ACACIA BESSONIANA, 12 to 14 feet; A. SEMPERFLORENS, 12 to 14 feet; ACER DASYCARPUM, 12 to 16 feet; A. DASYCARPUM WIERII LACINIATA, 10 to 14 feet; A. NEGUNDO VARIEGATA, Standards, 8 to 10 feet; A. LEOPOLDII, 12 to 14 feet; A. REITENBACHII, 12 to 14 feet; A. SCHWEDLERII, 12 to 16 feet; A. WORLEYII, Standards, 12 to 14 feet. ASH, Mountain, 10 to 14 feet. BEECH, Common, 10 to 12 feet; Purple, Pyramids and Standards, 10 to 16 feet. BIRCH, Silver, 12 to 16 feet. CHESTNUT, Horse, 14 to 16 feet. Double White, 10 to 16 feet; Scarlet, 12 to 16 feet; Spanish, 12 feet. ELMS, English, 10 to 12 feet; Guernsey, 12 feet. LIMES, 12 to 16 and 20 feet; Silver-leaved, 10 to 14 feet. LIQUIDAMBAR, 6 to 10 feet. MAPLE, Norway, 14 to 16 feet. OAK, English, 10 to 14 feet; Scarlet American, 12 to 14 feet; PLANES, 12 to 16 feet. POPLAR BOLLEANA, 10 to 16 feet; P. CANADENSIS NOVA (the true variety), 12 to 16 feet; SYCAMORE, Common, 14 to 16 feet; Purple, 14 to 16 feet. THORNS, Double Scarlet, 8 to 10 feet; White, 8 to 10 feet. WALNUTS, Common, 10 to 12 feet.
Weeping Trees.
BEECH, Weeping, Pyramids and Standards, 8 to 12 feet; Weeping, Purple, Pyramids and Standards, 7 to 12 ft. BIRCH, Young's Weeping, Pyramids and Standards, 8 to 14 ft. ELMS, Weeping, Pyramids and Standards, 7 to 14 feet. LARCH, Weeping, Pyramids, 8 to 10 feet. OAK, Weeping, English, Standards, 10 to 12 feet. POPLAR, Weeping, Pyramids, and Standards, 10 to 12 feet. SOPHORA JAPONICA PENDULA, Standards, 8 to 9 feet.
KNAP HILL NURSERY,
WOKING, SURREY.

EVERGREENS.
HARDILY-GROWN. STOCK UNEQUALLED.
Special Prices, with Catalogue, Post Free.
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Climbing NIPHETOS ROSE
Price, 10s. 6d. each.
TO BE DISTRIBUTED IN MAY, 1889.
Send for full particulars to
KEYNES, WILLIAMS & CO.,
SALISBURY.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL,

at the "ALBION," Aldersgate Street,
JUNE 13, 1889,
LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Donations and Collections already promised or sent towards the Jubilee Collection of 1889:—

LEOPOLD DE ROTHSCHILD, Esq., Chairman	£105	0	0
The DUKE of WESTMINSTER, K.G., President	100	0	0
The DUKE of BEDFORD, K.G.	100	0	0
The EARL of DERBY, K.G.	21	0	0
Baron HENRY SCHRODER, Vice-President	105	0	0
Messrs. ROTHSCHILD AND SONS	105	0	0
Lord REVELSTOKE	52	10	0
JAMES McINTOSH, Esq., Vice-President	52	10	0
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H. B. MILDMAY, Esq., Berkeley Square	52	10	0
HERBERT J. ADAMS, Esq., Vice-President	26	5	0
HARRY J. VEITCH, Esq., Treasurer	26	5	0
C. CZARNIKOW, Esq., Effingham Hall, Dorking	21	0	0
A. A. SILLEM, Esq., Sydenham	10	10	0
J. F. TIARCK, Esq., Chislehurst	10	10	0
JOHN LEE, Esq., Kensington (Trustee)	10	10	0
THAMES BANK IRON CO., Upper Ground Street	10	10	0
J. H. VEITCH, Esq., Chelsea	10	10	0
ARTHUR J. VEITCH, Esq., Chelsea	10	10	0
THOMAS MANNING, Esq., Chelsea	10	10	0
Mrs. H. J. VEITCH, Redcliff Gardens, S.W.	10	10	0
B. S. WILLIAMS, Esq., Upper Holloway, N.	10	10	0
Mr. C. W. BUCK, Covent Garden	5	5	0
Mr. E. R. CUTLER, Secretary	10	10	0
Messrs. JOHN LAING AND SON, Forest Hill	5	5	0
Messrs. WEBBER AND CO., Covent Garden	5	5	0
Mr. A. PLUMMER, Seedsman, Staines	4	4	0
Mr. R. H. ROBINSON, The Gardens, Heversham	7	7	0
Mr. JOHN CROOK, Gardener, Farnborough	8	5	0
Mr. EDWARD MITCHELL, Gr., Bolton Lodge, Leeds	10	10	0
Mr. W. R. HODGES, Gardener, Copley Dene, Highgate	10	10	0
Mr. E. GILBERT, The Gardens, Old Charlton, Kent	1	15	0
Mrs. VINCENT NICHOLL, Red Hill	2	2	0
W. J. BROWN, Esq.	1	1	0
Miss CATTLEY, Clayden, Edenbridge, Kent	2	2	0
ROBERT HOGG, Esq., LL.D., Vice-President	10	10	0
RICHARD CHRIMES, Esq., Rotherham	21	0	0
Messrs. NUTTING AND SONS, Southwark Street	10	10	0
Mr. WM. COLLINS, Gr., Chios House, Clapham Park	10	10	0
Mr. WM. WILDSMITH, Heckfield Gardens	1	1	0
Messrs. WATKINS AND SIMPSON, Exeter Street	5	5	0
Mr. H. E. TILLMAN, Covent Garden	3	3	0
Mr. S. E. KAY, Finchley	2	2	0
Messrs. DICKSON, The Nurseries, Chester	10	10	0
Mr. GEORGE MONRO, Covent Garden	10	10	0
Messrs. BARR AND SON, King Street, Covent Garden	2	2	0
Mr. W. S. JOHNSON, St. Martin's Lane	5	5	0
Mr. J. C. STEVENS, King Street, Covent Garden	5	5	0
Messrs. CUTBUSH AND SON, Nurseries, Highgate	5	5	0
Mr. J. ROBERTS, The Gardens, Gunnersbury	10	10	0
Mr. B. WADDS, Birdsall Gardens, York	1	1	0
Mr. G. WYTHES, Syon Gardens, Brentford	1	1	0
Mr. W. DENNING, Nurseries, Hampton	1	1	0
Mr. J. WALKER, Whitton, Hounslow	2	2	0
Mr. PETER BLAIR, The Gardens, Trentham	1	1	0
Messrs. H. AND A. TURNER, Royal Nurseries, Slough	10	10	
Mr. W. C. LEECH, Albury Gardens, Guildford	1	1	0
Miss OSBORN, Streatham	3	3	0
Mr. W. BROWN, Merivale Gardens, Atherstone	2	2	
Mr. THOS. S. WARE, Tottenham	2	2	0
Mr. PEARMAN, Salmon's Garden, Chislehurst	10	10	0
Messrs. JACOB WRENCH AND SONS, London Bridge	5	5	0
Messrs. HOWCROFT AND WATKINS, Hart Street, Covent Garden	5	5	0
Messrs. THOMSON AND SONS, Nurseries, Wimbledon	2	2	0
Mr. H. J. CLAYTON, Grimston Gardens, Tadcaster	1	1	0
Lord CALTHORPE	10	10	0
Messrs. SAYNOR, COOKE AND RIDAL, Sheffield	1	1	0
Sir JULIAN GOLDSMID, Bart., M.P.	10	10	0
Mr. W. CHAPMAN, Hawk's Yard Gardens, Rugeley	3	10	0
Mr. C. SHEPPARD, Great Glenham Gardens, Saxmundham	0	10	6
Mr. G. H. RICHARDS, Somerley Gardens, Ringwood	0	10	6
Mr. KENDALL, Templeton Gardens, Roehampton	10	10	0
Mr. WILES, Unsted Gardens, Godalming	10	10	0
Messrs. JOHN PERKINS AND SON, Northampton	5	5	0
CUTHBERT E. PEEK, Esq., Rousden	10	10	0
WILFRED PEEK, Esq., Rousden	10	10	0
Mr. A. J. LONG, Westwood Gardens, Droitwich	10	10	0
The Rev. W. WILKS, Shirley Vicarage, Croydon	1	1	0
Mr. LOUIS VAN HOUTTE, Ghent	2	2	0
Messrs. F. HORSMAN AND CO., Colchester (annual)	1	1	0
Sir TREVOR LAWRENCE, Bart., M.P., Vice-Pres.	21	0	0
Received since last week:—			
Mr. GEORGE BUTT, Kensington	2	2	0
Mr. GEORGE TIFFEN, Cannon Street	2	2	0
Mr. WILLIAM GREEN, The Grange Gardens, Bishops Stortford	1	1	0
Mr. JNO. BIRD, Nurseries, Downham	2	2	0
Mr. HUGH ACTON, Messrs. Hurst & Son, Houndsditch	5	5	0
The YOUNG MEN, Syon Gardens, Brentford	0	12	6
The Hon. EVELYN ELLIS, Datchet	10	10	0
The UNDER GARDENERS, Mote Park, Maidstone	2	13	3
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PHAIUS TUBERCULOSUS
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Also the new and splendid **PHAIUS HENRYI.**
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MR. J. C. STEVENS has received instructions from Messrs. F. SANDER & Co., St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 18, at half-past 12 o'Clock precisely,
THE ABOVE EXTRAORDINARY ORCHIDS.
Collector has just arrived with this splendid Consignment, and the plants are in the finest possible order.
On view morning of Sale, and Catalogues had.

LARGE SHRUBS and CONIFERÆ.—Berberis aquifolia, 1½ to 2 feet, 12s. per 100; Box tree, 1½ to 2 feet, 12s. per 100; Cotoneaster Simonsii, 3 to 3½ feet, 10s. per 100; Deutzia crenata, flore-pleno, strong, 4s. per dozen; Grislinia littoralis, 1½ to 2 feet, 35s. per 100; Irish Ivy, 4 feet, 6s. per 100; Laurel, common, 1½ foot, 6s. per 100; 2 feet, 10s. per 100; 3 to 4 feet, 16s. per 100. Colchic Laurel, 2 to 2½ feet, 16s. per 100; 3 to 3½ feet, bushy, 20s. per 100. Portugal Laurel, 1½ to 2 feet, 20s. per 100. Rhododendron ponticum, 1 to 1½ foot, 22s. per 100; 1½ to 2 feet, 30s. per 100; 2 to 2½ feet, 35s. per 100; 3 feet, 50s. per 100; 4 to 4½ feet, bushy, 80s. per 100. Abies Douglasii, 3 to 4 feet, 35s. per 100; 4 to 5 feet, 50s. per 100; do., 6 feet, 70s. per 100. Araucaria imbricata, 2 to 2½ feet, 30s. per dozen; 3 to 3½ feet, 48s. per dozen; 3 to 4 feet, 60s per dozen. Cupressus Lawsoniana, 2½ feet, 20s. per 100; 3 to 4 feet, 40s. per 100. C. stricta, 2 to 2½ feet, 40s. per 100; 5 to 6 feet, extra fine, 18s. per dozen. C. erecta viridis, 1½ to 2 feet, 25s. per 100; do., 2 to 2½ feet, 35s. per 100. Picea Nordmanniana, 1½ to 2 feet, 30s. per 100; do., 2 to 2½ feet, extra, 40s. per 100. Retinospora plumosa, 18 inches, 25s. per 100; 1½ to 2 feet, 30s. per 100; 2½ feet, extra, 40s. per 100. R. squarrosa, 1½ foot, bushy, 30s. per 100; Thuia Lobbii, 1½ to 2 feet, 12s. per 100; 2 to 3 feet, 24s. per 100; 4 feet, 50s. per 100; 6 feet, 18s. per dozen. Thuiopsis borealis, 2½ to 3 feet, 8s. per dozen; T. dolobrata, 1 foot, 30s. per 100; 1½ to 2 feet, 12s. per dozen; 2½ to 3 feet (fine), 30s. per dozen.
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OF
A GROUP OF DAFFODILS;
with other Illustrations, and a Report of the Narcissus Show of the Royal Horticultural Society.



THE

Gardeners' Chronicle.

SATURDAY, APRIL 6, 1889.

THE CAMELLIA.

THE history of this plant, its introduction to English gardens, its suitability to various purposes of ornamental gardening and decoration, the methods of cultivation most appropriate to it, are all points which have been again and again treated of. A summary of this information is to be found in all the ordinary text-books. It might be thought, therefore, that while there is still much to see and admire, there is little left to write about—little that is not trite and hackneyed. The best way to rid oneself of such a delusion is to visit a large collection, where the plants are grown by the thousand, and where the varieties are cultivated by the scores. When numbers are thus brought under the eye at one time, comparison becomes, not odious, but as interesting as it is inevitable. Comparison begets investigation, investigation necessitates discrimination, discrimination engenders reflection: the outcome being that instead of having little to write about, the main difficulty is one of selection from the vast and complex mass of material that presents itself. Needless is it to say that the task is much facilitated by the clearer and firmer grasp obtained when the visit of inspection is in company with so thoughtful an observer and so experienced a cultivator as Mr. William Paul.

The famous nursery at Waltham Cross is just now a museum—a living library wherein more that pertains to the Camellia can be learnt in an hour than books could teach, or herbaria display in a week. The plants are of all sizes and ages, all grafted on the single red or the old double white. Cuttings of these are taken, old plants being grown for the purpose, and these cuttings form the stocks whereon to engraft the desired varieties. As some of these will not strike from cuttings grafting becomes essential, the more so, as from the dry nature of the bark, budding is little prac-

*

tised. Four or five years must elapse ere the little plant becomes of a saleable size—a circumstance that the purchaser should remember when he thinks of the price asked. The general details of culture are so well known that we do not enter on them here, save to emphasise the fact that even good cultivators suffer from the untimely casting of the buds.

Some Points for Consideration.

Beauty, symmetry and good cultivation are not the only points worth considering—they are what strike the eye most forcibly; but if we are to make any sound progress, and not to content ourselves with going round and round in the same track, we must look on the plants with the eye of a naturalist—we must be perpetually asking questions, seeking answers, and basing our practice on them. Numerous such questions suggested themselves to us on a recent visit, and especially during the examination of a series of typical blooms which Messrs. W. Paul & Son kindly placed at our disposal for the purpose. Some of these questions may interest others besides ourselves. Here is one—Why do Camellias do so well in London and smoky situations? The answer here is not recondite. It is to be found in the capacious lungs, the powerful digestive apparatus, and the thick protective skin which the plants possess. The capacious lungs are represented by the broad foliage, the strong stomach finds its analogue in the rich deep green substance (chlorophyll) with which the leaves are filled to an extent surpassing that of most other plants. The thick skin not only preserves the plant from undue evaporation, but protects it from the influence of noxious gases, its glossy surface favours the removal of sooty depositions, and secures cleanliness. The lower surface of the leaf, where the breathing process is mainly carried on, is less exposed to injury, and there the skin is thinner, and perforated with myriads of breathing pores. By this combination of favourable circumstances the organisation of the Camellia is fitted to resist the evil influences of a polluted atmosphere better than most plants. Again, the debilitating effects of defective light are compensated for by the relatively large amount of chlorophyll the plants contain. The amount of light and pure air may, indeed, be deficient, but the machinery appointed to utilise what there is, is so perfect that a little is made to go a long way.

The Degree of Variation.

As to the flowers, two questions in particular strike us—Why is there so comparatively little variation in their form? What are the reasons and what the significance of the varieties that do exist? As these are essentially practical questions, we need not hesitate to bring them under notice—the less so as they do not receive the attention they deserve from practical men. No gardening book that we have looked into—and we have consulted several—contains any allusion to these matters.

As to the first question, some may be disposed to doubt whether the amount of variation is really so limited. They will say—and say truly—that there is a good deal. But we are not now considering the Camellia by itself, but in comparison with other garden plants. For 150 years at least the Camellia has been an inmate of our gardens; it has been cultivated from time immemorial in Japan and China. Counted by numbers the variations are imposing, estimated by kind the degree of variation is relatively little. In 1821 Loddiges mention that they grew twelve sorts, all originally imported from China, and that they had 20,000 blooms expanded at one time. Turning to our volumes for 1841 and 1842 for lists of the best varieties then cultivated, we find very many of what are still considered our best sorts there enumerated. Waratah, imbricata, Chandleri, fimbriata, double white; candidissima, Lady Hume's Blush, elegans, eximia, Donckelaarii, Bealei, and several others. If we took a similar list of Roses, how many should we find now that were admired of our fathers at the time when the *Gardeners' Chronicle* was founded? If the amount of variation in the Camellia be compared with that in the Fuchsia, introduced not long after the Camellia, or, still better, with that in the tuberous Begonias introduced within the last score years, it will be seen that the degree of variation in the Camellia is less than in many other plants.

Assuming the correctness of this assertion, we look about for a reason for it. The most obvious one, of course, is that the plant comparatively rarely produces seed in this country, and therefore there can be few seedling variations. But this does not fully meet the case, for there are abundance of seedlings from Italy, whence our supply of new varieties mainly comes, and in the Japanese gardening books the seedling varieties figured are very numerous, and yet the degree or range of variation among them is limited. The real reason we believe to be due to the fact that all the varieties are the offspring of one species, Camellia japonica.

The fruits or seed-vessels of the Camellia are handsome objects, and occasionally produced in this country, and have been figured in these columns, 1884, January 26, and 1873, p. 1733. The seeds are for the abundance of spiral vessels contained in their seed-coats, but the meaning of which is not obvious (see 1873, p. 1733, fig. 346). C. japonica Donckelaarii (fig. 77), is one of the varieties which produces seed pretty freely under glass; these seeds, moreover, reproduce the variety with some degree of certainty.

There are other species, such as C. sasanqua, C. reticulata, C. Kissi, and others, but, so far as we know, these have not been used for hybridising purposes—at any rate, in this country—or to any great extent. The vast majority of the variations are mere seedling forms or, at most, crosses between forms of the same species. We turn the kaleidoscope round and round and get a different arrangement of the same particles—we do not introduce any new ones. Is there not here an opportunity for young experimenters, and, still better, for the managers of experimental gardens? Our North American friends might try what a cross between a Camellia and a Stuartia, a Gordonia, or a Eurya would effect. "Quite impossible!" some one may say. It may be so, but we shall take the liberty to reserve our opinion on that subject till it has been proved to be so. Much less problematical is the possibility of crossing with C. sasanqua or reticulata. Few will doubt the possibility of effecting such a cross as that. At any rate, it is desirable to infuse a greater degree of variation into the Camellia, to break into new ground, and especially to raise varieties that shall be hardier than our present ones, and that shall not drop their buds so freely as some of the sorts do. Incidentally we may mention that one of our London nurserymen told us recently that there was a great difference in the effect of London fog on Camellias; that while in some varieties the buds fell wholesale after a fog, in others scarcely a bud was detached.

Reverting to our subject, we repeat that the relatively restricted range of variation in the Camellia is due to the fact that we have been dealing with one species only, when in all probability, judging from abundant analogy, we might have much more extended results did we but widen our field of operations. But some one will say, What about the sports? Surely they are instances of variation. Have not some of our best Camellias been raised from sports? Quite true, but the sports do but support our case. The majority of the sports of the Camellia are simply due to a little more or a little less colour, a stripe in this petal, a blotch in that. Barring colour the amount of change is relatively slight. Looking through Messrs. Paul's collection with this object in view this fact was apparent. If we are to look, as we may reasonably do, for new varieties from sports, we must take care to secure more material from which the sports can originate, that is to say, we must first effect a cross, and then leave Nature to disentangle our mixtures in the shape of sports.

The Cause of Variation.

Next as to the varieties that we have. What do they mean? How are they produced? The abundant supply of blooms furnished us by Messrs. W. Paul & Son enable us to answer that question.

Excluding the single flowered varieties for the moment, though they have special merits of their own, the varieties fall into one or other of two classes, the imbricate and the Anemone-flowered set, with various semi-double and intermediate or mixed forms not numerous enough to invalidate our general statement. It goes without saying that the explanation of these forms turns upon the construction of the flower, and therefore some slight amount of botanical detail must be entered into, but not of so abstruse a character as to deter anyone reasonably fond of flowers from considering it, while for the floral critics or the judge at a flower-show, such knowledge is absolutely essential, unless his decision is to be purely empirical.

The Conformation of the Flower.

In most flowers the distinction between the bracts, the sepals which constitute the calyx, the petals which form the corolla, and the stamens, is obvious and well defined. But in a Camellia, even in a single one, the lines of demarcation do not exist; and so, looking at a Camellia one continuous spiral series may be traced ascending from the lowermost or outermost brown scale or bract at the base of the flower to the most gorgeous petal, and it is not possible to say precisely where the bracts end or the petals begin. Similarly in the double and semi-double varieties, it is impossible to say here ends the corolla, here begin the stamens. In most Camellias the numerous stamens appear to be in one ring, but if they be examined in a very early stage all this multitude of stamens will be seen to proceed from five or six original tubercles, which subsequently branch into numerous subdivisions, each bearing an anther. Hence the stamens, instead of being in one continuous ring, are really in five or in six bundles. These bundles are often visible in the fully developed flower, as the flowers, when they fall to pieces, separate into their constituent petals and bundles of stamens. C. Donckelaarii (fig. 77), japonica var. conspicua and C. reticulata illustrate this. In each group of stamens most of the filaments are normal, but one is represented by a petal, so that when the flower falls to pieces the bundles of stamens, each with a petal attached, separate one from the other: we use the word attached, but really the petal here forms part of the bundle. In some varieties, as often in Lady Hume's Blush, the flowers are star-shaped, the petals being arranged in five or six imbricating series, radiating from the centre. This arrangement is due to the fact that the constituent stamens of each bundle are in this case all petaloid.

Classification of Varieties.

Double and semi-double Camellias may, therefore, be divided into the imbricate series and the anemone-flowered series. In the imbricate group of Camellias—the petals are increased in number to the approximate or complete exclusion of the stamens and pistils; figures 76 and 78 illustrate this series. Petal follows petal in imbricating symmetry, producing that regularity of form and disposition so dear to the heart of the florist. Where this symmetry is a normal characteristic of a flower, as it is in the Camellia, the florist's canon is justified. Where it is imposed upon a flower whose hereditary

and normal characteristics are different, then the florist's canon becomes arbitrary and offensive to good taste. But this by the way.

In the Anemone-flowered group, of which the Waratah is a conspicuous illustration, the true petals are hardly if at all increased in number, but the stamens in the centre of the flower are more or less replaced by petals, producing a more or less confused centre. Such flowers may be compared to those of the Hollyhock, in which the true petals form the guard-petals of the florist, while the central ones are made up of stamens partially assuming the characters of petals.

We have spoken of "confused centres," but, strictly speaking, there is no confusion in the flower; the confusion lies with the spectator, who is not in a position to unravel its meaning. The botanist who makes himself familiar with the origin and mode of growth of the stamens of this plant will soon recognise the symmetry and method even in the veriest tangle, of the half-petaloid stamens. The further explanation of this, however, would demand greater space than we can give it, and a deeper plunge into technicalities than would be agreeable except to professed botanists. Suffice it to say, that it depends upon the degree of branching of the stamens, upon their relative position and time of development, and upon the extent to which they have assumed the appearance of petals.

The specimens sent us by Mr. W. Paul may be grouped as follows:—I. Flowers imbricate. Of these the flowers vary from pure white to pale rose, pink, or various shades of red, whilst the striped varieties have a red ground and a white stripe, or a white ground striped with red. Further subdivisions may be effected by noting the shape of the innermost or central petals, which in some cases are rounded, hooded, or notched, whilst in others they are sharply pointed.

In II., the Anemone-flowered sections, the varieties are less numerous, and may be arranged according to colour. We may thus group the specimens before us, but the reader must be careful to remember that our groupings are one thing, Nature's variation quite another, so that our groups are to be considered as true only for the particular flowers before us at the time of writing, and at the best only indications of general tendencies.

Of course only a small number of varieties are here noted as illustrations of types, but it is believed that all the known varieties might be grouped under these headings. Separate subdivisions, to include the singles and the semi-doubles, like conspicua, &c., here classed with the Anemone-flowered series, would be desirable, but we had not sufficient material in hand to accomplish this.

Section I.—Imbricate Varieties.

A. Flowers white.

a. Inner petals entire.

Alba plena.—Flower medium-sized, flat; petals spreading, regularly imbricate. Leaves broadly elliptic, acuminate. Still the best of its class.

Nymph Egeria.—Flower medium, outer petals spreading regular; inner erect, rounded, snow-white, rather thin in substance. Leaves oblong-ovate with a long acumen.

Fanny Sanchioli.—Flower of moderate size, 3 inches across, flattish, petals white faintly striped and flushed with rose; outer spreading, inner erect. Leaves broadly ovate, shortly acuminate.

b. Petals fringed.

Fimbriata.—Flower medium, flat; petals spreading, fimbriate at the edge, inner ones narrow. Leaves oblong, shortly acuminate.

B. Flowers red.

a. Inner petals rounded or hooded.

Marchioness of Exeter.—Flower large, 4—5 inches across, rose-coloured, flat, with a funnel-shaped centre, regularly imbricate, inner petals notched. Leaves roundish-ovate, pointed.

Mathotiana.—Flower large, 4½ inches across, rosy-crimson, full, regular, inner petals hooded; of loose straggling habit, adapted to wall or pillar culture. Leaves narrow, very pointed.

C. H. Hovey.—Flower moderate, 2¾ inches across, flattish, rich crimson, full, petals regular; spreading. Leaves obovate, shortly pointed.

La Reine.—Flower 2½ inches across, somewhat globular; petals regular, rosy-crimson, thinner in substance than some others.

Bealeii.—Flower cup-shaped, 2½ inches across, crimson; full, well formed. Leaves roundish, with short, bluntish point.

Bealeii rosea is similar, but has rose-coloured flowers.

C. M. Hovey.—Flower expanded, 3 inches across, crimson; petals regular, leaves oblong-lanceolate, acuminate.

b. Inner petals sharply pointed.

Rafia.—Flower expanded, nearly 3 inches across; petals crimson, sometimes white-tipped, regular. Leaves elliptic, acuminate.

Madame Lebois.—Flower 3 inches across, flattish, deep rose; petals spreading, regular. Leaves oval, shortly pointed.

B.B. Flowers pale rose to pink.

a. Inner petals rounded.

Augustina superba.—Flower 3 inches across; petals rose-coloured, regular. Leaves roundish ovate, shortly pointed.

Princess Rospigliosi—Flower medium sized, cup-shaped, petals rose coloured, regular. Leaves broadly elliptic, shortly pointed.

b. Inner petals sharply pointed.

Countess of Derby.—Flower 3 inches across, flat-topped, pale rose-pink; petals regular, gradually diminishing in size. Leaves broadly oblong, shortly pointed.

Cup of Beauty.—Flower 3½ inches across, expanded; petals regular, gradually diminishing in size, white, flushed with rose. Leaves obovate-oblong, acuminate.

Countess of Hainault.—Flower 4 inches across; petals gradually diminishing in size, flesh coloured. Leaves sub-orbicular, with a very short point.

L'Avenir.—Flower 3 inches across, flattish; petals spreading, gradually diminishing in size, regular in form, pale rose, very beautiful. Leaves lanceolate acuminate.

C. Flowers striped.

* Stripe red on a white ground.

a. Petals rounded.

Romaniensis.—Flower medium-sized, flattish; petals regularly diminishing in size, shell-like, hooded, white, streaked with rose. Leaves roundish, acuminate.

Adamo.—Flower medium-sized, flattish; petals regularly diminishing, outer ones spreading, inner erect, pale rose, mottled and streaked with crimson. Leaves oval, acuminate.

Adelina Benvenuti.—Flower medium, flattish; outer petals spreading or recurved, inner erect white, streaked with crimson and flushed with rose. Leaves elliptic, acuminate.

Princess Clotilde.—Flower medium, flattish; petals loose, flaked like a Carnation. Leaves small, lanceolate-acuminate.

b. Inner petals pointed,

Tricolor imbricata.—Flower medium-sized, cup-shaped, compact; petals regular, imbricate, flaked with crimson. Leaves oblong, lanceolate, acuminate.

** Stripe white on a red or rose ground.

a. Inner petals rounded, or even hooded.

L'Insubria.—Flower medium-sized; full, outer petals recurved, inner erect deep rose, tipped with white. Leaves broadly oval, acuminate.

Maria Nicolais.—Flower moderate, full, form good, cup-shaped; petals regularly imbricate, erect, rosy-crimson, tipped with white. Leaves roundish-ovate, acuminate.

Belle Jeannette.—Flower medium-sized, full, cup-shaped; petals hooded, deep rose, with white edges. Leaves broadly elliptic, acuminate.

Bella d'Arligmone.—Flower medium-sized, flat; petals spreading, diminishing regularly, deep rose, with a central white stripe, inner petals hooded. Leaves lanceolate-acuminate.

Leopold Benucci.—Flower regular, mid-sized; outer petals reflexed, gradually diminishing, rose coloured, with a central white stripe. Leaves broadly oval, acuminate.

Mrs. Anne M. Hovey.—Flower moderate in size, regular; petals incurved at the edges, shell-like, deep rose with a central white stripe. Said to "vary from pure white to deep carmine." Leaves oval acuminate.

Storyi.—Flower moderate, regular; outer petals recurved, inner diminishing very gradually, erect, hooded, deep rose, with a central white stripe. Leaves broadly obovate, oblong acuminate.

Archduke Carl.—Flower medium-sized; petals reflexed, gradually diminishing, central ones hooded, deep rose with a broad white stripe. Leaves broadly oval, acuminate.

b. Inner petals pointed.

Beauty of Hornsey.—Flower of medium size, full; outer petals recurved, deep rose, centrally striped with white. Leaves broadly oval, shortly acuminate.

Madame de Streckaloff.—Flower medium-sized, flat; petals regularly diminishing, spreading, rose-coloured, with a white central stripe. Leaves broadly oval, acuminate.

Renneyi.—Flower 3½ inches across, flat; petals regular, spreading, deep rose, with a central white stripe. Leaves roundish pointed.

Lucrezia Gazarinni.—Flower of medium size, very full; petals gradually diminishing, spreading, deep rose, with a central white stripe. Leaves roundish, shortly pointed.

Souvenir d'Emile Defresne.—Flower medium-sized, full, petals spreading, deep rose, striped with white. Leaves broadly elliptic-acuminate.

Princess Bacchiocci.—Flower small, flat, regular, petals spreading, rich crimson, sometimes tipped with white. Leaves oblong, acuminate.

Triomphe de Liège.—Flower moderate, cup-shaped, petals ascending, rose, tipped with white. Leaves ovate acuminate.

Reine des Fleurs.—Flower moderate, flat; petals spreading, regularly diminishing, edges slightly incurved, red, edged occasionally with white. Leaves oblong, acuminate.

Section II.—Anemone-flowered Varieties.

A. Flower white or nearly so.

Candidissima.—Flower medium-sized, cup-shaped; funnel-shaped in the centre, outer petals spreading, pure white. Leaves narrow, oblong, acuminate, pale green.

Montironi vera.—Flower medium-sized, cup-shaped, snow white, outer petals reflexed, of good substance, centre funnel-shaped. Leaves broadly elliptical accuminate. A very fine variety.

Princess Charlotte.—Flower medium-sized, full, cup-shaped with a funnel-shaped centre, white with occasional rose blotches. Leaves broadly elliptic, acuminate.

B. Flowers red.

Elegans.—Flower large, flat-topped, rose-coloured. Leaves obovate-oblong, acuminate.

Chandleri.—Flower large, funnel-shaped at the top, rosy-crimson. Leaves broadly elliptic, shortly acuminate, sometimes blotched with white.

Conspicua.—Flower large, raised in the centre, deep rose coloured; stamens in five bundles more or less petaloid. Leaves broadly elliptical, sharply acuminate.

Imbricata.—Flower 3½ inches across, flattish, deep rose; petals spreading, centre confused. Leaves oblong, acuminate.

C. Flowers striped.

* Stripe red.

Souvenir du Prince Albert.—Flower mid-sized, full, raised in the centre, rose-coloured, mottled and striped with crimson.

Bonomiana.—Flower medium-sized, cup-shaped, full, regular, pale rose, flushed and striped with crimson. Leaves narrow, tapering gradually to a sharp point.

Targioni.—Flower medium-sized, cup-shaped, full, white, splashed with crimson, but described as flesh-coloured, edged with white. Leaves very broad, obovate, acuminate.

Montironi.—Flower medium, shallow, cup-shaped, centre funnel-shaped, white, with a few central red stripes. Leaves broadly elliptic, acuminate.

** Stripe white.

Il Commendatore Betti.—Flower large, full; outer petals reflexed, deep rose, occasionally flaked with white, centre well raised. Leaves elliptic, gradually acuminate.

La Constituzioni.—Flower mid-sized, shallow, cup-shaped, flat at the top; outer petals spreading, deep rose, with a central white stripe; central petals erect, hooded. Leaves broadly oval, shortly acuminate.

New or Noteworthy Plants.

CYPRIPEDIUM T. B. HAYWOOD, *n. hyb.*

This is a new and very handsome hybrid, raised by Mr. Seden, and forwarded by Messrs. James Veitch & Sons, Chelsea, with the request that it might bear the above name. It was obtained by crossing C. superbiens with the pollen of C. Drurii, consequently C. Drurio superbiens expresses its parentage. The leaves resemble C. superbiens pretty closely, but are less distinctly tessellated, while the shape of the flowers corresponds almost precisely to the same. The colours are somewhat brighter than in that species generally, the veining of the upper sepal and petals light purple rather than green, the spots on the latter smaller and almost confined to their basal half. The shape of the staminode, like that of the rest of the flower, is also but little modified. The influence of the pollen parent, however, is very distinctly seen in a broad, dark purple band, which extends down the centre of the dorsal sepal, and a similar but narrower one on each petal. It is named after T. B. Haywood, Esq., of Woodhatch, Reigate, an enlightened patron of horticulture, and the possessor of a well-cultivated collection of Orchids.

Though markedly distinct from C. superbiens, yet the characters of the seed-parent largely preponderate in the hybrid. I am inclined to think, however, that its brighter colours may be due to influence derived from the pollen-parent, in which a darker colour appears, though confined to a central band on the dorsal sepals and petals. Whatever it is, it gives to the plant a decidedly bright and attractive appearance. It would be interesting to try what the result of reversing the parentage would be. *R. A. Rolfe.*

Odontoglossum Harryanum pavonium, *n. var.*

This lovely novelty has but one fault, and a very great one, viz., that it is unique. It was kindly sent me by Messrs. J. Backhouse & Son, York. Both sepals and petals are admirably tinted. The ground colour may be called Indian purple. The sepals which prove even more curious than the petals, have broad markings of angulate circles and bars of ochre colour. Where they are broadest there are certain lighter brown lines in the centre of the ochre-coloured ones. The petals are similar, but the much broken lines are narrower and without the inner colour and without circular markings. The markings may be compared with those of the peacock, though the colours are different. It has a delightful perfume. *H. G. Rchb. f.*

Roses.

WALLS OF TEA ROSES.

The time has almost gone past when these are recommended to be removed on the ground of the tenderness of Teas. For by different modes of culture and of raising them they may be said to be virtually as hardy as the majority of the hybrid perpetuals. Sloping banks, raised beds—and also beds on or under the natural level protected by raised banks of earth or belts of shrubs, are a few of the many cultural expedients adopted for adding to the hardiness of Teas or protecting them from the inclemency of the weather.

The growing of Teas on their own roots—the earthing-up of Teas where they grow; their protection with Fern fronds, boughs, mats, or litter, are also other means of carrying Teas safely through severe winters in beds or borders in the open.

Of these we prefer the earthing-up of Tea Roses on their own roots. Six inches of soil around the base of the plants suffices to carry the root-stock safely through our severest winters, and with that intact, no atmospheric severities can seriously impair the health or curtail the beauty of Tea Roses. Of course, if a larger length of the top is to be safely wintered a handful of Fern fronds thrust into it above the earthed portion will mostly suffice for the purpose.

But experience has taught us to care but little for the safe wintering of the tops of Teas in the open, so long as the root-stock and base of the branchlets are preserved intact. For Teas on their own roots seem to enjoy the severe prunings of winter and spring frosts. Roses may be cut back with more discretion than is generally supposed—that is, so far as to the base of the succulent weakly or unripened wood. The Roses are better without these, and on the heels of the knife that drives off the lowest frost-marks, and at the invitation of the first breath of summer they break forth with a vigour and bloom with a continuity and beauty that astonish those who have never fairly tried Tea Roses in the open. Notwithstanding all this, however, those walls are as useful and beautiful as they are profitable in keeping up a full supply of Teas of the highest quality throughout the season. I have often been asked what is the best aspect for Tea Roses on walls. My answer has been, Every cardinal point of the compass, and as many of the intermediate ones as nautical men delight in describing to the mystification of mere landsmen or bewildered enthusiastic Rose growers.

Almost all our Teas will thrive and bloom well on walls of any and every aspect throughout the greater portion of England. In some of our warmer and drier counties the best of all aspects for perfect blooms throughout the summer and autumn months is due north. Here, in the cool shade, many Teas put on a delicacy of form and of colour, and have sweetness that they never reach under any other circumstances. Who can measure the value of such Roses in the sultry days of June and July, when the life and beauty of many Teas, such as Madame Lambard, is breathed out in the early morning, while the rosarian yet sleeps? And then in direct contrast to this, who can appraise the delight the rosarian, who has a south wall of Teas, as he hies forth early in May to gather his first Rose of summer from his Maréchal Niel, that hides the red or brick wall under its crowded ranks of golden buds, in all stages of development, from mere raw recruits, clad in green, to fully open buds in all the sweet brilliancy of golden glory? What though the Maréchal on south is a little too venturesome at times, and has its glory tarnished by the frost. One sight of it in full beauty in the open on a south wall in May is such a thing of exuberance and beauty as shall remain a joy for ever, and may, for aught that is known to the contrary, be repeated any May day. Failing this, it will be possible on a south wall, to gather May harvests of the charming buds of Madame Falcot, Isabella Spunt, and the never-failing old favourite, Gloire de Dijon.

The latter is, without exception, the best Tea for walls or aught else. By growing it on every possible aspect it is equivalent to several distinct varieties of Rose, while very much may be done to extend its season in the open for nine months out of the twelve. No one, however, who has not grown the Glory on a north wall has yet seen it in all the delicacy and beauty of manifold perfection of colour, size, and shape. Those only familiar with the old Glory, as generally seen from bed or border, or gathered almost full blown from the all too fostering sides of southern or western walls, will hardly be prepared for its delicate tint and grace of form that it leisurely assumes when grown on a north wall or a specially cool shady border. But sufficient for the day—March 22—must be the Tea Roses on walls thereof, and hence, with your permission, the account of the culture and production of any must wait till a future opportunity. *Rosa.*



Fig. 76.—Camellia Mr. E. J. Lowe's Miniature White. (see p. 426.)

Rose Reine Marie Henriette.

At this time of the year no Rose can compare with this variety for rich colouring; its perfect form in the bud state renders it one of the choicest varieties we have for button-hole flowers. In shape it resembles Niphetos somewhat; the difference is that the latter is rather more pointed than the red Gloire de Dijon, as it is sometimes called. I find Reine Marie Henriette very susceptible to the attacks of mildew, which of course spoils the appearance of the foliage. During the spring of 1887 I struck several cuttings on bottom-heat, which during the summer grew into nice strong plants. Last year vigorous growths were made, some reaching from 6 feet to 8 feet long, and being tied to the rafters of the greenhouse, ripened as well as the season allowed; the result is now that flower-buds are showing freely over the whole length of the stems. *E.*

Dr. Peyritsch.—We regret to hear of the decease of this gentleman, at Botzen, on March 14. Dr. Peyritsch was well known for his observations in Botanical Morphology.

HORTICULTURAL SUNDRIES.

An opportunity was recently afforded us of looking over the premises of Mr. James T. Anderson, of 135, Commercial Street, E., from which we were able to form some idea of the vast variety of articles needed by gardeners, and which it is the business of a horticultural sundriesman to supply.

The premises occupy a corner block of five floors. The loftiness of the ground floor may be imagined when we mention that the shelves on one side of it are capable of taking about 12,000 seed bags. There is also a large assortment of various greenhouse shadings, from the open and light tiffany to the closest flax sheeting. The tobacco paper we saw appeared very good and strong, and we should say a very effective fumigator. Great, too, was the variety of garden lines and twines, and a wide range of tools for garden and farm use were to be noticed on all sides.

Russia mats and raffia fibre—the latter the produce of a Palm, Raphia Ruffia, and for an account of the manufacture of which, see *Gardeners' Chronicle*, November 27, 1875, and April 13, 1878—are amongst the leading specialties of this house, and Mr. Anderson claims the honour of the introduction of raffia as a tying material, but when he first introduced it to the horticultural world it was not very favourably received. Cuba bast, the bark of Paritium elatum, Japan Flax, and China Grass or Rheea, Boehmeria nivea, being then in vogue, but now it has won its way to favour, and is generally used. For our own part we prefer it as being better to handle, though it has one fault—it does not so well withstand the action of water as Cuba bast. In the large basement are stored away many thousands of flower sticks and wood labels, besides trug baskets and punnets, with other articles too numerous to mention.

About twelve doors higher up the street is a separate warehouse for the storage of dunnage mats. These mats are first used in dunnaging grain ships, and being afterwards sold, are sorted over and sold to nurserymen, &c., for packing purposes, and are also used in the removal of furniture. Some vast piles of these mats were to be seen here, just as they were brought in from the Docks, and ready for sorting.

The better kind of mats known as Archangel, Taganrog, and Petersburg, made from the bark of the Lime tree, and which Mr. Anderson imports largely, are stored in yet another warehouse in Wheeler Street, nearly opposite, a detached building of four floors. Not only are there here the better kind of mats for garden purposes, but sacks and bags of every description. On one floor here were to be seen, seated on low forms, women busily employed in sowing and making up greenhouse blinds, and on these premises is carried on the tarring of coal sacks and the making and waterproofing tarpaulins for vans. Nor should we omit to mention the stacks of "old junk," as it is called (tarred rope), which are being continually seen, one stack weighing over 2 tons. This rope when opened out is used for tying sacks, besides various garden purposes. The sight is curious and instructive.



Fig. 77.—Camellia Donckelaari. (see p. 426.)

VEGETABLES.

GROWING PARSLEY.

I have found a great assistance in the production of Parsley, especially during the autumn, from the use of paraffin. In one neighbourhood where I once lived wireworm sometimes destroyed the whole batch. Towards the end of summer and in the autumn the plants used to turn yellow, and ultimately died; the seed was sown in the previous March. To ensure a serviceable crop for the winter months a bed was made up with leaves about 2 feet high; on this was placed some moderately rich soil, mixing with it some refuse soil from the potting-bench. Early in August the seed was sown, the plants thinned out where too thick. A frame was placed over the bed early in October, and the lights removed during the day. Towards the end of the month some of the plants showed signs of going wrong. We soaked the soil thoroughly with water, to which was added paraffin at the rate of a wineglassful to 3 gallons. This checked the ravages of wireworm, and every year after I did the same with good results. *M.*

—— Noticing the heading on p. 371, I turned somewhat eagerly to see what Mr. Ashton had to say about the way in which his Parsley had passed through the rather peculiar winter, soon, it is to be hoped, about to close for good. In general terms ours has virtually perished, and I can truthfully assert that I have never before seen Parsley so hardly hit by the winter. The majority of the crowns have perished, and the green leaves that were found on them last October are now brown and withered, like tufts of dried leaf. We have frequently had more severe frosts, but two things have combined this winter to punish Parsley and other green crops with abnormal severity. These were the lushness of such crops at the late autumntide, and the number and suddenness of the changes of temperature to which they have been exposed from October till the end of March. The cold summer and moist autumn kept Parsley and other crops growing on and on until the early frost caught them in this most defenceless condition, and these first frost-bites went

deeper than usual, and kept the plants more and yet more defenceless to each succeeding attack. The cold rains, melting snows, and an irritating succession of frost-bites completed the work of destruction begun so disastrously in the lushness of the crops.

Gas-lime or other dressings could hardly have affected the hardiness of the crop, unless in so far as they may have heightened, as well as hastened, their semi-maturity; for it is a matter of common experience to all, that grow green crops exposed to the severities of our climate, that the more lush—that is, the more gross and fully filled with watery juice—the more tender, and *vice versâ*. But Mr. Ashton does not recommend gas-lime as assisting Parsley through such winters, but as a sure antidote to wire-worm, and with the precaution of forcing out the lumps by passing the lime through a fine-meshed sieve. Gas-lime in such moderate dressings as your correspondent prescribes is a useful dressing for Parsley and most other vegetables. Great difference of opinion obtains as to the stimulating or manurial value of gas-lime, doubtless arising very much from its unduly varying strength, but there is no difference of opinion seemingly amongst our troublesome insect pests as to its extreme distastefulness or destructiveness to them, and hence the benefit of its cautious and careful application. *D. T. Fish.*

Orchid Notes and Gleanings.

BLETIA HYACINTHINA.

This useful and beautiful Orchid deserves universal cultivation. Its culture is so simple as to invite all to grow it. Though it has proved hardy we still prefer to place the greater portion of the stock under glass, and when a good way on towards flowering to indulge them to a trifle more heat than the cool house affords, at the blossoms expand better, and this extra attention is in no way detrimental to the health of the plants.

In giving directions as to the cultivation of this species we may add that the pots should be crocked as for ordinary plants, potted in a mixture of good fibrous loam, with the addition of a little broken crocks and sand, keeping the bulbs slightly above the rim of the pots. Give them plenty of water during their growing period, placed in an ordinary greenhouse, where they will receive a fair amount of light, shading lightly during the brightest weather. When their growth is completed withhold water until they show signs of moving again, when they may once more be assisted by applying that element. B. veracunda is another species which is very useful for cutting from, and enjoys a little more warmth than the preceding when growing. *H.*

AËRIDES VANDARUM.

So very different is this species from the general run of Aërides, that no one would guess it to belong to that genus when out of flower. In habit it somewhat resembles Vanda teres—more nearly, perhaps, V. Hookeri—having narrow, pointed, terete leaves some 5 or 6 inches long, produced on a slender stem at intervals of about 2 inches. The lovely flowers are borne singly or in pairs from the nodes of the growth made during the past year, and are of a pure snowy white, and from 2½ to 3 inches in diameter, with the sepals and petals beautifully undulated at the edges. The lip is of a remarkable shape; the side lobes stand erect at each side of the column, and are irregularly notched; the central lobe consists of two rounded segments joined to the rest of the lip by a broad claw. The underside of the lip is prolonged into a prominent tapering spur, which is green at the tip. A good idea of the shape and beauty of the flowers may be got by referring to the *Gardeners. Chronicle* for April 24, 1875, where their true character is well shown at fig 115. It is also figured under the erroneous name of A. cylindricum in the *Botanical Magazine*, t. 4982.

Provided a vigorous growth be obtained this Orchid does not appear to be difficult to flower. It requires the warm, moisture-laden atmosphere of the East Indian-house, and should be allowed to climb up a piece of wood to which its roots will become firmly attached. This should be frequently syringed on warm days and occasionally taken down and given a thorough soaking. Its beauty and curious habit make it one of the most attractive Orchids now flowering in the Kew collection. *W. B.*

ONCIDIUM UNDULATUM.

This species requires similar treatment to Oncidium macranthum, revelling in the cool moist atmosphere of the Odontoglossum-house, as do all the kinds from the cool regions of Colombia. There are also some fine kinds from the cool regions of Brazil that thrive under the same conditions, and thus become good companions; while as their flowers in many instances differ in colour from those of O. undulatum, O. macranthum, &c., they afford excellent contrasts. The plant now under consideration should be grown in good fibrous peat and living sphagnum moss, and the pot must be well drained. As before remarked, it is a strong-growing plant, and it produces roots in abundance. It requires a liberal supply of water during the growing period, and should not be allowed to get dry at any season, but during the winter months the quantity must be reduced considerably, just sufficient being given to keep the bulbs and leaves in a good healthy condition. Nothing is more inimical than shrivelling of the bulbs to this section of the genus, and should it occur, it is a difficult task to restore them to health. With the early spring months the scape appears, and at this time the plant requires to be watered in a very careful manner; but after it has attained to a foot or more in height water may be given more freely. In repotting care must be exercised that the roots do not receive injury, the best time for the operation being just prior to the commencement of new growth. If repotting is not necessary, with the return of spring any old or exhausted soil should be removed and substituted by new fresh material, after seeing that the drainage is in good working order. This operation must be performed with care, as the plant will receive a decided check if its roots are injured in any way. "*Orchid Album*," *February*.

ODONTOGLOSSUM HARRYANUM.

We have tried various methods of growing this plant, and have arrived at the conclusion that the temperature of the Cattleya-house is the most suitable to its requirements; indeed, we imagine it should be treated in the same manner as O. hastilabium, a species which O. Harryanum much resembles in its growth. The potting materials should be good fibrous peat and sphagnum moss, the plant well elevated on a cone-like mound above the pot, and the pot must be well drained. During the summer season it requires a liberal supply of water to the roots, and when growth is finished it must not be allowed to suffer from droughts, but just sufficient moisture is necessary to keep the bulbs and leaves in a plump and healthy condition. Shade is necessary during the summer months when the sun is powerful, but it requires all the sun and light it can possibly obtain during autumn and winter. "*Orchid Album*," *February*.

ANSELLIA AFRICANA.

This plant is easily grown into a large specimen, but it requires ample pot-room, as it is free in rooting, as well as being strong and robust in growth. The material we have found to suit it best is rough peat and good leaf-mould in about equal parts, to which should be added some sharp sand, and the plant should be slightly elevated above the rim of the pot, the latter being well and thoroughly drained. The plant, as found growing by Mr. Ansell, was near the base of Palm trees, revelling in fibre and leaf-mould, its roots forming large tangled masses at the base of the stems. During its season of growth and its time of flowering it requires a large amount of moisture, and in our houses sufficient moisture is necessary at all seasons to keep its stem-like bulbs from shrivelling; for should this occur it will lose its foliage, and this detracts greatly from its appearance. The plant does not require to be disturbed frequently, and the best time to repot it is in the spring, just as it begins to show signs of new growth, and at this season it will require careful watering, but after the growth has attained to about a foot in height, the plant will have fully occupied its new quarters, and water may be given more freely. We find it thrive at the warmest end of the Cattleya-house, and equally well in the East India house, or even in an ordinary stove with other tropical plants. It requires but little shade, yet care must be taken to prevent its foliage from getting scorched. Scale sometimes attacks this plant, but this should be carefully eradicated, as no plant can long remain in a healthy condition unless kept free from insects. This plant is propagated by division, and in doing this one or two old bulbs should be taken off with a leading growth, and the best time to perform the operation is just before growth commences; the piece, or pieces, divided from the old plant should be placed in small pots until they become established, after which they may be subjected to the treatment given above for the original plants. "*Orchid Album*," *February*.

Trees and Shrubs.

CRYPTOMERIA ELEGANS.

Through the winter, and at this time of the year especially, this shrub is to be admired for the colouring of its foliage, which assumes a dull red or russety hue. Plants from 2 feet to 10 feet high are the most effective. After that time they get shabby in appearance, though a loss of the innermost, small branches, which die, owing to the want of light caused by the density of growth of the outer parts of the branches. This defect is a serious drawback to this otherwise handsome tree at that stage of growth. Therefore this Cryptomeria, at twelve years old, in a general way, is practically useless as a decorative subject. Trees of six years old are exceedingly handsome, and as they are easily grown from cuttings, and quickly develop into well-formed plants, their early loss is not so much felt. The growth is rapid where the conditions are favourable, a strong, retentive soil, enriched with manure, suits the Cryptomeria to a nicety. In such a soil the growth is dense, while the colour deepens to the dull red or russety hue as winter approaches, rendering the plants conspicuous objects in the mixed shrubbery, in the rock garden, flower beds, or upon the grass, either associated with other shrubs or grown as single specimens.

Cuttings, about 4 inches long, taken off early in September, with a heel attached, and inserted in a cold frame, kept close, using sandy soil, shading from bright sun for a time, root quickly, and are ready for transplanting into a border the following April or early in May. If a small portion of sandy soil or rotted leaves be added to the soil at the time of planting the roots will run out more quickly than in the ordinary soil. *E.*

DAPHNE MEZEREUM.

In former days, when there was less variety at the disposal of the gardener, the Mezereon was a great favourite, and commonly planted. Gerard and other early writers all regarded it as introduced from the Continent into English gardens. It is one of the shrubs enumerated in Gerard's catalogue of the plants cultivated in his garden at Holborn in 1596, and in the first edition of his *Herbal* (1597) he describes it under the names Spurge Flaxe or the Dwarffe Bay. He says, "The Dwarffe Bay tree, which the Dutchmen call Mezereon, is a small shrub 2 cubites high,"—and respecting its native country, "This plant groweth naturally in the moyst and shadowie woods of most of the east countries, especially about Elbing, which we call Melian, in Polande, from whence I have had great plentie thereof for my garden, where they

flower, flourish, and bring their fruit to maturitie." In the first edition of Miller's *Gardeners' Dictionary* (1731), we find the Spurge Laurel and the Mezereon described under the generic name of Thymelæa; the former as a native of various parts of England, and the latter as cultivated. Four varieties of the Mezereon are mentioned, namely, the common one with red flowers and red berries; one with white flowers followed by yellow berries; one with deeper red flowers, and one with variegated leaves. Respecting their height, he states that they seldom grow to be more than 5 or 6 feet high in England. In the eighth edition (1768) of the same work, Miller records the discovery of the Mezereon growing in some woods near Andover, in Hampshire, and states that a great number of plants had been taken up for cultivation during late years. So much was thought of this shrub in Miller's time that a whole column is devoted to it; and he dwells on the beauty and fragrance of the flower, which were produced at a season when there was nothing else in bloom. Respecting its claim to be regarded as indigenous in England, Watson expresses very strong doubts, though it is now found in a wild state in many counties, and several writers of local Floras treat it unquestionably as a native. Watson, of course, discussed the point from the position of one thoroughly versed in the distribution of plants, while some of the others, at least, would be more influenced by the conditions under which they found it growing in the woods of England. I have seen it here and there in the woods of Sussex, but never in such quantity as to impress me with the idea that it was truly native, but rather the direct result of seeds conveyed by birds or descendants from such. After all, however, it is of small importance whether it is aboriginal in this country.

My object is to direct attention to a neglected plant. Passing a few days ago along the riverside at Strand-on-the-Green, Chiswick, between Kew Bridge and the railway bridge, and very near the latter, I was much struck with the beauty of a fine specimen of Mezereon, the only occupant of the very small forecourt or garden of a cottage. It is certainly much the largest plant I ever saw, though, from Miller's dimensions, it is not so phenomenally large as I at first believed. It is of tree-like form, and fully 6 feet high, with two or three stems that appear to have tied up together when young. The plant looks as though it might be fifty years or more old. I daresay some readers of the *Gardeners' Chronicle* may know of the existence of other equally large specimens. *W. B. H.*

The Flower Garden.

What to Do with Carnations and Picotees?—We have a large border of these, and the layers, owing to late layering and a sunless autumn, were not well rooted, and I dreaded to leave them attached to the parent plants, and a lucky thought this has proved, because, having been able to apply protection to them, scarcely a layer has died, whilst many others, in parts of the borders where it was impracticable to afford them protection, have been killed. The rooted layers are now being detached, and after giving enough to furnish a new border, there are enough left to replace all those that have died. Our soil being a very light sandy loam I mix with it the stiffest loam that can be procured, and this with a liberal dressing of decayed cowdung and a sprinkle of soot, completes the mixture; and as it is not less than 2 feet deep, the plants grow well and flower finely. I may add, that, when planting either these plants or Pinks in mixed flower borders, the same pains are taken that each clump of three or five plants shall, in respect of soil, have the same advantages as the plants put into beds, and to this preparation of the soil I owe in a large degree my success. I should add that immediately after planting and for some time—in fact till the plants are established; water is afforded them if the weather is dry, and as entire borders are readily mulched this should also be done. As a mulch, I prefer cocoa fibre to any other, as it is neat and clean, and keeps all slugs away so long as it remains rough—that is for a considerable time.

Hollyhocks.—For several years the growing of hollyocks ceased in this garden owing to the prevalent disease, but last year they were reinstated, and their cultivation was quite a success, not a trace of rust being visible, and many attained a height of 8 feet. They began to flower early in August, and continued in good bloom till October. The plants were raised from seed sown in November of the year before, and had been grown on in heat continuously throughout winter and spring, and planted out about the middle of May in soil that had been deeply trenched and heavily manured, and in addition to this dressing they were mulched in the month of July with decayed manure. I have been particular to describe my mode of culture, because it would seem that it is to the generous treatment the plants got that their freedom from rust must be attributed. The plants were wintered where they stood, only five have died, and the remainder are now growing vigorously, in spite of many cuttings having been taken from them. Those persons who have strong Hollyhock plants would do well to plant them out at once, and seedlings should be grown on in frames as rapidly as is consistent with obtaining density of growth.

Gladiolus and Lilium auratum.—I usually make two plantings of these, with a view of securing a long succession of flowers. The first and main planting was done five weeks since, and the last will be done at the earliest opportunity. Enttre beds of these flower roots are not fancied, but both kinds are planted in groups of three to twelve in the mixed flower borders, according to the space which has to be furnished. To ensure protection from severe frost, the bulbs of the first planting are well surrounded with a mixture of sifted leaf soil, cocoa fibre, and charcoal, and then covered to a depth of 5 inches with soil, and those yet to be planted will also have some small quantity of the same about the bulb, but it is not necessary at this season to wholly cover them with it, and 4 inches is quite deep enough for the covering of soil. It is an excellent plan when planting to place sticks to support the future flower-stems, as by so doing the spot where the bulbs lay is indicated, and their mutilation by late staking avoided. *W. Wildsmith, Heckfield, Hants.*

The Hardy Fruit Garden.

Inducing Dormant Buds to Break, &c.—Where late planted bushes and trees are not yet pruned, the operation should be finished off without delay, before doing it the soil over the roots should be trampled firm when it is in a state of moderate dryness. After the pruning is finished the fruit trees or bushes should be made secure, and some kind of mulching placed over their roots. Young trees intended for pyramids, or to be horizontally trained, must have all the buds which appear likely to bring ill-placed shoots pinched off, thereby directing the energies of growth into branches which will form in the end the crown or head of the future tree, and any well placed buds which appear likely to remain dormant should be made to break by practising what is called notching and which consists in making incisions just above the bud that is required to break, and deep enough to penetrate to the young wood, the same operation may be made to strengthen weak lateral shoots. On the contrary those shoots which appear likely to grow very strong may be checked by having incisions made on the underside of the shoot. Where corresponding tiers of branches are required on older trees, dormant buds may also be made to break, and which will quickly form bearing branches by cutting the bark just above the bud that is required to break, using a saw for the purpose so that the incision made may not heal over so quickly as one made with a knife.

Peaches, &c.—The weather has been very warm lately in this part of the country, and it has had the effect of pushing the growth of Peaches, Nectarines, and Apricots, some varieties being on the point of bud-bursting, and it is therefore necessary that protection from frost and cutting winds should at once be fixed over them. Canvas blinds which may be raised and lowered by means of ropes and pulleys should be kept rolled up on all favourable occasions, and let down only when there is likelihood of frost; or when keen winds blow. Fish-netting of three thicknesses if placed on light poles at a short distance from the wall, affords a considerable amount of protection, and is a very cheap protector, it being sold at the low price of 30*s.* per 400 square yards.

The Kitchen Garden.

Beetroots.—The ground should be trenched, if not already done, and a dressing of salt, soot, and slaked lime mixed with the soil, which will be found of great benefit in keeping insects in check which disfigure the appearance of the roots. Where the ground is unsuitable for the growth of good Beet it is a good plan to use two boards nailed longitudinally, so as to have a V-shape, and as the ground is being trenched this trough may be placed where the rows are intended to be, the ground made up to the sides; and when it is lifted out the space may be filled in with old potting-shed soil, leaf-mould, and charred soil which has been passed through a half-inch sieve. In late districts the crop should be sown in the second week in April, but in more favoured localities the end of the month or beginning of May is soon enough.

Carrots.—A larger breadth of Carrots, consisting mainly of Horn varieties, may now be sown. The main crop should not be put in before the middle of the month of April or the commencement of May. When the plants are grown to a height of 3 or 4 inches thin them out to a distance of a few inches apart. Carrots in hotbeds or under protectors should always be thinned before they become drawn.

The Herb Border.—*Mint.*—In order to keep up a constant supply a fresh plantation should be made every spring, for if allowed to stand more than three years it is liable to die off; a damp or moist soil is the most suitable for it. Well manure and trench deeply as possible the ground on which it is to be planted; draw drills about 6 inches apart, and lay the runner roots along these, covering them with a few inches of fine sharp soil to promote rapid root action. Spearmint is the kind used for culinary purposes.

Tarragon likes a sheltered spot to grow in. The soil should be light and porous. Propagate by division, the plants being set out at a foot apart. A good plantation should be made every spring from March to May, as it is necessary in order to keep up a continuous supply all the year round to lift a considerable portion at short intervals during winter to place in heat.

Sage requires a light rich soil, and is propagated by cuttings, but a small packet of seed sown every spring will be found to give the best results. Sow in shallow drills 1 foot apart, and thin out the plants to be transplanted or not the following spring.

Sweet Basil.—In many places it is necessary to rear this plant on a slight hotbed, hardening off and planting out into well prepared soil in a sunny situation in May.

Bush Basil.—This is more hardy than the preceding, and seed sown on light rich soil in a warm situation in April will succeed well enough.

Borage is very accommodating, any soil or situation suiting it. When once sown and allowed to seed it manages to show itself every season, but to get it as late in the season as possible seed should be sown in July, August, and September.

Sweet and Pot Marjoram.—The former is an annual, and seed must be sown in April every year; the latter is propagated by division, an open situation and light loamy soil being necessary.

Thyme.—Several varieties of this herb are used, the common, the broad-leaved, and Lemon. They can be perpetuated by cuttings, by division, and the common by means of seed. A light situation and free soil are most suitable for their growth.

Summer Savory is an annual, and requires to be sown in spring. April is the best month in which to sow, and a nice free soil and open situation should be given. Winter or perennial Savory is propagated by cuttings, or by division of the roots in spring. *Wm. M. Baillie.*

Antwerp Exhibition of Geographical and Commercial Botany.—In connection with this exhibition, already noticed, it is proposed to celebrate, in 1890, the tercentenary of the invention of the microscope by the display of microscopes and microscopical apparatus of all kinds, and by the holding of lectures, with illustration, concerning the history and use of the microscope and its application to the structure of animals, plants, and minerals, the detection of adulterations of all kinds, &c. The President is M. C. de Bosschere, the Vice-President, Dr. Van Heurck, the Director of the Botanic Garden, Antwerp; and the Secretary, M. Charles van Geert, of Antwerp.

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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NOTICE to Correspondents, Advertisers, Subscribers and others. The Registered Address for Foreign and Inland Telegrams is "GARDCHRON, LONDON."

APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

WEDNESDAY, April 10 — Newcastle-on-Tyne (two days). Birmingham and Midland Counties (two days). Royal Botanic Society.

MEETING.

TUESDAY, April 9 — Royal Horticultural Society: Fruit, Floral, and Scientific Committees meet. Lecture on "The Narcissus," by Mr. F. W. Burbidge.

SALES.

MONDAY, April 8 — Lilies, Herbaceous Plants, &c., at Protheroe & Morris' Rooms.

TUESDAY, April 9 — First Portion of the Collection of Orchids formed by Mr. J. H. Bath, of North Cray, at Protheroe & Morris' Rooms.

WEDNESDAY, April 10 — Collection of Orchids formed by H. J. Buchan, Esq., Southampton, at Stevens' Rooms (two days). Lilies, Herbaceous Plants, Greenhouse Plants, Ferns, &c., at Protheroe & Morris' Rooms.

FRIDAY, April 12 — Established Orchids, by order of Messrs. W. Thomson & Sons; and Imported Orchids, at Protheroe & Morris' Rooms.

SATURDAY, April 13 — Roses, Fruit Trees, Shrubs, Border Plants, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—47°.3.

Market Requirements.

If the new London County Council wishes to find a useful field for work, the appointment of a special committee to enquire into the common market accommodation and requirements of the Metropolis may prove to be a valuable step. London, because of the lack of real municipal government, is, perhaps, worse provided with public markets, relative to population, than is any other town in the kingdom. The City Corporation has recognised its duties in this respect, and has very well supplied the area over which it rules with good market accommodation. Still, in the matter of fruit and vegetables the City has been more backward than it has been in relation to other things. However, there is now established a real municipal authority for the whole of London. It has to govern an area of perhaps 140 square miles, and a population of more than four million souls; hence the responsibility cast upon such an authority is immense, and it is none the lighter because outside the City boundaries it finds what are in other towns regarded as municipal duties grossly neglected. Very distressing is it to turn from the consideration of the requirements in the matter of garden products as food for this vast population, to the wealth of food of this description which seems to lie at their doors, and yet remains beyond their reach. When Coleridge's shipwrecked mariner, famishing through thirst, exclaimed, "Water, water everywhere, but not a drop to drink!" he did but typify the position of the metropolitan householder, who, metaphorically looking abroad over the market gardens and fields which surround London, realises that there is a wealth of vegetables around him which he cannot even purchase, whilst his own locality shows nothing better than a barren waste. There must be something very rotten indeed in the condition of our market accommodation which practically compels growers of vegetables within a few miles of London to chop down, plough in, or feed off by sheep many acres of good Coleworts, Savoy Cabbages, white Turnips, or other useful (and this year exceptionally good) vegetables, whilst there are within reach millions of consumers who would gladly purchase them at a profit to the grower, if opportunity brought them into contact. Either the lack of market accommodation, or else the cupidity of the town distributor of garden plants, is responsible for this state of things, or both are. At present, the dealer sits upon the shoulders of the consumer like an Old Man of the Sea, as he does literally also upon the unfortunate grower. The grower has to be content with 10 per cent. profit when trade is good, with some loss, perhaps, when trade is bad. The dealer, by the range of his charges, stands to lose nothing, and usually makes of his wares some 30 to 40 per cent. profit. If, we are to believe all that is told, the profit is often at the rate of 140 per cent.

Prior to the recent rainfall, which, for the few days it endured, gave a trifling bound upward to prices the returns for good clean fresh vegetables were so low as to make growers gnash their teeth in impotent rage. Marketing is a very exacting trade; it must be followed up constantly. The man who hesitates is lost. If he has a connection, he must supply his connection regularly with whatever it may please to take from him, or he will find others stepping in to fill the vacancy. The link is broken, the chain is snapped, and soon all is over. Then the marketing of garden produce brings with it inevitable duties. It does not do for any grower to say, "Well, I will send nothing to market for a week, in the hope that prices may improve." At the expiration of the week the custom, whether good or indifferent, would have passed into other hands, and the load of products might have to be taken home again unsold. It seems as if we had got into the region of trade burlesque, when we hear of quantities of beautiful, fresh, firm-hearted Coleworts selling in London for 3*d.* per bushel; and yet such has been the case. No wonder, then, that the grower commands that the plough should be set into the breadths of these succulent greens, or that the sheep should be folded over them. The dealer who purchased at 3*d.* per bushel, we may be sure did not exhibit much magnanimity in consequence towards his customers, and he must be credited with singular humanitarianism if he failed to clear a shilling by the transaction. The poor consumer never does get the benefit of the prevalent low market rates. The dealer reasons, "If I sell cheaply because I have bought cheaply I shall never get the retail prices up again; therefore, I must keep up the prices for my own sake." That is of course trading human nature. There seems to be no means whereby the millions of consumers of fruit and vegetables found under the dominion of the London County Council can be liberated from their slavery to the middle man, other than through the establishment of popular markets all over London. If private rights are interfered with they must be deprived of privilege by the power of the Legislature. The feeding of the people on healthy wholesome food is a matter of paramount importance, and private monopolies must fall before that necessity as the grass does under the keen blade of the scythe. But the interests of the producer also demand the creation of numerous public or open retail markets. The grower is the cultivator of the soil which furnishes the owner with rent, the local authorities with rates, the Government with taxes, the labourers with wages, the masses with food. In the face of such stupendous benefits as these things are, monopolies can have no respect, no consideration shown them. The grower of food and the consumer of food—but especially of such perishable food as fruit and vegetables—must be brought into immediate contact, and markets which do not provide for that needful result will be sadly lacking. Garden products soon become stale and lacking sweetness and flavour. They now pass through too many hands; they have far too much exposure. Never will Londoners know the enjoyment derivable from the consumption of really fresh vegetables, until they can purchase direct from the growers' waggons.

Railway Rates.

We are glad to see that the subject of railway rates is exciting attention, and are pleased to give publicity to the following circular which has reached us:—

"At a meeting of the Covent Garden Market Auctioneers' and Salesmen's Association, held upon March 19, 1889, the following objections and protests to the proposed new maximum rates of the railway companies under the Railway and Canal Traffic Act, 1888, were unanimously agreed upon, and the same were ordered to be forwarded to the President of the Board of Trade and also to the Superintendents of the principal English and Scotch markets:—The Association having examined some of the proposed new maximum rates, and finding that in very many instances they exceed by from 30 to 100 per cent. the existing charges, are of opinion that these new proposals will prove prejudicial to all growers residing at any considerable distance from their usual market, and in many cases ruinous and prohibitive; and the Association consider and submit that no charge from any station should be approved as a maximum which exceeds the charges at present being made. The Association is also of opinion that the present system of making uniform charges applicable to stations at various distances from their usual markets has, on the whole, proved beneficial alike to producer and consumer, and should not be abandoned. For and on behalf of the Association. J. J. Chapman, *Secretary*, 4, *Russell Street, Covent Garden, London, W.C.*"

The subject is of such vital interest that we hope it will receive the attention it demands.

Horticultural Club.—The monthly dinner of this Club, which had been postponed from the second to the fourth Tuesday of the month in order to give an opportunity of inviting the Dutch growers who had come over to the Hyacinth show of the Royal Horticultural Society, was held on the evening of the show day, and was the largest and most successful one that had been held by the Club since its establishment in its new quarters. The chair was taken by Dr. Hogg, in the absence of the Chairman of the Club, Mr. John Lee, and besides the Dutch

growers Messrs. Kersten, De Graaf, Binjvoet, and Bensaud, there were present the Rev. W. Wilks, Messrs. Harry J. Veitch, Deal, Girdlestone, Crowley, Harrison Weir, H. J. Pearson, Geo. Paul, Geo. Bunyard, A. H. Pearson, Walker, J. H. Veitch, Francis Rivers, A. Moss, &c. A pleasant evening was spent, and the Dutch florists highly appreciated the hospitality and kindly feeling shown to them by the Club. — The next dinner of the Club will take place on Tuesday, the 9th inst., at 6 P.M. The subject for discussion will be "The Dahlia," to be opened by T. W. Girdlestone, Esq. Mr. F. W. Burbidge will be the guest of the Club.



Fig. 78.—Types of Camellias from Messrs. W. Paul and Son's collection: 1, semi-double; 2, fimbriate; 3, imbricate. (see p. 426)

Paris Exhibition.—In connection with this great gathering the following Congresses have been announced:—

Horticultural Congress.—This international gathering will be held in connection with the general Horticultural Exhibition. The opening ceremony of the Congress will be held in the Exhibition on August 19 at half-past two; two other meetings will be held at the rooms of the National Horticultural Society of France, at 84, Rue de Grenelle, on the 20th and 21st of August respectively, at the same hour. The questions to be specially treated are the following:—

1. Is it possible to obtain designedly, by means of artificial fertilisation, certain desired characteristics

in plants cultivated for market purposes (market gardens, orchards, fruit gardens) or in floriculture generally?

2. Is it necessary, in order to obtain flowers with striped corollas, to obtain first of all flowers with white corollas?

3. Consideration of railway rates.

4. Revision of the Phylloxera Convention of Berne.

5. Chemical manures, their use in horticulture.

6. Method of destruction of the enemies of cultivated plants (insects, fungi, &c.).

M. Hardy is the President of the committee, M. Ernest Bergman is the Secretary.

Botanical Congress.—This will be held under the auspices of the Botanical Society of France in the latter half of August. Any botanical subject may be brought forwards, but the committee specify two subjects in particular for discussion:—1, The desirability of coming to some general understanding with museums and societies in all countries, in order that accurate maps may be prepared, showing the distribution of the genera and species of plants over the surface of the globe. An exhibition of maps, books, photographs and other subjects relating to botanical geography will be held at the same time. 2. The second subject relates to the value of minute or microscopical anatomy in the classification of plants. M. H. de Vilmorin is the President; M. Malinvaud the Secretary. The rooms of the Society are at 84, Rue de Grenelle, Paris.

Agricultural Congress.—This will be held in connection with the exhibition, beginning on July 4. The programme specifies that papers and discussions will be held on the agricultural depression, its causes and remedies; the institution of loan banks, provident institutions, the transfer of land; agricultural instruction and research, agricultural industries, sugar Beet, cider manufacture, Potato culture, textile plants, Tobacco, oil plants, dairy industry, Vine culture, and wine manufacture, the Phylloxera, silk culture, injurious and useful birds and insects, fish culture, &c. Communications should be sent before May 1 to the General Secretary of the Congress, M. Dehérain, 63, Rue de Buffon, Paris.

The Gardeners' Orphan Fund.—The usual monthly meeting of the committee took place at the Caledonian Hotel on the 29th ult., Mr. G. Deal presiding. The receipts for the month amounted to £83 7*s.* 11*d.*, including £5 6*s.* 11*d.* per Mr. Ford, the Secretary of the Richmond Horticultural Society, as the proceeds of the flower stall at the recent spring show, £51 0*s.* 6*d.* from Mr. H. B. May, of Edmonton, and £7 1*s.* 6*d.* from Mr. W. G. Head, obtained by means of a collecting card. On the nomination of Mr. H. J. Clayton, of Grimston Park Gardens, Mr. Lawton, of Wilton House Gardens, Brough, Yorkshire, was appointed local secretary for that district. The Chairman announced that the President, Sir Julian Goldsmid, Bart., M.P., would preside at the annual dinner at the Cannon Street Hotel, on July 19. The following gave in their names as stewards at the dinner:—Messrs. Assbee, Bates, Bishop, Connell, R. Dean, W. G. Head, H. Herbst, J. Laing, W. Richards, J. Roberts, W. Roupell, J. Walker, and Wynne. The usual quarterly allowance to the children upon the Fund, amounting to £35 15*s.*, was ordered to be paid. The meeting closed with a vote of thanks to the Chairman.

Chiswick Gardeners' Improvement Association.—On Friday, the 29th ult, the annual dinner of this Association was held, with Mr. G. Gordon in the chair, when there was a good attendance. An interesting feature of the evening was the presentation of the prizes offered by Mrs. S. A. Lee, which were awarded as follows:—

For a paper on "Arrangement of the fruit garden, to produce a continuous supply of fruit without the aid of glass," 1st, Mr. S. Summers, Royal Horticultural Society's Gardens, Chiswick.

For "Best system of cropping the kitchen garden to ensure a continuous supply of vegetables, where no forcing is practised," 1st, Mr. T. Bones, gardener to J. Donaldson, Esq., Tower House, Chiswick; 2nd, Mr. J. Addison, gardener to Mrs. Lloyd, Merton Lodge, Chiswick; 3rd, Mr. R. Wood, gardener to Mrs. Sanderson, Duke's Avenue, Chiswick; 4th, Mr. R. Aitken, gardener to J. J. Ford, Esq., Park Side, Hammersmith.

And for the last paper on "How to maintain a gay conservatory throughout the year," 1st, Mr. A. Reid, The Gardens, Possingworth, Cross-in-Hand; 2nd, Mr. J. Barry, Royal Horticultural Society, Chiswick; 3rd, Mr. A. Wright, gardener to E. H. Watts, Esq., Devonhurst, Chiswick; 4th, Mr. G. Beaton, Highfield, The Gardens, Shoreham.

Adulterated Seeds.—The London Agricultural Seed Trade Association have issued a circular stating that certain persons in Hamburg have been, and are, exporting to the United Kingdom and the British Colonies of Australia and New Zealand, Clover and other seeds, which have been sulphured, coloured, or otherwise fraudulently "improved" in appearance, to the great detriment and loss of honest traders and agriculturists. The Association announces its intention to prosecute in the United Kingdom in accordance with the Seed Adulteration Act, and in Germany as far as the German Laws enable them, all persons who, after this date, shall manufacture or export from Germany any seed thus fraudulently dealt with, and to cause such seed to be seized according to law. The Association also invite all seed merchants and others in this and other countries to assist them in putting a stop to such dishonest practices. The circular is signed for the London Agricultural Seed Trade Association by John Pickard, Chairman; William Neustetel, Vice-Chairman; Thomas Thornton, James S. Eastes, William Nutting, Nathaniel Sherwood (of Hurst & Son), and Thomas Barker, Directors; David Allester, Secretary.

Dr. Schönland, till lately Assistant to the Professor of Botany in Oxford, has been appointed Curator of the Albany Museum, Grahamstown.

"Kew Bulletin"—The March number is devoted to the subject of the fibre Industry in the Bahamas, and to various hardy species of Eucalyptus. Seed has been received of E. coccinea at Kew from Tasmania, taken from trees which were coated with icicles a foot long. It is hoped that the seedlings may prove hardy in this country. Further information is given concerning the African Rubbers and their sources.

Cardinal Archbishop Haynald.—The Cardinal, who is well known to botanists, has presented his extensive herbarium and botanical library to the National Museum of Buda-Pesth.

Impatiens Rodigasi.—This is a new species, described and figured by M. Lucien Linden in the *Illustration Horticole*, t. 78. It was introduced fortuitously from Java. It has the habit of I. Sultani, but with leaves in whorls of three; flowers solitary, on long axillary stalks, each about 1½ inch diameter, reddish-purple, with five, rounded, two-lobed petals, and a long slender spur. It has been named in honour of M. Rodigas, who has for so long a period rendered excellent service to horticulture, and who now holds the post of Director of the School of Horticulture at Ghent.

Phylloxera in Asia Minor.—The last number of the *Kew Bulletin* mentions that the introduction of this pest into Asia Minor "appears not to have been an accident, but the result of a deliberate importation of Vine plants from a country where the disease was known to exist." "Persons engaged in horticultural business," continues the *Bulletin*, "often complain bitterly, and sometimes with good cause, against the restrictions which the Phylloxera regulations impose upon them. But in the face of the facts detailed in the . . . correspondence it is difficult to find grounds for protesting against such regulations." No one has protested against any reasonable regulations, and no one would more earnestly denounce carelessness in so serious a matter than the horticulturists. The protest is against regulations which, from the very nature of things are utterly absurd and futile. Unfortunately, even in cases where some show of reason might be adduced for the imposition of restrictions, they have proved quite impotent to prevent, much less to check the progress of the plague.

Emigrants' Information Office.—The following particulars are forwarded from the office relating to this quarter's Circulars, which have just been issued. Queensland is the principal colony which gives assistance to unmarried agricultural labourers. The present time of year is the most suitable for emigration to Canada. Farmers with capital will find openings in all the colonies; agricultural labourers in Canada, New South Wales, Victoria, Queensland, Western Australia, Tasmania, and some districts of New Zealand. The Circulars may be obtained, free of cost, from the office, 31, Broadway, Westminster, S.W.

Violet Culture.—Mr. John Heath has reprinted the series of articles lately contributed to this journal in the form of a pamphlet. Many readers will be glad to possess them in this convenient form. The pamphlet may be had for 6*d.* of the publisher, Mr. W. Birkett, Kendal.

Spring Flowers.—From Mr. Ware, of Tottenham, we have received specimens of the following interesting plants:—Iris stylosa alba, grown in a cold frame, seems to be even freer flowering than the type. It has white, beardless flower-segments with a central yellow stripe. The rare and beautiful Iris stylosa speciosa has just done flowering; it is much dwarfer than the type, and the flowers are of a very deep violet-blue, with rather more rounded falls, and larger. Narcissus Bulbocodium nivalis, from the Portuguese mountains, is even smaller than the smallest minimus. N. cyclamineus, of three years' growth from the open ground is quite hardy, each bulb producing from two to three yellow flowers, with reflexed segments and a long cylindrical cup. Tecophilea cyanocrocus, grown in a cold frame, is remarkable for its lovely blue funnel-shaped flowers. Korolkowia discolor is a great improvement on K. Severzowi. It bears erect racemes of pendulous bell-shaped, greenish-yellow flowers, nearly 2 inches in length. Pushkinia libanotica is a Squill-like plant with compact racemes of erect bell-shaped flowers, each about half an inch in length with oblong-whitish segments, with a central stripe of blue.

Mushroom Disease.—A correspondent has sent us specimens of Mushrooms over-run by a whitish fungus mould which destroys the appearance of the Mushrooms, and renders them useless. Dr. Cooke, to whom the specimens were referred, reports as follows:—"The appearance of the Mushrooms and the condition of the bed is by no means new or rare. It has been known for many years that on some occasions a whole crop of Mushrooms will be more or less diseased, but the cause has never been indicated, or, we think, discovered. The gills, more especially, are distorted, and covered with a whitish matted felt, as of a kind of mould which may spread over the entire Mushroom. In the *Gardeners' Chronicle* for 1884, p. 245, this disease was referred to, and one of its manifestations determined to be a species of Saprolegnia, an ally of the fungus which produces the well-known salmon disease. In the present instance we find the mould to be of a different character, such as generally associated with species of Hypomyces, ascigerous fungi, of which the mould represents the conidia. According to its scientific aspect the mould is a species of Mycogone, not unlike Mycogone rosea in many of its features, but perhaps referable to Mycogone alba. The threads are very numerous, and closely intertwined in a matted felt; the spores or conidia are large, and consist of a larger and smaller cell united, the larger one becoming amber-coloured and

spinulose, the lower and smaller cell remaining hyaline and smooth. This is the furthest we have been able to discover at present; a further development may take place under a bell-glass. The remedy is a mystery. There is no cure for the present outbreak, and every trace should be at once destroyed. It would hardly be prudent to occupy the same spot for Mushrooms for a long time to come. [The soil employed contained a large quantity of vegetable matter, and was therefore unsuitable to cover a Mushroom bed, owing to the readiness with which other forms of fungus grow in it, especially under warm conditions. Fresh loamy soil from a pasture, and which has laid at least one year in a heap that has been kept free of all fungus growths, is the most suitable for covering Mushroom beds. Ed.]

Agricultural Research Experiments.—We have received reports of the annual meetings of the Aberdeenshire and Sussex Associations, from which we extract the following particulars:—

Sussex Experiments.

"*Drainage.*—Different systems are under trial. The drains were carefully made before sowing out in permanent pasture. Comparatively little benefit has been gained by drainage. Highly beneficial as drainage is known to be under certain circumstances, it appears that in other cases it may be wasteful. Where, as in these experiments, there is to be dealt with a dense deep mass of plastic clay almost impermeable by water, no underground water is likely to trouble as a rule, and hence there may be no need for deep drainage. In such a case it would seem that the efforts should be directed rather to dealing with surface water.

"*Lime.*—Rain falling on slimy clay mostly either runs over, or lies on, the surface; the result is—a washing off of useful matter, or coldness, and an unworkable state. The Sussex experiments indicate that while lime does not increase the crop, yet if it is applied in large enough doses (4 or 5 tons per acre), it renders the soil so friable that the rain passes so far downwards, thus avoiding both the above disadvantages, while the soil might ultimately assume a condition in which moderately deep drainage might be effectual.

"*Improvement of Old Pasture.*—In regard to old pasture in really bad state, among many plans tried to effect improvement, the best plan of improving has been found to be—to lightly plough up the pasture, and at once resow it without taking a grain crop.

"*Manures.*—Various artificial manures have been used, some of which have not repaid the outlay, but others, and notably one which is now adopted as the mixture recommended by the Association, has had the effect every year during the past four years of increasing the crop by 70 or 80 per cent.

"*Effect of Grazing.*—A novel table of a most instructive kind, and on which much labour has been spent, brings out the debit and credit features of pasturing, both from the proprietors' and the farmers' point of view; in other words, the effect on the soil, and the effect in regard to profit by the different systems of using pasture-land, such as mowing *v.* grazing, manuring *v.* no manuring, artificial food *v.* grass only, &c., the whole being brought out in diagram form as a picture, which at a glance shows the striking differences by the various systems.

"*Support and Direction.*—The Association is upheld by proprietors of Sussex, aided last year by a State grant of £50. The experiments for the past eight years have been directed by Professor Jamieson, Lecturer on Agriculture in Aberdeen University, who also conducts similar experiments in Aberdeenshire, and proposes to carry out the same system in other counties where a similar organisation may be formed. Probably every shire might, at comparatively little outlay, if well managed, have such an obviously useful system.

"*Benefit in Practice.*—The experiments are done on both large and small scales, but it is considered that large plots, as a rule, are not to be depended on. The information got on the small scale is now applied in practice widely over Sussex, and many statements are annually volunteered of remarkable benefit being derived; one prominent member remarking that the result was so striking and sustained yearly, that if he had £500 given him as a present he would lay it out on the manures recommended.

"*Annual Manure Circular.*—A special feature of the report is the statement of manure mixtures recommended for different crops, the statement being adjusted yearly in keeping with current prices, new information, and new manures. While, no doubt, every county with its different soils, different climate, and different method of farming would benefit by having mixtures specially adapted for its special demands, yet it is believed that, in the absence of such information, the mixtures adjusted with care and skill as suited for Sussex might, in many cases, be with benefit adopted in other counties. The ingredients may be obtained from most manure merchants, but it should be ensured that the character and condition of the ingredients are such as are clearly specified in the report as most suitable.

Aberdeenshire Experiments.

"*Scientific Research.*—Much the same kind of experiments are conducted in Aberdeenshire, the main difference being that the large drainage and pasture experiments are omitted, and more attention given to purely scientific experiments. In that county there is a special experimental station, with equipments such as museum and laboratory, where such work may be done, and results thus obtained that could not be got in soil, and which may afterwards be verified on small field plots, and finally brought to bear in practice on the large scale."

Show Fixtures.—The Ancient Society of York Florists announce their ordinary shows for April 24, May 29, July 10, August 14, and September 11; and a three days' Chrysanthemum exhibition, opening on November 20, when liberal prizes are offered.

The Collections of M. Beaucarne of Eename.—The fine collections of plants made by this gentleman, lately deceased, will be sold at Eename, near Audenarde, Belgium, on the 29th and 30th of this month. In addition to plants of the ordinary character there are numerous special collections, and specimen plants of Azaleas, Camellias, Bromeliads, Amaryllids, Palms, Cypripediums and other Orchids, including a plant of Vanda Lowii, 1.65m. in height. The Azaleas and Camellias will be sold on the 29th, the Orchids on the following day. Catalogues may be had from M. Pynaert van Geert, of Ghent, or M. Jannsens, notary, of Eename.

To Our Masonic Readers.—An attempt is being made to secure the admission of Percy Court, son of the late Mr. Court, of the Royal Exotic Nursery, Chelsea, to the benefits of the Royal Masonic Institution for Boys. As this is the only chance that the lad can have of succeeding it is to be hoped that out of respect to his father's memory, and in consideration of the necessities of the case, all who have votes at their disposal will do their best to secure the success of the lad at the ensuing election during this month. The case is strongly supported by the brethren among the horticulturists.

Royal Microscopical Society.—At the next meeting, to be held on Wednesday, the 10th inst., Mr. G. Massee will read a paper on the "Revision of the Trichiaceæ."

Drug Sales.—In the Mincing Lane reports during the past fortnight some interesting facts connected with vegetable products appear. Thus it is stated that six bales of Deer's-tongue leaves (Liatris odoratissima) were offered for sale at 3*d.* per pound. Some time ago it is said they were becoming popular as a substitute for Tonquin Beans. In America the plant is known as Wild Vanilla and is used for scenting cigars and Tobacco. If the plant is trodden upon the aroma is abundantly given off. This aroma is due to the same crystallizable odorous principle which is found in the Tonquin Bean and the sweet-scented Vernal-grass. It is stated that in America, many of the flavouring fruit essences and vegetable perfumes are obtained from the Liatris leaves. Under the head of Gum asafœtida, which our readers are aware is a fœtid gum obtained from two or more species of Ferula from Kashmir and Persia, we read the following startling announcement:—"It is said that a peculiar adulteration of this article has recently been observed in Hamburg, where wholesale drug firms offered to their Swedish customers a gum from trees which was composed of crystallised gypsum coated with true asafœtida, the amount of adulteration varying from 20 to 80 per cent." Of Strophanthus seeds, it is reported that large quantities have recently been imported and that good greenish seeds have realised 4*s.* per pound. A good deal of uncertainty prevails as to the botanical identity of the species yielding the Strophanthus seeds of commerce, some kinds being more pointed than others or of different tints, or smooth or hairy.

John Linden.—The *Orchidophile* for March contains a portrait and biographical sketch of the intrepid explorer, who has done so much to extend our knowledge of plants and to bring them within the reach of horticulturists.

Homage to a Brave Man.—Should any readers meet with a Begonia called Jules Bourdon, it may interest them to know that the plant has been named in memory of a gardener who was killed in the defence of his master's property by some burglars at Auteuil, near Paris. The *Moniteur Horticole* proposes shortly to give an illustration of the plant.

Plants and Their Culture.

Hebeclinium and Eupatorium.—Hebeclinium ianthinum, and H. atro-rubens are most useful, and easily cultivated winter decorative plants, and are also good for cut flower purposes. Cuttings should be put in soon, and kept well shaded for a few days; when repotting, use good loam and decomposed manure with a little coarse river sand; 6-inch pots will be found a useful size for the final potting and as soon as the pots are full of roots the plants should have a liberal supply of liquid-manure. Old plants, as they go out of bloom, should be cut back into the old wood, only leaving two or three eyes to break, and when the plants have recommenced growth cut back the roots, repotting in fresh soil, and placing them in a temperature of 55° to 60° for a time, and then transferring to a cool house or frame. Eupatorium riparium, E. odoratum, and E. Weinmanianum, require similar treatment as to soil and propogation, but should be grown in a lower temperature. Give copious supplies of water during growth, and plenty of liquid manure when their bloom is forming. E. Weinmanianum is an erect growing variety, and is sweet scented; it also blooms freely and the trusses are of a pure white. E. riparium and E. odoratum are compact bushes, very serviceable as conservatory decorative plants. After the plants have made a good growth, they may be planted out-of-doors for a time, and should be plunged in ashes or cocoa fibre to protect their roots, as the plants soon suffer from drought if exposed to bright sunshine and drying winds. They should never be allowed to suffer for want of moisture, and are much benefited by damping overhead in the evening during hot weather.

Linum trigynum.—This old showy winter bloomer never fails to be appreciated if well grown and covered with its bright yellow flowers. To grow it successfully, it should through the winter be grown in an intermediate house or a stove in a temperature of 60°. Cuttings should be struck early, and grown on in a moist atmosphere. A 5 inch pot will be large enough for young winter stock, and when giving the last shift, use a good mixture of loam and peat in equal proportions, adding some good coarse silver sand to keep the compost open and allow plenty of drainage. The plants should be watered with care

till well rooted, when they may be removed to a cooler house and well syringed twice daily. Old plants should be cut back now, and when the buds are breaking, should be repotted and grown on in a moist warm house. Red spider frequently attacks this plant if grown in a dry house, therefore it is advisable to use the syringe freely. A cold frame suits the plants well during the summer, standing the pots on a hard coal ash bottom, and syringing them at closing time—given a warm house about the third week in September, keeping them close to the light. Before placing the plants in their winter quarters, it is the safest plan to dip in, or well syringe with, tobacco-water to destroy red spider if it be present. *Geo. Wythes, Sion House, Brentford.*

The Orchid Houses.

Growing and rooting Orchids of all kinds should receive a plentiful supply of rain-water at the roots, and a temperature not lower than that prescribed for each section; indeed, a good rise above it of 8° or 10° on sunny days is beneficial. Phalænopsis, Saccolabiums, most Vandas (not the varieties of V. suavis, V. tricolor, and V. insignis, which are never more than cool intermediate-house plants) require a brisk-growing temperature; indeed, it is by reason of their being generally kept too cool in spring and early summer, which is their growing season, and too hot and close in winter, that they so often fail in collections. All these should be inspected to see if they require re-basketing; or, if firmly rooted, the old sphagnum working out and replaced by new.

Calanthes of the vestita section, if not already repotted, should now be attended to, using good turfy yellow loam and peat with broken charcoal or crushed bones added. Deciduous Calanthes of the Regnieri, or spring-flowering section, which have made young growths, and are over flower, may be repotted with the C. vestita and C. Veitchii, those in flower or not ready being left until later, Lycastes Zygopetalums, Phaius, and evergreen Calanthes, also requiring repotting may now be shifted, similar or other proved mixture being used. Growing Dendrobes require a moist warm house and plenty of water. Syringing as generally carried out I consider to be very mischievous, and the more it is restricted to only occasional use the better. If it may be safely done at all it is in a small house containing all growing Dendrobes.

The temperatures by artificial heat should henceforth be carefully kept in check as the sun gains in power. A good warming with sun-heat, with the artificial heat kept under, is a great reviver of vegetation under glass, while both acting together are often very harmful. From now until autumn be liberal with the water about and under the stages. The temperatures for the month of April should be:—Warmest house, 65° to 70° by day, with 60° at night; intermediate-house, 60° to 65° by day, 55° at night; and for the cool-house, 55° to 60° by day, and 50° at night. *James O'Brien.*

Fruits Under Glass.

Melons in the early house will now be swelling, so remove all flowers and superfluous growths as they appear. When the fruit approaches the size of a tennis ball support it by four pieces of matting, or string, tied together under the fruit, and fastened to the wire above, or pieces of board can be used, suspended from the four corners, a hole being bored in the centre, to let moisture escape. Stop and tie when necessary, and keep a growing temperature by damping early in the morning, at midday, and again in the afternoon, shutting up with sun, with the thermometer at 85°, and partly damping the plants. Fill the evaporating troughs with manure-water, and give air gradually in the morning, and continuing till shutting up time, about 3 o'clock. Have a night temperature of 70°.

As soon as sufficient fruits are showing at one stage on later plants, impregnate the fully developed flowers. Maintain a higher and drier atmosphere while this takes place, and stop the growths to one leaf beyond the fruit. When a sufficient crop is swelling give a watering with weak manure-water, damping and syringing the houses as before advised. As soon as the roots appear on the surface of the pot give it a top-dressing with warm soil and a little manure. When the fruit approaches ripeness withhold the moisture and give more air.

Figs.—The early forced ones will soon be ripening gradually. Stop the damping and syringing, giving a drier atmosphere with plenty of air. Those plants in pots should be liberally treated with water, dusting and washing in a little Thomson's manure twice a week. In later houses syringe the trees both morning and afternoon, fill the troughs with manure-water, damping down the paths and beds at mid-day when bright. Give the borders a top-dressing with manure and loam, and water liberally; tie-in any shoots requiring it, stopping them at the sixth joint, and removing weak or overcrowded ones. The night temperature should be 60°—65°, and in the day 70—85° with sun. If not already put in cuttings from last year's growth can be taken from the young shoots, leaving a heel of the old wood attached. Plunge into bottom-heat singly in 60's, and as soon as rooted potting into loam, mortar, and a few bones.

Tomatos.—A few seeds may still be sown for planting out. The early ones, potted in large pots as advised last month, will be in bloom, rub off all

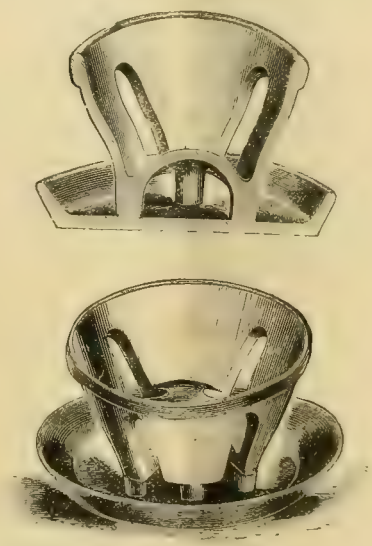


Fig. 79.—Orchid pot and section.

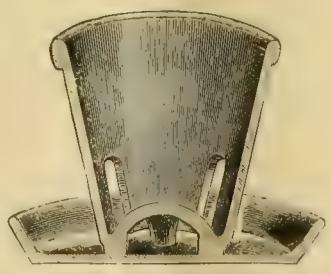


Fig. 80.—Flower pot seen in section.

side-shoots as they appear, and give plenty of air to keep the plants dwarf. Treat them to water liberally when set, and use manure-water when swelling. Top-dress as the pots get full of roots. Pot off into 7-inch pots plants which are in 60's, and when established gradually harden off for planting against a warm wall in June. In the South in favourable seasons they will do on a warm border facing south, planting a yard apart, and supported by stakes. *W. Bennett, Rangemore, Burton-on-Trent.*

Humea elegans.—The party of the Victorian Field Naturalists' Club which went, on my suggestion, to the Waratah country of Eastern Gippsland this summer, saw there H. elegans rising to about 20 feet, masses of these plants, quite impressing a peculiar picture on the landscape. The stems of the tallest Humeas are bare to about 5 feet. *F. Von Mueller.*

Useful Inventions.

The Scientific Orchid Pot.

The Scientific Plant Pot Company, 21, Commercial Street, Leeds (London Agent, Mr. A. Pitman), have called our attention to a new pot invented by them, which seems to us calculated to be very serviceable. It consists of a pot or pan (fig. 79) standing on legs an inch long, in a saucer, to which it is firmly attached. In the sides and bottom of the pot are slits, which admit air, heat, and moisture, to the roots of the Orchids. The saucer being filled with water, the slits in the side and bottom of pot prevent it acting as a syphon, yet the capillary attraction of the pot draws up sufficient moisture to keep the Orchid growing until the roots strike down to the water. The advantages claimed are: More certainty of growing, better results, less labour, and greater cleanliness. The water standing in the saucer effectually prevents all snails and other pests from reaching the Orchid. To plant the Orchid, fill up the pot with broken charcoal raised into a cone 2 inches above the rim of pot; spread on a little sphagnum moss, then plant the Orchid on the top. When finished, the Orchid should stand on a cone 2 to 4 inches above the rim of the pot. Pour sufficient water in the saucer to keep the Orchid moist; some Orchids require the saucer full, and others only to cover the bottom of saucer. Never water the Orchid at the top of pot, or use the syringe; wash the leaves when required; keep no exposed water about; give more air and light as soon as the roots have reached the water. The Orchid may be removed from house to house without detriment, as each carries its own reservoir along with it; also they will stand in the sun without flagging. In these pots Orchids will thrive in an ordinary greenhouse amongst other plants. When the Orchid requires rest, pour out the water, and fill the saucer with cotton-wool to prevent vermin attacking the Orchid.

Another pot shown in fig. 80 is adapted for flowers, Ferns, &c., which may be grown with much less labour and inconvenience, greater cleanliness, and more satisfactory results than hitherto.

In using the Scientific Plant Pot, the following directions should be observed: fill the pot as far as the top of the slits with pieces of charcoal, then add a little moss thereto to prevent the earth from falling down amongst the charcoal, and, after filling the pot with earth, carefully insert the plant. The saucer should then be filled with water, and the plant placed in the shade for a couple of days. Never water the plant at the top or even syringe it, but keep the saucer adequately supplied with water.

Snails, worms, wood-lice, and vermin generally will cease to exercise their damaging and deterring influence by reason of the, to them, impassable bridge of water contained in the saucer, and separating them entirely from the plant and its surroundings proper. The slits in the sides and bottom of the pot provide for and ensure perfect ventilation to the roots of the plants, preventing their cramping and decay; and at the same time, the pot cannot, as formerly, act as a syphon by drawing up the volume of water to the plant, and, as was the fact in many cases, deluging and destroying it; but the plant may now, by the use of this invention, be scientifically and properly reared, inasmuch as the capillary attraction draws up the moisture at all points alike, and the plant is kept going until the roots strike down and obtain greater sustenance and strength. The evaporation of the water gently stimulates the plant, and it grows steadily, though vigorously, receiving no check, as in ordinary cases, by being dry one moment and deluged with water the next. One-third, if not more, of the labour attending to and working a greenhouse may happily now be avoided, as almost all the trouble of watering is rendered unnecessary. The greenhouse with the introduction of this system, will be kept clean with relatively little trouble. For forcing and for gross feeding plants, such as Roses, Chrysanthemums, Tomatos, and Strawberries, as well as for all Fern and fruit trees in pots, this

system will be found serviceable, as liquid manure, when placed in the saucer, will be brought into direct contact with the roots, and the plant will receive all the nourishment for its speedy and effectual development. These are the advantages claimed for these pots, which are obviously worth a trial.

EUCALYPTUS STAIGERIANA.

Some time since we received from Mr. Thomas Hanbury, of La Mortola, Ventimiglia, a specimen of a Eucalyptus with narrow leaves and elegant white flowers. The exquisite fragrance of the leaves was as delicious as the refinement of the flowers. Being unable to identify the new comer, we consulted the historian of the genus, feeling assured that if he did not know the plant, it was not likely that any one else would do so. We subjoin his letter, merely adding that this would be a most desirable plant to cultivate in suitable localities for commercial purposes, and if it can be got to flower when of small size, specially desirable as a warm greenhouse plant.

"The Eucalyptus, of which you sent a sketch, is E. Staigeriana. A brief description of it is contained in Mr. F. M. Bailey's *Synopsis of the Queensland Flora*, p. 176 (1883.) I first regarded it as a variety of E. crebra, holding the same relation to that plant as Thymus citriodorus does to T. serpyllum or Boronia citriodora to B. pinnata. As a variety it is mentioned by Professor Naudin in the *Manuel de l'Acclimateur* under E. crebra, but after eliciting fuller information from Mr. Wycliffe, who lives in the only region (at the Palmer River) where only this scented leaved Eucalypt has been found, I raised it to specific rank, and thus it occurs under the name E. Staigeriana in the editions of 1885 and 1888 of my *Select Plants*. Most of the characteristics are those of E. crebra, but now we know that the bark and wood are very distinct. The late Mr. Staiger was Government Analyst at Brisbane. He made the nature-prints of his and Bailey's *Grasses of Queensland*. He also distilled the oil from E. Staigeriana for several of the recent Exhibitions from foliage obtained at the Palmer Ranges. He died last year. The seeds were sent by me to Antibes at least once, and as yet they are very difficult to obtain, as the cultivated trees have not yet fruited anywhere. So far as I know E. citriodora is the only other species with fragrant leaves."

HOME CORRESPONDENCE.

☞ *Correspondents will greatly oblige by sending early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

VIOLETS.—This is a subject now occupying the attention of a good many of your readers, and as we are very successful here with their cultivation, I should like to say something as to my methods. I plant them out in the last week in April on a north border, which is manured with the old mulch from the inner Vine borders, and a sprinkling of Jensen's Fish Potash Manure. The plants are put out at a distance of 1 foot apart, kept moist in dry weather and the runners vigorously pinched off. During the autumn season, these runners are pricked into boxes, where they soon strike, and these make excellent plants for planting out the following spring. I feel quite sure that this is the best way of getting plants, that is, in just the same way as one raises Strawberry plants, but then very often one has no time to do this; hence the more usual method of increase by division. The plants should always be placed under cover in the last week in September, at not more than 9 inches from the glass, and be planted with a good ball of roots and soil attached. Violets dislike heat, and all that they want is the frost kept out of the frame or pit in which they are placed. I get flowers from my plants for seven months in succession, and oftentimes longer. We fancy that New York is the earliest variety; then comes Marie Louise and then Swanley White, This variety during the month of March was quite a sight with its double white blossom; then follow Wellsiana, a grand single, with large blossoms and quite a long foot-stalk; Rawlin's White is quite a mass of blossom just now; Mdlle. Bertha Barron is just opening its first blossom—it is a grand flower, and will be a favourite some day. I still grow the old tree Violet, but the Neapolitan I have thrown away to make room for better ones. Violets of all kinds should, in my opinion, have some kind of shelter in the spring, so as to have them as fine as



Fig. 81.—Eucalyptus Staigeriana, flowers white, leaves exquisitely fragrant.

possible, and right well one is repaid for any trouble of this sort taken. *J. Rust, Eridge Castle.*

—— Having been a grower of Violets for the past twenty years, I have taken the liberty to send you a few Violet blooms for your inspection. I have taken an interest from reading of the culture of Violets in the *Gardeners' Chronicle*. I sow only three varieties—the Neapolitan, Marie Louise, and The Czar. I grow in frames and pits, and The Czar I also grow at the foot of a south wall. I employ no artificial manure whatever from the time that I put the plants into the frame until I take them out again, and I give them nothing but soft water. I plant them in the frames in September, taking them out in May. I begin to gather blossoms in October, and continue to do so until May. I have had every success by following out these methods in the open ground and in frames and pots. My beds of Violets at the present time present a mass of bloom. *J. Hussey, Haines Hill, Twyford.* [Capital blooms of The Czar and Marie Louise. Ed.]

ANOIGANTHUS BREVIFLORUS. — I can fully endorse the remarks made by your correspondent, "W." (p. 398), concerning the above-named plant—that it is certain to become a popular garden plant." This plant is described by Mr. Baker, in his valuable book on the *Amaryllideæ*. The genus is monotypic. It may not be out of place to give his description:—"Bulb ovoid, 1 inch diameter, with a short neck. Leaves three to four, contemporary with the flowers, lorate, a foot or more long. Peduncles ½—1 foot long. Umbel two to ten-flowered; spathe-valves two, lanceolate; pedicels erect, slender, 1—2 inches long. Perianth bright yellow, about an inch long; tube a quarter to one-third as long as the segments; stamens half as long as the perianth-segment; capsule half long, valves reflexing from the centre." He also records a variety, minor, which is a dwarf mountain form, with a short peduncle, and narrow perianth segments. Habitat, mountains of Natal and the eastern provinces of Cape Colony, ascending to 5000 feet on the Sneewbergen. Flowers from October to February. The plants of this bulb which are now flowering in different parts of the country were distributed from these gardens, where the stock was sent to by Mr. Adlam, of Natal, under the name of Cyrtanthus lutescens. For some few weeks past it has been in flower in a cool house in these gardens; the number of flowers borne on a scape in our case has been four, measuring in diameter from perianth-segment to segment 1½ to 2 inches in diameter. From our present knowledge of the plant it is impossible to say whether it is sufficiently hardy to stand outside in our climate without protection, but doubtless it will prove itself well adapted for forcing. A suitable compost in which to grow it is a mixture of loam, leaf-soil, with some sharp sand added, putting three bulbs into a 48-pot, keeping them just below the surface of the soil, giving them a light position. *W. Harrow, Botanic Garden, Cambridge.* [A good specimen was exhibited by Mr. Lynch at the last meeting of the scientific committee. Ed.]

BRITISH FRUIT GROWERS' ASSOCIATION.—The above Association made a great shout in the autumn about the railway rates, and the proposed charges. Now these are issued, and April 12 is the last day for sending in objections to the Board of Trade, yet nothing is heard of the above Society. Surely there is one clause which affects fruit growers, viz., that less weight than 560 lb. shall be charged as a quarter of a ton on any reasonable sum the companies may think fit. It must be to our interest to know definitely what will be the charge for at least 1 cwt. from station to station. These charges are now very much increased, yet we hear of no opposition by this or any similar body. It is to be hoped that they are not asleep if we are to be enabled to compete with foreign producers. *R. F.* (See p. 432).

CATTLEYA LINDLEYANA.—What would happen if Mr. Seden, or some of his enterprising coworkers, were to hybridise Cattleya intermedia with Brassavola tuberculata? Well, it is somewhat difficult to say, as so much depends upon circumstances. The cross might refuse to take; or the capsule, if produced, might contain no good seed; neither of which are at all uncommon occurrences. Even when young plants are produced, a hungry slug will sometimes upset the most carefully devised experiments in a single night. But supposing all the perils incidental to Orchid babyhood safely passed, would the hybridist be surprised if the so-called Cattleya Lindleyana appeared, when the flowering stage was reached? I confess I should not, on the contrary, I think it most probable that such would be the end of the experiment. There has always been something mysterious about the plant, and more than once I have looked at dried specimens and drawings, and thought of Brassavola. As a good plant has just flowered at Kew, I thought it worth while to make a careful comparison with possible parents. The result, is, I believe it to be a natural hybrid between the two plants above-named, both of which grow in the province of Santa Catherina,

South Brazil, whence the plant came. It has decided characters of both supposed parents, and may be said to fairly intermediate between them, though with a balance of characters in favour of the Brassavola. Following the plans proposed for dealing with these bigeneric hybrids, the name Brasso-Cattleya × Lindleyana may be adopted for the plant. *R. A. Rolfe.*

ORCHID FERTILISATION. — At a time when Orchid growing occupies such a prominent position in the horticultural world, I think it would be of interest to many of your readers if some of those gentlemen who have been successful in hybridising would give us the benefit of their experience. Personally I have been fairly successful, but have only once succeeded in getting a seedpod on Dendrobium Wardianum, and in this case it got accidentally broken off. This species seems to me more difficult to fertilise than any of the others. What is the reason of this? It must be easily propagated in its native habitat on account of its abundance, and we are very nearly able to imitate its climatic conditions. I see in a recent issue Mr. Smythe claims great success with most sorts, even to Odontoglossums, which have proved so difficult to most of us; perhaps he will kindly tell us if he has had success with the above-mentioned Dendrobium. *R. B. White.*

COLOUR OF MARECHAL NIEL ROSES.—I cannot agree with "J." (p. 404) that the age of the plant is the cause of the difference in the colour of this flower; nevertheless the variety is certainly a very variable one. We grow and cut a large number here (from 12,000 to 14,000 flowers every year) and I consider that the two causes which affect its colour the most are the state of health of the plant and the amount of light which it receives when in flower; and, moreover, when the plants—young or old—are forced into flower by the first week in March, the blooms will never attain the deep colour so much admired, but will vary from almost white to pale primrose; neither will the flowers be so large then as later in the season. And again if the plant has a badly cankered stem, the flowers will come pale on the outside and deep copper coloured in the centre, and when this stage is reached the plant soon dies. I should like to see the plant which "J." describes as being nearly forty years old. *W. H. Divers, Ketton Hall, Stamford.*

—— Like "J.," I have noticed the pale colour of the blooms of this Rose upon young plants. Especially is this the case when the plants are grown from cuttings. Some blooms have been lighter in colour even than Gloire de Dijon. As the plants get older and the growths can be trained under the rafters close to the glass I notice the flowers are of a deeper yellow, and in some cases the blooms are tinted with pale red, this being more noticeable where the blooms were close to the glass. I have noticed that the more vigorous the plants the deeper the colour of the flowers. Plants which are weak in growth, owing to their being badly cankered, always have pale blooms. Flowers produced upon plants growing out-of-doors—on a south wall, for instance—are generally deeper in colour than those grown inside, and this is the case where the plants have not been fed with anything beyond clear water. Soil in different localities varies so much that a difference in the colour of the blooms may be attributable to local circumstances rather than to the supplying of liquid manures. *S.*

GARDENERS NEED NOT APPLY.—Through the instrumentality of the Lord Mayor of London a fund has been raised at the Mansion House for the purpose of sending, at least, one working representative each of some seventy to eighty different trades, practised within the metropolis, to the Paris Exhibition, and to that gay capital for the purpose of enabling them to gather all the information possible with respect to their various vocations, and to finally furnish reports of the same, to the promoters of the fund for future publication. The list of trades and vocations published seems to include all conceivable of a mechanical kind, but the occupation of gardening is entirely excluded, or it may be said, gardeners need not apply. Probably the civic authorities would laugh at the inclusion of gardening amongst metropolitan occupations, but doing so would be to ignore the fact that the supply of fruits, vegetables, and flowers to the metropolis is dependent upon gardening, and there are few things perhaps of which it may be more needful to gather lessons from our Parisian neighbours, than in what relates to the production for market of these things. There is no chance now that the claims of gardening will be recognised by the Mansion House Fund; but all the same, an admirable opportunity will offer in a precisely similar direction for the Royal Horticultural Society if it be so inclined, to provide means whereby a few gardeners may visit Paris and its exhibition during the coming summer, apportioning to each one according to his merits, the duty of reporting upon some special branch of gardening, amongst which the production of fruit and flowers and vegetables for market should have particular prominence. Some £100 would enable ten selected men to make very practical visits, and if qualified, to furnish admirable reports, which would be perused with interest by all not so blessed with experience. *A. D.*

ARNOTT'S ELASTIC NAVE.—Recently I saw a notice in the *Times*, the *Field*, and other papers respecting the trial in London of a vehicle fitted up with Arnott's patent elastic nave, and it was stated that the oscillation and jerking of the vehicle are greatly reduced by its use. It seems to me that this nave should be of great benefit to nurserymen and florists, as it would ensure the safer transit of their productions, as the breakage and destruction of blooms, &c., now occasioned by frequent removals entail heavy loss upon salesmen and exhibitors. I trust some of your correspondents will be able to give some information on the subject. *W. J. Fuller, Exotic Nursery, Headingley.*

DECORATIVE PELARGONIUM VENUS.—This useful variety serves to illustrate what is not an uncommon occurrence — that a variety of some popular flower will remain in cultivation for many years before its obvious good qualities are thoroughly understood and recognised. Venus is one of the large flowering Pelargoniums, and it was raised by Mr. J. Wiggins, twenty years ago, while gardener to Mr. W. Beck, at Worton Cottage, Isleworth. It has a singularly close and compact habit of growth, and every shoot throws out a number of laterals, that produce flowers which are pure white, with slight rosy stains on the top petals. The great value of this variety is as a winter bloomer. If grown in a warm atmosphere, it flowers with remarkable freedom all through the winter months. It is probably the best all-round white Pelargonium grown, and, as such, it is largely grown at the Swanley Nurseries by Messrs. H. Cannell & Son. Cuttings of this variety, taken now, do better than when put in in May. When struck they should be grown on well, and young plants should not be allowed to bloom; when repotting, the ball should be disturbed as little as possible, and when shifted they should be shaded and sprinkled overhead. They should be got into good growth by August, and then the plants will begin to flower in November, and, if properly treated, will bloom all through the winter. A quantity of plants at Swanley, still blooming, had been flowered for three years, and they were of large size. It precedes white Volonté National which makes a good succession to Venus. *R. D.*

LILIES OF THE VALLEY SENT TO AFRICA.—As an example of the possibilities of horticulture, it may interest your readers to know that Mr. T. Jannoch, of the Lily Nursery, Dersingham, Norfolk, recently despatched a small box of Lily of the Valley to Pietermaritzburg. The plants were carefully packed in a tin box, each root being packed in damp moss, which in its turn was enveloped with lead paper. The roots were, of course, all tightly packed at one end of the box, the other end being left vacant to admit of growth being made. The crowns were just bursting their first foliar envelope, and by the time the parcel reached its destination—a journey of just twenty-four days—the buds were just breaking into bloom, and the plants were in a perfectly healthy condition. *W. R.*

FUMIGATING ORCHID-HOUSES.—Mr. O'Brien's remarks in the *Gardeners' Chronicle* for March 23, on pp. 366, 367, may, perhaps, lead some young Orchid growers into an error in judgment. He there advises, if we read between the lines as well as the lines themselves, the use of smoke only as a last remedy. Our experience here is of quite a different character to his, and that it can be done, and at intervals, long or short, as the case may be, we have, I think, fairly proved; but in our case we can see no "injury to the plants," either Cattleyas or Odontoglossums. I do not go so far as to recommend all hand-clearing should be discarded for use of smoke alone; but I say that the use of smoke at intervals—say of six months—is beneficial; it finds out a little thrips perhaps before the eye is able to see it, and our evidence would go to show that the aphis is less liable to injury by smoke than the thrips. A strong aphis will stand more smoke than a thrips any day; but by a couple of successive smokings most often will be killed. If smoking is wanted before the blooms get well formed in Odontoglossums this is the best time to do it, or late in the year, when the spikes are few. Choice of a dull, sunless afternoon must be studied, or harm will result. The plants here were pronounced by a north countryman who travels largely in the South for a firm of importers in the North, to be "the best lot of Odontoglossum crispum" he had seen; and they are supposed to know when to bloom and grow them away North. *De B. Crawshay, Rosefield, Sevenoaks.*

GAS-LIME FOR ONION-GRUB, &C.—I should like to corroborate all that Mr. B. Ashton has said (p. 371) as to the use of gas-lime in preventing the ravages of the wireworm and other insects in kitchen gardens. In the early spring of 1880 I took charge of the gardens here. The kitchen garden, "a little over an acre in extent," I found to be composed of about 18 inches to 2 feet of poor sandy soil, with a subsoil of gravel. I began to crop it in the usual way, and all went well till about the end of May, when the various crops one after the other began to show unmistakable signs of clubbing. Of Onions, out of a bed of about six rods in extent none was saved owing to the ravages of the Onion-grub, Anthomyia ceparium, and nothing in the way of Brussels Sprouts, Cauliflowers, Broccolis, Savoys, or Cabbage, was fit to send to the kitchen; but the different varieties of Kales were not affected. I was determined to see what could be done to prevent such wholesale destruction, and in the autumn and winter I had every piece of ground trenched that could be got at, and gave it a thorough dressing of gas-lime and salt, and have continued to use a slighter dressing every season since, and am very much pleased to find that, since these dressings have been given, the crops are not molested by the wireworms or by the Onion grub. I employed the gas-lime at the rate of 2 cubic yards and about a quarter of a ton of salt to half an acre of ground when trenched; but on ground that is only dug in the ordinary way and to be soon cropped, I give it a sprinkling of about half a bushel to the rod. Salt should be omitted from the dressing if the land be heavy. *G. Woodgate, Warren House, Kingston-on-Thames.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

March 26.—Present: Dr. M. T. Masters, in the chair; Messrs. McLachlan, Wilson, Lynch, Veitch, Dyer, and Morris; Drs. Müller and Scott, Professor Church, and Rev. G. Henslow (Hon. Sec.).

Cocoa-nut attacked by Coccus.—Mr. McLachlan exhibited leaves of a young nut received from Jamaica severely attacked by two species of coccus, Fiorinia pellucida, Signoret, in abundance, and Mytilaspis buxi, Sign. (M. Pandani, Colustock), more sparingly. This diseased condition was prevalent in the West Indies. Mr. Morris remarked that Cocoa-nuts first appeared to be attacked in 1881, after the cyclone in 1880. He had seen a plantation of 25,000 trees badly infested. The planters attributed their unhealthy condition in 1881 to the snapping of the roots in the cyclone of the previous year, whereby the vitality of the trees being affected by the injury to the roots, they became an easy prey to the cocci. The insect attacks the outside fronds in the first instance, which gives the appearance of the trees having been scorched. The older trees were described as having "blasted fruit." The usual remedies of sulphur spray or kerosene emulsion being impracticable, it was suggested that smoke might be partially effective. Whatever be the remedy applied, Mr. McLachlan observed that it should always be applied just at the time when the larvæ are being hatched.

Effects on Plants of London Fog.—Mr. Dyer suggested that statistics should be collected on the nature and effects of London fog upon plants in and around the metropolis during the winter. He said that they had not much ground for complaint at

Kew until the winter of 1887-1888. The fog proved injurious in two ways. First, in forming an oily deposit of dirt which was left on all the glass houses. This was so thick and of so intractable a character that every pane had to be washed by hand. The houses looked as if they had slate roofs instead of being glazed. The same result occurred in the winter of 1888-1889. Secondly, with regard to the injury to plants, it seemed out of all proportion to the nature of the fog, especially so on Orchids. Thus, *e.g.*, when a fog comes on the inflorescence of species of Phalænopsis breaks up, and the flowers disarticulating fall off. Many plants suffer more or less, and especially such as have a more tender foliage. Mr. Dyer remarked that the young foliage of a Carpenteria growing on a south wall did not suffer, while another plant under glass, with possibly tenderer foliage, was severely injured. The fogs extended even as far as Dorking, for Sir Trevor Lawrence lost a large number of flowers in a few hours. Mr. Veitch remarked that he found injurious effects to follow the two kinds of fogs, those caused by London smoke and the ordinary country white fogs. In the dull weather accompanying the latter flowers would not expand properly, as, *e.g.*, was particularly the case with early varieties of Lælia anceps. The yellow fogs of London had been getting steadily worse for the last twenty years. Camellias frequently lost their buds, especially certain kinds, as double whites. A peculiar feature observed by Mr. Veitch was that the fog seemed to gum up the buds at a certain stage of development, when either before or after that particular period of growth the the buds were unaffected by the fog. He mentions that 1000 flowers of Cattleyas were lost in three weeks.

Galanthus Elwesi, Diseased.—A letter was received from Mr. Barr, who had forwarded the diseased bulbs on which Professor M. Ward reported at the last meeting. He attributed the presence of the parasitic fungus indirectly to cultivation and to too rich a soil from the following facts. In the garden whence the diseased plants had come, Mr. Barr found that they had all disappeared except from places overgrown with grass, and in a wild natural condition. There they were healthy and strong. His impression is, that Snowdrops cannot stand too much cultivation. Whether it be the manure or the soft spongy nature of prepared soil he could not say, but with him they die out in such a medium, whereas an escape on the hard margin of a bed grows and flowers well. It is the same with many other bulbs. In the centre of the bed they will perish, while the plants on the edge which has been trodden down will thrive. In an orchard where G. Elwesi was growing they were best in a position near to the roots of trees and in the most shaded parts. Mr. Barr suspects that fungus diseases are therefore correlated with uncongenial conditions, and that the cure rests in more attention to Nature's laws.

Mr. Wilson observed that, in his experience, Snowdrops grew well in a rich soil. This was also Mr. McLachlan's, except that they became double. It was suggested that, while manure might be the source of the spores of the fungi, Mr. Dyer remarked that no variation in the soil could have had anything to do with the production of the fungus. It was observed that, like the Cocoa-nuts described, some lowering of vitality appeared to render herbaceous plants more receptive of fungi, and the causes might be various, including high cultivation, which stimulated the vegetative system.

Rime, Phenomena of.—A communication was received from the Rev. L. Blomfield, to whom the Secretary had forwarded Mr. Plowright's account of injuries to trees by rime, and the photographs of broken trees, with inquiries if ever he had experienced a similar occurrence. In reply, he said that he had only once seen such excessive rime at Swaffam Vicarage, "when all the twigs of the trees, even the slenderest, were so enveloped in long spiculæ standing out perpendicularly to the length of an inch or two at least, as to resemble bottle-brushes. The effects were injurious in some cases, but not to the extent of large boughs of trees being broken." . . . . "Fog combined with a very low temperature and a perfectly still air, I suppose to be essential conditions." Mr. Plowright forwarded a large bough with several branches broken through and hanging upon it, illustrating the remarkable effects of rime near Lynn.

Plants exhibited.—Shortia galacifolia, by H. J. Elwes, a native of the Alleghanies, flowering for the first time in Europe; it appears to be allied to Pyrola. Anoiganthus breviflorus, Baker, a new monotypic genus from Natal with yellow flowers, introduced through Professor M. Foster; Crocus vernus var. leucorhyncus. Narcissus minimus, brought from the Asturias by Mr. Maw, flowering a fortnight or more earlier than those in ordinary cultivation. Kylligia monocephala, Symplocarpus fœtidus, &c. The preceding were brought by Mr. Lynch from the Botanic Gardens, Cambridge, to whom a vote of thanks was given.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

Wednesday, March 17.—The first show of the above Society took place in the City Hall, Glasgow, and was slightly referred to last week at p. 402.

Open Classes.—The exhibition tables, furnished by the nurserymen and the gentlemen's gardeners, made a splendid backbone for the miscellaneous exhibits, and heightened the general effect. Messrs. Austin & McAzlan had a large and miscellaneous assortments, comprising Palms Crotons and Dracænas, with Spiræas, Rhododendrons, Azaleas, Heaths, Lilac, and some Orchids—the more prominent being Deutsche Peear, Clematis indivisa, a good Cattleya Mendelii. Messrs. Smith & Simons had also an excellently-filled table, on which Palms, Screw Pines, Crotons, Dracænas, were ranged with showy spring-flowering subjects, and Ferns in variety.

Mr. G. Weston (gr. to Morris Carsewell, Esq., Pollockshaws), had a very good assortment of plants centred with Kentia Fosteriana, a few of the grosser growing Pandanus, Dracænas, and Aroids, with several fairly well flowered Azaleas, some good lots of Orchids, chief among which was a very dense panicled Odontoglossum odoratum, Dendrobium Wardianum and D. nobile were also good.

Mr. David Wilson (gr. to H. Stevens, Esq., Westhead, Kelvinside), had a table corresponding. The plants were not so large, but the variety was as great and generally ornamental, stove and greenhouse subjects, both foliage and flowering, and arranged with a capital lot of Orchids, conspicuous among which was Odontoglossum Edwardii, the best imitating violet colour among Orchids we have in cultivation, and from its numerous flowers on the panicle with the orange dash on the crest of the labellum makes it very telling and effective flower. O. crispum, O. Pescatorei, and O. Rossi formed a showy collection.

Spring Bulbs, Cyclamens, &c.—A very nice diversion in the matter of showing, was in the groups of spring flowering plants arranged in a circular hamper confined to 2 feet diameter. The competition here was close, the 1st prize going to Mr. J. Miller, Castleknock, Rutherglen, who had an Amaryllis for the centre, then Narcissus, Tulips, Hyacinths, Squills, Crocus, &c.

Azaleas were largely represented. A. amœna is always well shown here, the plants being large, and quite pyramids of bloom. The best came from Mr. Hogg, gr. to John Gordon, Esq., Aitkenhead; and from Mr. James Miller, gr. to W. C. Stewart, Esq., Castlemilk.

Orchids.—The Orchids from Mr. Hogg were excellent. Colœgyne cristata had at least 150 spikes of bloom; Dendrobium Wardianum, magnificently grown and flowered; and a good Cypridedium villosum. Mr. D. Mackenzie, gr. to J. Pilcher, Esq., Cathcart, had a beautifully grown Masdevallia Lindeni, full of flower and foliage; also an excellent Odontoglossum luteo-purpureum.

Rhododendrons.—Nothing was better than Mr. Gordon's Countess of Haddington, smothered with flower, and in fine specimen size. Princess Alice was also good, and the little flowered, dense trussing, white R. multiflora.

Table plants were limited, the smallest plants carrying off chief honours.

The *Alpines* in pots were pretty, and all well-flowered, by far the best coming from Mr. John Meiklam, Alpine Cot, Bridge of Weir, Paisley; the Hoop-Petticoat Narcissus, the white and the rose Squills, along with the white Sanguinaria canadensi,s being among the more prominent.

Mr. Peter McKenzie, St. Vincent Street, Glasgow, had the best table of bulbs. The Tulips here were superb in over thirty sorts, and so were the Crocuses and the Narcissi. Mr. John Sutherland, Lenzie, took first position for 18 Hyacinths, of only popular varieties. The first prizes in the gardeners' competition were easily carried off by Mr. McBean, gr. to Mr. Cunningham, of Craigends, who had splendid (for the season) Von Schiller, Grandeur à Merveille, William the Third, Ida, and General Havelock; Mr. George Irvine, Strahan Villa, Pollockshields, had also a good lot. Tulips were a very large exhibition; Crocuses were also large and excellent. The Chinese Primroses from Mr John Henderson, gr., Powerville, Helensburgh, were excellent, the plants being quite 18 inches in diameter. There was a spirited competition for plants of Primula obconica, and beautiful they were, the best being cool grown, not leggy, and smothered with tresses of effective bloom.

Vegetables were a limited show, but the collection from Mr. Donald McBean merits more than cursory notice. His Leeks were very grand, and so were his Parsnips. In addition to these were excellent Carrots, Seakale, Onions, and Rhubarb. Mr. Jas. Miller, Castlemilk, had also a creditable collection.

THE ROYAL CALEDONIAN HORTICULTURAL.

This Society held its spring show in the Waverley Market, Edinburgh, on the 3rd and 4th inst., the show as a whole being one of the best the Society has held at this season.

Hyacinths.—A falling off in the quality was noticeable, as elsewhere. In the nurserymens' class of 24, twelve varieties, Messrs. R. B. Laird & Sons, Edinburgh, were placed 1st, and Messrs. Kerr & Son, Kalemouth Nursery, Roxburgh, 2nd, the competition being close. In the gardeners' classes, Mr. John Paterson, Millbank, Edinburgh, took first honours, and among amateurs, Mr. Barnie, of Piershill, was a very easy first.

Tulips and Narcissi.—These were numerous, and above the average in quality. In the nurserymen s classes of the former, Messrs. Laird & Sons were 1st, and Messrs. Munro & Ferguson, Abercorn Nursery, Purshill, Edinburgh, 2nd, each staging fine collections.

In Narcissi, these two competitors had the competition to themselves, but their relative positions were reversed, Munro & Ferguson being the 1st, Laird & Sons the 2nd. A very interesting and comprehensive collection of Narcissi was exhibited by Messrs. Barr & Son of London, which attracted much attention from horticulturists and the visitors.

Tables of Plants.—The competition in the nurserymen's class under this head, has fallen off during recent years, Messrs. Laird & Sons being left in undisputed possession of the field. Their tables are always good, but on this occasion it was marked by much good taste in the arrangement and the clean and excellent culture of the stuff of which it was composed. The groundwork consisted of dwarf groups of Cyclamen, Lily of the Valley, Cytisus, Azalea mollis, A. indica, Hyacinths, and dwarf Ferns, from the centres of which sprang specimens of Kentias, dwarf Tree Ferns, and the like, giving graceful appearance to the whole.

The class "A table of hardy Spring Flowers" brought only one competitor—Messrs. Munro & Ferguson, whose plants showed great variety and good culture. Of tables of plants put up by gardeners there were only two—Mr. Grossart, Oswald House, Edinburgh, taking the first place with a well-arranged table of very superior stuff, among which were notable specimens of Cattley aTrianæ, Dendrobium Wardianum, Lycaste Skinneri alba, Trichopilia suavis, and other Orchids, tastefully interspersed with diverse flowering plants and Ferns, &c.; Mr. Donaldson, gr. to H. E. Moss, Esq., Murrayfield, Edinburgh, was 2nd with a good table.

Nurserymen contributed, as usual, several fine tables of plants to decorate the hall, Messrs. Ireland & Thomson had a very attractive one of miscellaneous, hardy, and tender subjects, among which Japan Maples, Rhododendrons, Azaleas, Hyacinths, and such like, along with two fine specimens of Araucaria Cookii about 5 feet high were notable. Messrs. Thomas Methven & Sons put in a table of miscellaneous plants, such as Crotons, Palms, Ericas, Acer Negundo variegata, Ferns, and forced plants in variety. Messrs. James Dickson & Sons, and Messrs. Munro & Ferguson contributed excellent tables of greenhouse and hardy decorative plants.

Two Greenhouse Rhododendrons. — Mr. Calder, Calderhead, Edinburgh, was a worthy 1st. His pair containing a well-flowered plant of a new seedling of his own raising—a cross between R. Dalhousianum and R. Gibsoni. In habit the form shows more of the characteristics of the latter plant, while the flowers resemble in size and substance those of the former, opening with the tint of Dalhousianum, but shading to a pure white when fully open. Mr. Robert Greig, Craigend Park, was 2nd.

Cape Heaths.—These were, as usual at this show, superior. Mr. Paterson had no rival in the class of four plants. Mr. Fowler, Grange Road, Edinburgh, was 1st in the class for two plants, and Mr. McKinnon the 2nd.

Orchids.—These were above the average in number and variety, and also in the display of flower. The competition was close in the class for 6 specimens between Mr. Grossart and Mr. Fraser of Ardarroch, Lochgilphead. The former carried off first honours with excellent plants of Cattleya Trianæ, Dendrobium densiflorum, D. Wardianum, Cymbidium, Lowii, C. eburneum, and others. Mr. Fraser's lot was also fine, and the best plant was one of Dendrobium Wardianum, which was smothered in bloom.

Ferns.—Entries in the various classes for these were numerous and the exhibits quite up to the average merit of these shows. First honours in the leading class of four exotic Ferns, distinct, were carried by Mr. John Forbes, Rockville; in three Gleichenias by Mr. Paterson; in three Adiantums by Mr. Grossart; in three Filmy Ferns by Mr. Forbes; and in six dwarf British Ferns, distinct, by Mr. A. W. Anderson, Pilrig Model Buildings.

Roses.—Both pot plants and cut flowers were good under this head. The 1st prize lot of twelve distinct in cut flowers from Mr. Hugh Dickson, were characterised by brilliancy of colour, good substance, and build, and was a good stand representative of Tea and H.P. varieties equally balanced. Mr. Bryson, Helensburgh, was 2nd with some excellent blooms of Tea varieties. Mr. Bryson's twelve Marechal Niel, for which he received a 1st prize, were very fine in substance and build.

Fruit.—Strawberries, a dish of thirty in number, as exhibited by Mr. Smith, of Oxenford Castle, merited the position taken by them, Vicomtesse Hericast de Thury was the variety, and such colour and finish is so rarely seen on this or any variety in forced fruit, that it was the subject of general remark.

In Pines, Mr. McIntyre, The Glen, Inverleith, carried first honours; Mr. G. McKinnon took the first place for black Grapes, Mr. Smith for white ones.

Apples.—The best Apples came from Mr. Robertson, Hartrigge. The best twenty-four kitchen sorts from Mr. Day, Galloway House; the best twelve dessert pears from Mr. Rother, North Berwick; and the best twelve kitchen Pears from Mr. Logan.

Vegetables.—There was a small display of very good vegetables, Mr. Rother of North Berwick, and Mr. Bell, of Morton Hall, being among the exhibitors of the best. Mr. Forman showed a group of Skimmias, and was awarded a First-class Certificate.

SCOTTISH HORTICULTURAL ASSOCIATION.

The first meeting of the thirteenth session of this Association was held on the 2nd inst., at 5, St. Andrew Square, Edinburgh. The retiring President, Mr. Alex McKinnon, Scone Palace Gardens, introduced Professor Bayley Balfour as the President for the present year, who on taking the chair expressed his thanks for the honour conferred on him. He had chosen for his introductory address, "Variations in Plants," which was of deep interest to horticulturists. The topic was introduced in order to enlist their interest in observing and recording everything that came under their notice that threw light on the subject. One question much discussed in the scientific world now was:—Are acquired characters transmissible from one generation to another? Many views had from time to time been held from the days of Lamarque's theory that variation was due to external causes only, down to the latest view advanced by Professor Weisman, who held that variations could only be effected by sexual intercourse. The question was of the utmost importance to science, and appealed very directly to the members of the Association, because, as practical men, they had many opportunities for observing in connection with the subject. He believed that eventually evidence in favour of the transmission of acquired characters and habits would be conclusive; but he could not at present point to a single instance in which it could be shown without doubt that it was so.

In closing, he thanked the Association for the part they took in the agitation last summer against the proposal of the Government to hand over the Royal Botanic Gardens to the University. The Botanic Garden was to be retained as a national institution, and he would like to see it as far as possible a place for horticultural training. A vote of thanks to the President for his interesting address was heartily accorded.

Announcement of the awards to the writers of "Essays by Assistant Gardeners," was made as follows:—

First Class.—Mr. Duncan Brough, Dalkeith Palace Gardens, for "The best method of securing a supply of cut flowers all the year round."

Second Class.—Mr. James Heyes, Lauriston Castle, Davidson's Mains, for "The Cultivation of Small Fruits;" and to Mr. J. Minty, Blackwood Gardens, Lanarkshire, for a paper "On the Production of Salads all the year round."

Third Class.—Mr. A. McLennan, Easter Duddingstone Lodge, Portobello, for "The Cultivation of Small Fruits;" and to Mr. J. Minty, on "Is Rotation of Crops in the Kitchen Garden Necessary?" A paper from Mr. Robert Henderson, Tarvit Gardens, Cupar Fife, on "The Formation and Treatment of Hardy Fern Borders," was commended.

With the certificates, the essayists received copies of such works as Barron's *Vines and Vine Culture*, Thompson's *Handy Book of the Flower Garden*, and Simpson's *Pruning and Training of Fruit Trees.*

Of exhibits, there were from Mr. Fraser, Ardarroch Gardens, Lochgilphead, a fine form of Odontoglossum Andersonianum, and plants of Angræcum Leonis and Cattleya citrina. Mr. Calder, of Calder Bank, exhibited a pure white-flowered Rhododendron of the Lady Skelmersdale type; and Mr. Dunn, Dalkeith Palace Gardens, sent a flowering shoot of the Philageria Veitchii, which was inspected with interest by many who saw it for the first time.

WORKING MEN AND THE STUDY OF BOTANY.

There was brought to a close in the Song School, Aberdeen, on Wednesday evening, 27th ult., an exhibition, which extended over five days, held by working men in Aberdeen, of marine plants, mosses, Ferns, shells, &c. This is the third exhibition of the kind, but the present one, both in point of numbers and the quality and neatness of handling of the specimens, far eclipsed the previous two. It says a great deal for the members of this Society, all of whom are working men, that they are able, during their limited leisure, to gather together such an excellent collection. These exhibitions are intended to foster a love of research among all classes of the community, and if we are to judge by the large numbers of visitors who nightly crowded the hall, this worthy intention should be to a great extent verified.

On making an inspection of the various exhibits we were first struck with the fine collection of hair mosses, &c., shown by Mr. Wallace, South Mount Street, Aberdeen. On making inquiry we found that the exhibitor was a humble railway porter. The specimens, gathered in 1888, consisted of Polytrichum commune, P. subrotundum, Grimmia heterostiche, G. acicularis, Orthotricum tenellum, Ceratodon purpureus, Bartramia pomiformis, B. fontana, Dicranum Scoparium, Misium hornum, M. undulatum, Funaria hygrometrica. Among his Hypnums were H. hutabulum, H. cristacastrensis, H. uncinatum, H. coreum, H. cuspidatum, H. tamariscinum.

Worthy of mention also was the nice display of Ferns and mosses by Mr. J. Simpson, Aberdeen, which included the Polypodium drapteris, P. phegopteris, Aspidium filix-mass, Lycopodium selaginoides, L. inundatum. Especially fine collections of seaweeds, Ferns, and mosses were also on view from Messrs. J. Fraser, W. Auld, and J. Duncan. Professor James W. H. Trail, of whom the members of the Society speak in most glowing terms for his great assistance and counsel, sent a fine collection of marine plants, as also a portion of the fine collection of the late Professor Dickie, who filled the Chair of Botany in Aberdeen University, and which is now held by Professor Trail. Professor Dickie's collection, it may mentioned, was, through the instrumentality of Professor Trail, bought by the Aberdeen University authorities for the aid of the Botany Chair. A large number of microscopes from Aberdeen University, under the charge of Mr. Robert Gibb, Assistant Anatomy Chair, were shown, and gave great pleasure to the many visitors. Mr. J. Simpson had a very creditable display of marine, fresh water, and land shells; while Mr. J. Fraser devoted his attention to foreign shells. It has only to be added that the exhibition was a most successful one financially and otherwise. *Cor.*

LOWER MOSLEY STREET NATURAL HISTORY SOCIETY, MANCHESTER.

March 25.—At the usual weekly meeting Mr. John Watson who had brought down a number of plants from his collection, proceeded to describe them. These included Dendrobiums in flower and fruit, Oncidiums, Sophronitis, Cypripediums, and Odontoglossums in flower; and a plant of Goodyera discolor, in fruit. His remarks, as he pointed out the peculiarities of each plant, were also illustrated with plates, diagrams, a painting of a group of Cattleyas, capsules of hybrid and of pure Orchid seeds, and seeds of Goodyera, Cypripedium, Lælia × Cattleya, Lycaste, &c., under the microscope. He then gave a lecture on Dendrobium nobile and its varieties. Commencing with a description of the plant and its habitat, Mr. Watson remarked that considering the range over which it is found it is surprising how few really distinct varieties exist, the most remarkable which he had seen as viewed from his (the homological) point of view was D. nobile Tolliana, the nearest approach to a regular trilabellic flower, and a remarkable stride in evolution. The lecturer exhibited also a number of varieties of D. nobile, including Green's variety (cœrulescens), Wallichiana, Tolliana, and others. He then briefly touched upon the progeny of this plant, which, on account of its robust habit, is used frequently as a parent of hybrids.

The Weather.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending April 2.	Accumulated Temperature. Above 42° for the Week.	Accumulated Temperature. Below 42° for the Week.	Accumulated Temperature. Above 42° difference from Mean since Jan. 1, 1889.	Accumulated Temperature. Below 42° difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (−) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1889.	Rainfall. Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Deg-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	1 +	24	15	— 7	+ 28	1 —	72	14.0	22	18
2	3 +	34	15	— 2	+ 14	3 —	53	4.8	31	24
3	1 +	30	13	— 24	+ 24	4 —	46	4.9	25	23
4	1 +	35	16	— 68	+ 122	1 —	47	3.8	20	22
5	0 av.	37	17	— 63	+ 79	2 —	43	5.8	23	21
6	1 —	38	15	— 84	+ 98	2 —	47	5.2	31	21
7	1 +	25	11	— 5	— 13	3 —	58	10.7	37	24
8	1 —	24	10	— 43	+ 4	2 —	51	6.2	31	22
9	1 —	32	10	— 75	+ 90	4 —	18	9.3	43	27
10	1 +	31	4	— 2	— 31	1 +	66	8.7	26	20
11	2 +	39	1	— 15	— 6	4 —	55	8.6	34	27
12	0 av.	32	0	— 35	— 12	4 —	58	6.7	53	32

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending April 2, is furnished from the Meteorological Office:—

"The *weather* has varied considerably at different times during this period. On some days it has been fine and bright, but on others dull, with occasional falls of rain; over the more northern parts of the kingdom sleet or snow shares were experienced. A thunderstorm occurred at Manchester on March 31, and peals of thunder were heard at Southampton also.

"The *temperature* has been a little above the mean over Ireland, Scotland, and the north-east and

east of England, but in the south and west of England a slight deficit is shown. The highest of the maxima which were recorded on the 28th or 29th, varied from 54° to 62° in Scotland, from 57° to 60° in Ireland, and from 56° to 62° in most parts of England; in 'England, S.,' however (at Southampton), a reading of 68° was registered. The lowest of the minima occurred generally either on the 27th or 28th, and ranged from 21° in the 'Midland Counties,' and 'Scotland, W.' (at Cirencester and Glenlee), to 30° in 'England, W.,' and 32° in the 'Channel Islands.'

"The *rainfall* has been slightly more than the mean in 'Ireland, N.,' but less in all other districts.

"*Bright sunshine* has been more prevalent in most districts than it was last week, the percentage of the possible duration having ranged from 20 in 'England, E.,' to 37 in 'Scotland, W.,' 43 in 'England, S.W.,' and to 53 in the 'Channel Islands.'"

MARKETS.

COVENT GARDEN, April 4.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

Business remains quiet. Well-kept samples of Grapes improving in value. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2 0–	4 0	Lemons, per case	12 0–21	0
— Canada and Nova Scotia, per barrel	7 0–	17 0	Pine-apples, Eng., lb.	1 6–	2 0
Grapes, per lb.	2 6–	6 0	— St. Michael. each	2 0–	8 0
			Strawberries, per lb.	4 0–12	0

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	12 0–	...	Mustard and Cress, punnet	0 4–	...
— French, bundle	21 0–	...	Onions, per bunch	0 5–	...
Beans, Jersey French, per lb.	3 6–	...	Parsley, per lb.	1 0–	...
Beet, red, per dozen	1 0–	2 0	Peas, French, per lb.	1 0–	...
Carrots, per bunch	0 6–	...	Potatos, per cwt.	4 0–	5 0
Cauliflowers, each	0 3–	...	— kidney, per cwt.	4 0–	5 0
Celery, per bundle	1 6–	2 0	— new French, lb.	0 6–	...
Cucumbers, each	1 0–	...	Rhubarb, bundle	0 6–	...
Endive, per dozen	3 0–	...	Seakale, punnet	2 6–	...
Green Mint, bunch	1 0–	...	Shallots, per lb.	0 6–	...
Herbs, per bunch	0 6–	...	Spinach, per bushel	5 0–	...
Leeks, per bunch	0 4–	...	Tomatos, per lb.	2 0–	...
Lettuce, per dozen	1 6–	...	Turnips, per bunch, new	0 5–	...
Mushrooms, punnet	1 6–	...			

Potatos.—Beauty of Hebron, 70*s.* to 80*s.*; Imperators, 60*s.* to 65*s.*; Dunbar Magnums, 130*s.*; Lincoln, do., 70*s.*; and Dunbar Regents, 110*s.* to 120*s.* per ton.

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0–18	0	Ferns, in var., doz.	4 0–18	0
Arum Lilies, p. doz.	9 0–15	0	Foliage plants, various, each	2 0–10	0
Azaleas, dozen	24 0–42	0	Ficus elastica, each	1 6–	7 0
Cineraria, per dozen	8 0–12	0	Genista, dozen	8 0–12	0
Cyperus, per dozen	4 0–12	0	Hyacinths, dozen	6 0–	9 0
Dracæna terminalis, per dozen	30 0–60	0	Lily-of-Val., doz. pts.	10 0–18	0
— viridis, per doz.	12 0–24	0	Marguerites, doz.	6 0–12	0
Erica, various, doz.	12 0–30	0	Palms in var., each	2 6–21	0
Euonymus, in var., per dozen	6 0–18	0	Pelargoniums, dozen	12 0–18	0
Evergreens, in var., per dozen	6 0–24	0	Primulas, per dozen	4 0–	6 0
			Tulips, dozen pots	6 0–	9 0

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutillons, 12 bun.	3 0–	6 0	Mignonette, 12 bun.	2 0–	4 0
Anemone, Fr., 12 bun.	1 0–	3 0	Narcis., paper-white, (French), 12 bun.	2 0–	6 0
Arum Lilies, 12 blooms	2 0–	4 0	— double, 12 bun.	4 0–	6 0
Azaleas, 12 sprays	0 6–	1 0	Pelargoniums, 12 spr.	1 0–	1 6
Bouvardias, per bun.	0 9–	1 0	— scarlet, 12 spr.	0 4–	0 6
Camellias, white, 12 blooms	2 0–	4 0	Primroses, 12 bun.	0 6–	1 0
— red, 12 blooms	0 9–	2 0	Primulas, dbl., 12 sp.	1 0–	1 6
Carnations, 12 blms.	2 0–	3 0	Roses, Tea, per doz.	2 0–	6 0
Daffodils, dbl. 12 bun.	2 0–	4 0	— coloured, dozen	2 0–	4 0
— single, 12 bun.	1 6–	3 0	— red, per dozen	3 0–	6 0
— French, 12 bun.	2 6–	4 0	— Safrano, dozen	1 6–	2 0
— various, 12 bun.	4 0–	9 0	— do., (Fr.), doz.	1 0–	1 6
Eucharis, per dozen	3 0–	6 0	Snowdrops, 12 bun.	1 0–	3 0
Gardenias, 12 blooms	3 0–	6 0	Tuberoses, 12 blms.	2 0–	4 0
Heliotropes, 12 spr.	0 6–	1 0	Tulips, 12 blooms	0 6–	1 0
Lilac, white Fr., bun.	4 0–	6 0	Violets, 12 bunches	0 6–	1 0
— lilac-coloured, p. bunch	3 0–	5 0	— dark, Fr., bunch	1 0–	2 0
Lily-of-Val., 12 spr.	0 6–	1 0	— Parme, Fr., bun.	2 6–	3 6
Marguerites, 12 bun.	3 0–	6 0	Wallflowers, 12 bun.	4 0–	6 0
			— French, 12 bun.	1 0–	2 0

SEEDS.

London: *April* 3.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., report a strong sowing demand for field seeds. Red Clover seed of fine quality, and admirably suited to the English climate, is now obtainable in London on moderate terms. Trefoil, on account of its scarcity, is advancing in price. There is no change either in Alsike or White. Perennial and Italian Rye-grasses move off freely on former terms. For Peas and Haricots there is an improved inquiry. Canary seed is hardening; Millet is 2*s.* dearer.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ending March 30:—Wheat, 30*s.* 2*d.*; Barley, 26*s.* 7*d.*; Oats, 16*s.* 11*d.* For the corresponding week in 1888:—Wheat, 30*s.* 5*d.*; Barley, 29*s.* 7*d.*; Oats, 15*s.* 11*d.*

FRUIT AND VEGETABLES.

Spitalfields, *April* 3.—Dates, 13*s.* to 14*s.* per cwt.; American Apples, 4*s.* to 15*s.* per barrel; English do., 3*s.* 6*d.* to 7*s.* per bushel; Savoys, 2*s.* 6*d.* to 5*s.* per tally; Cauliflowers, 6*d.* to 1*s.* 3*d.* per dozen; Sprouting Broccoli, 1*s.* to 1*s.* 6*d.* per sack; Turnip tops, 6*d.* to 1*s.* do.; Swede tops, 6*d.* to 1*s.* 3*d.* do; Spinach, 1*s.* 6*d.* to 2*s.* 6*d.* per bushel; Brussels Sprouts, 9*d.* to 1*s.* per half-sieve; Greens, 2*s.* to 3*s.* 6*d.* per dozen bunches; Turnips, 1*s.* 6*d.* to 2*s.* do.; Carrots, 1*s.* 9*d.* to 2*s.* 6*d.* do.; Radishes, 4*d.* to 6*d.* do.; Parsley, 3*s.* 6*d.* to 4*s.* 6*d.* do.; forced Rhubarb, 1*s.* to 1*s.* 6*d.* per dozen bundles; natural do., 2*s.* to 2*s.* 6*d.* do.; Horseradish, 1*s.* 2*d.* to 1*s.* 4*d.* per bundle; Celery, 10*s.* to 14*s.* per dozen bundles; Parsnips, 9*d.* to 1*s.* per score; Beetroots, 1*s.* to 1*s.* 3*d.* per dozen; Seakale, 1*s.* 3*d.* to 1*s.* 6*d.* per punnet; English Onions, 6*s.* to 7*s.* per cwt.; Spanish do., 3*s.* to 4*s.* per case; Bordeaux do., 3*s.* 9*d.* to 4*s.* 3*d.* do.; Belgian do., 2*s.* 6*d.* to 3*s.* 6*d.* per bag; Dutch do., 2*s.* 3*d.* to 3*s.* 9*d.* do.; Endive, 1*s.* 6*d.* to 2*s.* per dozen; Carrots, 22*s.* to 28*s.* per ton; Mangels, 15*s.* to 18*s.* do.

Stratford: *April* 2. — Supply has been good during the past week, and a fair trade was done at the following prices:—Cabbages, 2*s.* to 3*s.* per tally; Savoys, 2*s.* to 3*s.* do.; Cauliflowers, 1*s.* to 1*s.* 9*d.* per dozen; Turnips, 25*s.* to 35*s.* per ton; Carrots, household, 25*s.* to 30*s.* do.; do., cattle feeding, 15*s.* to 20*s.* do.; Mangels, 14*s.* to 18*s.* do.; Swedes, 14*s.* to 16*s.* do.; Onions, English, 120*s.* to 140*s.* do.; do., Dutch, 3*s.* 9*d.* to 4*s.* 6*d.* per bag; do., Bordeaux, 4*s.* to 4*s.* 6*d.* per case; Apples, English, 3*s.* to 7*s.* per bushel; do., American, 10*s.* to 14*s.* per barrel; Watercress, 6*d.* per dozen; Carrots, 2*s.* to 3*s.* per dozen bunches; Turnips, 2*s.* 6*d.* to 3*s.* 6*d.* do.; Rhubarb, 1*s.* 6*d.* to 2*s.* do.; Cress, 2*s.* per dozen baskets.

POTATOS.

Borough and Spitalfields: *April* 2.—Supplies have increased, and, coming upon dull markets, have weakened quotations. Scotch Regents, 80*s.* to 130*s.*; English, 60*s.*; Hebrons, 60*s.* to 90*s.*; Magnum Bonums, 60*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.*; other varieties, 60*s.* to 80*s.* per ton.

Spitalfields: *April* 3.—Quotations:—Regents, 90*s.* to 120*s.*; Magnums, 50*s.* to 90*s.*; Scotch do., 57*s.* to 90*s.*; Hebrons, 55*s.* to 65*s.*; Champions, 55*s.* to 60*s.*; Imperators, 60*s.* to 80*s.* per ton.

Stratford: *April* 2. — Quotations: — Scotch Regents, 80*s.* to 105*s.*; do., Magnums, 70*s.* to 102*s.*; English Magnums (light), 60*s.* to 80*s.*; do., dark, 55*s.* to 65*s.*; Hebrons, 55*s.* to 65*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, old prime, 124*s.* to 128*s.*; do., best seconds, 80*s.* to 120*s.*; do., inferior, 36*s.* to 70*s.*; prime old Hay, 108*s.* to 126*s.*; new, 90*s.* to 105*s.*; inferior, 50*s.* to 70*s.*; old straw, 42*s.* to 48*s.*; new, 24*s.* to 40*s.* per load.

NOTICES TO CORRESPONDENTS.

Intelligent Readers, *do* please Note *that letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the* Publisher, and not to the Editor, but that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

A Chimney Carried 40 Yards Underground: *W. N.* It is most unlikely that, with the trifling amount of rise, the draught will be sufficient for your purpose. It would be better to remove the boiler to a spot near the chimney, and carry the pipes in a brick channel to the houses to be heated.

Artificial Manures: *H. B.* We are unacquainted with the methods of making these manures, or so-called "Plant Foods." The formulæ are known only to the makers.

Carrots: *A. P.* A mistake was made in pitting the Carrots, as these roots can only be kept in a usable condition during the winter, when they are so stored that the heart-leaves can grow and become of a healthy green colour. The best method is that of putting the roots in conical heaps, or long banks of dryish soil 2 feet to 3 feet high, and as much in breadth at the base. Lay the Carrots in layers, with soil between, the tops being exposed to the light. These heaps may be made in cool, lighted cellars, open sheds, or in the open; and where walls exist one-sided banks may be put up at the foot of these. Some gardeners take up the roots in October, and lay them in closely together in a sheltered border. In any case some light litter or mats must be thrown over the tops in the event of severe weather. Scorzonera, Salsafy, Horseradish, Parsley roots for cooking, and also to supply leaves, Beetroots, Seakale roots, Kohl rabi, Celeriac, late Cauliflowers, and Broccoli, may be stored in the bank method, attention being paid to covering them in frosty weather. For this purpose open, or partially open, sheds with thatched roofs, are very useful. These should face the south whenever it is possible. On the Continent cool cellars are generally employed for the purpose.

Cattleya Hennisiana: *H. J. R.* This plant was discovered by Mr. Hennis, collector to Mr. J. Charlesworth, Heaton, Bradford, and was provisionally named C. Hennisiana, and sold at Messrs. Protheroe & Morris'. It was mentioned as being in flower in Charlesworth's nursery, p. 276, and has flowered in several collections, generally with white or blush flowers, in form like C. Skinneri. Specimens have been sent to Kew, but probably not sufficient to prove whether it is a species or a distinct variety, and hence it has not yet been described other than in the manner indicated.

Crickets: *T. F. P.* Drive them away with carbolic acid, or strew Rhubarb leaves about, which are said to destroy the insects. There are poisonous baits, but we hesitate to recommend their being employed for obvious reasons.

Double-spathed Arum: *A. P. G.* These are so common, that we wonder an attempt has not been made to fix them, either by propagation from the stock, or by seed. Doubtless much time and patience would be required, but the advantage to be gained would be great.

Ferns: *A. D.* The most complete book is the *Synopsis Filicum*, by Sir W. Hooker and J. G. Baker. For cultivated Ferns, Williams' *Select Ferns* will probably suit your requirements.

Gas-tar and Trees: *C. B.* If the trees are old, or have thick corky bark, the tar will do them no harm.

Insects: *J. H.* Woodlice.

Mushrooms: *A. P.* Probably the bed got too cool, hence the arrest of growth. The materials composing it were not in sufficient bulk, or they had heated so much in the earlier stages, that no further fermentation was possible. There are various methods of treating the stable dung and litter used for the beds, some persons spreading it

about under cover, turning it about for about fourteen days to get rid of much of the moisture and the excess of ammonia; and this has also the effect of preventing overheating in the bed, but it is not necessary unless the manure has been in use for several days under the horses, and is consequently wet and full of droppings, or it has laid for some time in wet weather in an open dung-pit. Fresh stable litter that has not been in use for more than a day or two hardly ever requires this treatment before being made up. In regard to your second question we may say that some very good gardeners make use of a large proportion of the shorter part of the straw if it is well saturated with urine, provided there is enough of the horse-dung to mix with it; otherwise the heat would very soon decline after the bed was spawned, and the crop would be short if the spawn did not die altogether. When much straw is used in making up the bed it should be firmly beaten and trodden, and when finished it should not be less than 18 inches in thickness; but where but little straw is employed a thinner bed, say, 1 foot, will be sufficient.

Names of Plants: *J. B.* Epidendrum Stamfordianum. It could not have been collected wild in Burmah, but if it came from there at all it was obtained as a cultivated plant.—*C. F. S.* Camellia reticulata.—*Coatbridge.* Double Banksian Rose.—*A. C.* Cypripedium villosum.—*Vox.* 1, apparently the common Silver Fir; 2, Abies grandis; 3, Retinospora pisifera; 4, Libocedrus decurrens; 5, Thuiopsis borealis; 6, Thuia orientalis variety. *W. X.* 1, Abutilon Yellow Prince; 2, Eranthemum pulchellum; 3, Stachys lanata; 4, Rhododendron Gibsoni; 5, Begonia fuchsioides; 6, Eupatorium riparium; 7, Salvia, next week.—*S. B.* 1, Clivea or Imantophyllum variety; 2, Diosma ericoides; 3, Bignonia purpurea; 4, Forsythia viridissima; 5, Euonymus radicans variegatus; 6, Forsythia viridissima.—*B. H. B.* 1, Odontoglossum Harryanum; 2, 3, next week; 4, Dracæna Draco, seedling probably; 5, probably Abies excelsa; 6, one of the forms of Pinus Laricio.—*Hortus.* A seedling raised out of cuneatum. There are many similar varieties.—*J. W. W.* Asplenium adiantum nigrum, a British Fern.—*J. S. & Co.* Begonia fagifolia, Mahernia alnifolia, Bambusa japonica, Fuchsia splendens.—*C. Lucas.* Dendrobium nobile; both good, one very finely coloured.—*H. Frank,* The specimens were very much dried up on arrival, but we believe they are Galanthus imperati.

Packing Strawberries: *W. J. P.* The best method is to pack the fruits in single layers in boxes about 1¾ inch deep, each fruit being wrapped in a leaf, and the whole resting on a layer of moss; the fruits may be covered by a layer of leaves. Four or five of these boxes or trays may be tied together so as to form one package.

Primrose Flowers: *Primula.* We have not noticed this deflexed condition before, nor can we assign any but conjectural reasons without seeing the plants in growth. In addition to the causes you specify, the fact should be taken into consideration that the calyx is three-lobed, and therefore stronger than on the lower side where it is two-lobed and presumably weaker and less resistent.

Vine Leaves: *George G.* The warts on the under surface are probably from defective ventilation, combined with excess of temperature or moisture, or both.

CATALOGUES RECEIVED.

W. and J. Birkenhead, Fern Nursery, 19, Washway Road, Manchester—Ferns and Selaginellas.

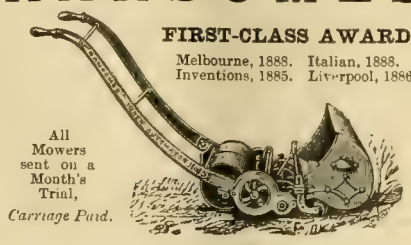
Law, Somner & Co., 87, Swanston Street, Melbourne, Australia—Plants and Fruit Trees.

Communications Received.—F. v. M.—D. A.—A. O. W.—R. P. H.—J. R.—W. S.—C. W. D.—H. E. A.—C. B.—M. W. G. F. W.—G. P.—F. S.—J. W.—Dr. B.—Vienna. F. R.—J. H. K., Haarlem (many thanks; proof shall be sent).—T. Ryan.—A. Evans.—E. H. K.—J. S.—D. D.—J. D.—P. E. N.—W. B.—T. F. E.—Wild Rose.—H. R. H.—W.—F. S. & Co.—E. M. M.—F. R.—C. W. D.—W. Fawcett.—Bee.—R. A. R.—F. S. M.—F. Calver.—W. B. H.—W. P.—F. S. M.—F. Calver.—W. B. H.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquiries in the current week.*

DIED, at Kennington, S.E., on the 1st inst., Margaret, relict of the late George Wynne, Gardener, of The Mount, Shrewsbury, aged seventy-six years.

RANSOMES'



FIRST-CLASS AWARDS.

Melbourne, 1888. Italian, 1888.
Inventions, 1885. Liverpool, 1886.

All Mowers sent on a Month's Trial, *Carriage Paid.*

LAWN MOWERS,

The Best in the World.

In all sizes, to suit every requirement.

"NEW AUTOMATON," the Best Gear Machine.
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"EDGE CUTTER," the only one of real service.
"BANK CUTTER," the Best for Cutting Slopes.
"NEW AUTOMATON GARDEN ROLLERS."

Orders executed promptly by all Ironmongers.

RANSOMES, SIMS & JEFFERIES, Limited, IPSWICH.

JENSEN'S GUANOS are the most perfect Fertilisers. Promote and Sustain all Growths. Do not Exhaust, but Enrich the Soil. Analyses Guaranteed. Six Prize Medals awarded in 1888.
J. JENSEN and CO., (Limited), 109, Fenchurch Street, London.



GARDEN REQUISITES.



Two Prize Medals.

Quality, THE BEST in the Market. (All sacks included.)
PEAT, best brown fibrous ... 5*s.* per sack, 5 sacks for 22*s.* 6*d.*
PEAT, best black fibrous ... 4*s.* 6*d.* ,, 5 sacks for 20*s.*
PEAT, extra selected Orchid 8*s.* 6*d.* ,, 5 sacks for 40*s.*
LOAM, PREPARED COMPOST } 1*s.* per bush., 3*s.* per sack
LEAF, or PEAT MOULD ... } (sacks included).
SILVER SAND, coarse, 1*s.* 6*d.* per bush., 14*s.* half-ton, 24*s.* ton.
RAFFIA FIBRE, best only ... ... 1*s.* per lb.
TOBACCO CLOTH, or PAPER ... ... 1*s.* lb.; 28 lb., 27*s.*
SPHAGNUM MOSS, all selected, 3*s.* per bush., 8*s.* per sack.

	In Bags.					
CHUBB'S "PERFECT" FERTILIZER (the Best Food for all kinds of Plants, Flowers, Fruits, Vegetables, &c. ...)	Tins.	7lb.	14lb.	28lb.	56lb.	1 cwt.
	1/6	3/-	5/-	8/-	14/-	22/-
CRUSHED BONES, or Bone Dust	1/2	2/-	3/6	6/-	12/-	
VIRGIN CORK (Best Quality only)	—	3/-	5/6	10/6	17/-	

RUSSIAN MATS, BAMBOO CANES, PERUVIAN GUANO, NITRATE of SODA, HORTICULTURAL CHARCOAL, &c.
PEAT MOSS LITTER, cheapest and best Bedding for Horses and Cattle, £2 per ton. Extra large Sample Bales, 6*s.* each. Also prepared for Poultry Pens, Rabbits, &c., in Sacks, 1*s.* 6*d.* each; 10 Sacks, 12*s.* 6*d.*; 20 Sacks, 23*s.*
COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1*s.* 4*d.* each; 10 sacks, 12*s.* 6*d.*; 15 sacks, 17*s.* 6*d.*; 20 sacks, 20*s.*; 25 sacks, 24*s.*; 30 sacks, 27*s.*; 40 sacks, 35*s.*; 50 sacks, 40*s.*; Truck-load, loose, free on rail, 30*s.* Limited quantities of G., special quality granulated in sacks only, 2*s.* 6*d.* each.
SPECIAL MANURES, for Farmers, Agriculturists, Market Gardeners, and others (concentrated into a Dry Powder).
CHUBB'S "**PRODUCTIVE**" MANURE, in bags, **£3 per ton** (bags included); sample 1 cwt. bag, 4*s.*, producing extraordinary results, and worth four or five times the actual cost. Try it against any other manure, no matter what price.
CHUBB'S "**COMPOUND SOOT and SEWAGE**" MANURE, in bags, **£2 per ton** (bags included); sample 1 cwt. bag, 3*s.*, made principally (by special process) from **London Soot and Sewage** with other fertilizing agents.

Terms strictly Cash with order. Bankers, Union Bank of London.

CHUBB, ROUND & CO., West Ferry Road, Milwall, London, E.

PARAFFIN CREAM

As an Insecticide, Mildew Destroyer and Cleanser.

We invite a comparison of the above with other Emulsions or Mixtures of Paraffin, whether sold under fancy names or otherwise, as regards perfection of preparation, mixibility with water, stability after dilution, efficacy safety and cheapness. It contains three-fourths of its volume of Paraffin, now acknowledged to be the best remedy for the destruction of all insects infesting plant life. One Gallon makes 160 Gallons of Insecticide. Prices, delivered free to any address:—1 Pint, 1*s.* 6*d.*; 1 Quart, 2*s.*; half Gallon, 3*s.*; 1 Gallon, 4*s.* 6*d.*, tins free; 4 Gallons for 7*s.* 6*d.*, tin to be returned. Larger quantities at reduced rates. Sole Proprietors—

DEIGHTON & CO., Operative Chemists, Bridgnorth.

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Patronised by 16,000 of the Nobility, Gentry, and Clergy, for all kinds of

OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.

1 Cwt., and Oil Mixture, Free to all Stations.
Liquid Non-Poisonous Paints for Inside of Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

LA BELLE SAUVAGE YARD, LUDGATE HILL, E.C.
BACHELOR'S WALK, DUBLIN.—*Discount for Cash.*

NATIVE GUANO: Best and Cheapest Manure for Garden use, NATIVE GUANO. Price £3 10*s.* per ton, in bags. Lots under 10 cwt., 4*s.* per cwt. 1 cwt. sample bag sent, carriage paid, to any station in England on receipt of P.O. for 5*s.*

Extracts from Thirteenth Annual Collection of Reports:—

NATIVE GUANO for POTATOS, VEGETABLES, FRUIT, &c.—C. Fidler, Reading, used it for Potatos, and says:—"I found your Manure give very satisfactory results."

C. J. Waite, Gr. to Col. the Hon. W. P. Talbot, says:—"I can strongly recommend your Native Guano as a first-rate Manure for any fruits or kitchen garden crops, also grass. In the 5 years during which I have freely used it I have gained over 560 prizes."

NATIVE GUANO, for ROSES, TOMATOS, &c.—W. G. Bailey, Nurseries, Bexley, used it for Roses, Tomatos, and Cucumbers, and says:—"I find it a good and cheap article."

A. F. Barron, Royal Horticultural Society, says:—"Without doubt a very valuable Manure, and easy of application."

Orders to the NATIVE GUANO CO., Limited, 29, New Bridge Street, Blackfriars, London, E.C., where Pamphlets of Testimonials, &c., may be obtained. Agents wanted.

PEAT FOR ORCHIDS,

CHOICE PLANTS, FERNS, HEATHS, AZALEAS, &c.

EPPS & CO. are now prepared to offer **PEAT**, as above, of first-class quality, at lowest prices. Prices on application. Depôt for HORTICULTURAL SUNDRIES, LOAM, SAND, LEAF-MOULD, SPHAGNUM, COCOA-FIBRE REFUSE, CHARCOAL, and ARTIFICIAL MANURES.

PEAT MOSS LITTER.
EPPS & CO., Ringwood, Hants.

BONES!—BONES!!—BONES!!!

Crushed Bones in all sizes for Vine Borders, Lawns, Potting, Grass Lands, &c. Also BONE MEAL for Poultry Feeding, GARDEN GUANO, DISSOLVED BONES, Special MANURES and FERTILIZERS for all purposes.

For Prices, apply to
HARRISON, BARBER & CO. (Limited),
GARRETT LANE, WANDSWORTH, SURREY, S.W.

THE NORMAL FERTILISER.

For GREENHOUSE or GARDEN.

A highly-concentrated Fertiliser, consisting chiefly of human excrement and blood, which has the following recommendations:—
It is moderate in price.
It is safe to use.
It is not a chemical manure.
It is profitable to the user.
It is clean to handle.
It has high fertilising properties.
It contains no needless matter.

Price:—	7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
	2*s.*	3*s.* 6*d.*	5*s.* 6*d.*	9*s.*	14*s.*

And in 6*d.* and 1*s.* packets.

To be had of Seedsmen and Florists, or the NORMAL MANURE COMPANY, Ltd., 121, Bishopsgate Street Within, E.C., and Farnham Road, Guildford. Usu l Trade Discounts.

To Market Gardeners, &c.

To Grow Fine Vegetables and Flowers, Gardeners should Use SULPHATE OF AMMONIA. —One trial will prove the great value of this manure, and ensure its constant use hereafter. It can be applied either separately or mixed with ordinary stable or farmyard manure. Rose Trees and Garden Plants are much benefited by being watered with a weak solution once or twice a week. Instructions on application, post free. Price, free on rail at Sheffield, 13*s.* per cwt., or 7*s.* per 56 lbs.—Post Office Orders payable to the MANAGER, Sheffield Gas Company, Sheffield.

CLIBRAN'S EUCHARIS MITE KILLER.

A CURE AT LAST FOR THIS DREADFUL PEST.

This assertion will probably be doubted, but if living mites are examined under a powerful microscope, and a drop of solution is applied, it will be seen that death is instantaneous, and if the solution is let down according to the directions, it kills in from 5 to 10 minutes. It may be objected that when unhealthy Eucharis are watered with the solution, it cannot touch the mites between the scales. Practice, however, has proved that it does; and the most unhealthy Eucharis, treated according to the directions, and grown with ordinary cultural care, become healthy in a short time, as a trial will convince.

Numerous Testimonials.

Prices:—½ pint, 1*s.* 6*d.*; 1 pint, 2*s.* 6*d.*; 1 quart, 4*s.* 6*d.*; ½ gallon, 7*s.* 6*d.*; 1 gallon, 12*s.* 6*d.*
Ask your seedsman for it, or apply to
WM. CLIBRAN and SON, Oldfield Nursery, Altrincham; 10—12, Market Street, Manchester.

BONE FERTILISER.

FOR FLOWERS, LAWNS, TRADE MARK R B Co B VINES AND VEGETABLES

EASILY USED. GIVES SPLENDID RESULTS.

1 lb. Tin, 9*d.* By Parcel Post, 1*s.*
2 lb. Tin, 1*s.* 6*d.* Do. 1*s.* 10*d.*
28 lb., 5*s.*; 56 lb., 10*s.*, Free to Carriers.

Order from Florists, or direct from the Makers,

RICHARDSON BROS. & CO.,
BELFAST.

TRADE MARK.

DEATH TO THE WEEDS

No. 20,528.

CUPROLENE, THE INFALLIBLE WEED DESTROYER.

The cheapest and best Killer of Weeds of every description on Carriage Drives and Garden Walks without disturbing the gravel. Used extensively throughout the kingdom. Rapidly superseding, by reason of its cheapness, efficacy, and reliability, all other weed killers. Selection of 150 Testimonials post-free on application. Has never failed to give entire satisfaction.

Messrs. RICHARD SMITH & CO., Nurserymen, Worcester, writes:—"We are pleased to say your Weed Killer is very effective, cleanly to use, and the best we ever tried."

PRICES, Carriage Paid, to any Railway Station:—

4 Gallons, sufficient for 100 gallons of water	...	£0	6	0	16 Gallons, sufficient for 400 gallons of water	...	£1	2	0
8 ,, ,, ,, 200 ,, ,, ,,	...	0	12	0	40 ,, ,, ,, 1000 ,, ,, ,,	...	2	7	6

5 per cent. discount for cash with order on amounts of £1 and upwards. To Ireland, Scotland, and Channel Islands, carriage only paid on 8 gallons and over.

SOLE PROPRIETORS AND MANUFACTURERS—

DEIGHTON & CO. (MANUFACTURING CHEMISTS), BRIDGNORTH.

HORTICULTURAL TIMBER.

SASH BARS, LIGHTS, &c.

All Goods delivered carriage paid. Send for Price List to

TUCKER, TOTTENHAM.

EUCHARIS MITE a Thing of the Past.

HEATH'S BULB MITE EXTERMINATOR.

After many and exhaustive experiments extending over a series of years, Mr. Heath the celebrated Gardener at Sedgwick (a frequent contributor to this Paper), has at length succeeded in producing a chemical compound, which proves fatal to this most destructive pest. His experiments have been watched with the utmost interest, by several Gardening Friends, at whose request he has placed it in my hands to manufacture. **In Tins,** sufficient for from 50 to 100 Bulbs, according to size, with full directions, **5s.**

MANUFACTURED BY

D. HARTLEY, Seedsman, Kendal.

To be obtained of all Seedsmen.

HEATH'S BOOK OF VIOLETS, 6*d.* post-free. Reprinted from the *Gardeners' Chronicle.*

Twelve Awards of Merit.

PURE ICHTHEMIC GUANO TRADE MARK REGISTERED.

FERTILIZES THE WORLD.

☞ **BEST and CHEAPEST GUANO for all horticultural purposes.**

The largest number of Awards for any Plant Manure.

Wholesale of W. COLCHESTER, Ipswich.

GENUINE GARDEN REQUISITES, as supplied to the Royal Gardens. All Sacks free.

Cocoa-nut Fibre Refuse, fresh, 1 sack, 1*s.* 3*d.*; 10 sacks for 12*s.*; 15 for 17*s.*; 20 for 20*s.*; 30 for 28*s.*; 2 ton truck free on rail, 30*s.* Best Brown Fibrous Kent Peat, 5*s.* per sack; 5 for 22*s.* 6*d.*; 10 for 35*s.* Best Black Peat, 4*s.* 6*d.* per sack; 5 for 20*s.* Coarse Bedfords' Sand, 1*s.* 6*d.* per bushel; 14*s.* half ton; 25*s.* per ton. Potting Composts, 5*s.* per sack. Genuine Peruvian Guano, Crushed Bones, Fertilisers, &c. Fresh Sphagnum Moss, 2*s.* 6*d.* per bushel; 6*s.* per sack. Charcoal, 2*s.* 6*d.* per bushel; 8*s.* per sack. Flower Sticks, painted and unpainted; Labels, and Bamboos. Best Raffia, 1*s.* per lb.; 7 lb. for 5*s.* 6*d.* Pure Leaf Mould, Peat Mould, and Yellow Fibrous Loam, each 1*s.* per bushel; 3*s.* per sack. Spécialité Tobacco Paper, and Cloth, 1*s.* per lb.; 28 lb. for 26*s.* Mushroom Spawn, best quality, 4*s.* per bushel. Russia Mats, 10*s.* to 18*s.* per dozen. Virgin Cork, 28 lb., 5*s.* 6*d.*; 56 lb., 10*s.*; 1 cwt., 17*s.* Write for free Price List.—W. HERBERT AND CO., Hop Exchange, Southwark Street, London, S.E. (near London Bridge).

BEESON'S MANURE.—The Best and Cheapest Fertiliser for all purposes. Write for Circular containing the Leading Gardeners' and Market Growers' Reports. Sold in Tins, 1*s.*, 2*s.* 6*d.*, 5*s.* 6*d.*, and 10*s.* 6*d.* each, or 1 cwt. Bags, sealed, 13*s.* By all Seedsmen, or apply direct to W. H. BEESON, Carbrook Bone Mills, Sheffield.

PASTUPLANTA, the best Artificial Manure. It enriches the soil with the fertilisers drawn from it by plants; no unpleasant smell; admirably adapted for all pot plants. In bags: 112 lb., 19*s.*; 56 lb., 11*s.* 3*d.*; 28 lb., 6*s.* 9*d.*; 14 lb., 4*s.*; 7 lb., 2*s.* 3*d.* In tins, 1*s.* each. Sole Manufacturers, PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4*d.* per bushel; 100 for 25*s.*; truck (loose, about 2 tons), 40*s.*; 4-bushel bags, 4*d.* each.

LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s.*; sacks, 4*d.* each.

BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks, 22*s.*; sacks, 4*d.* each.

COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton; 26*s.* per ton, in 2-bushel bags, 4*d.* each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.

SPHAGNUM MOSS, 8*s.* 6*d.* per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Price LIST.—**H. G. SMYTH,** F.R.H.S., 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft-water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6*d.* and 1*s.*, from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

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Thoroughly Practical Hothouse Builders and Heating Engineers.

Glasshouses of every description erected in any part of the kingdom. First-class workmanship and the very best materials at the lowest possible prices.

Price Lists, Plans, and Estimates Free.

W. H. LASCELLES & CO.,

HORTICULTURAL BUILDERS,

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CONSERVATORIES, GREENHOUSES, ORCHID HOUSES, VINERIES, PEACH HOUSES, &c.

Plans and Estimates Free.

HORTICULTURAL GLASS

STOCK SIZES	
Inches.	Inches.
14×12	20×15
16×12	20×16
18×12	22×16
20×12	24×16
16×14	20×18
18×14	22×18
20×14	24×18

SHEET GLASS

21-oz. and **15-oz. Foreign,** of above sizes, in boxes of 100 feet and 200 feet super.

English Glass, cut to buyers' sizes, at lowest prices, *delivered free and sound* in the country, in quantity.

"HORTICULTURAL PUTTY." Own Special Manufacture.

GEORGE FARMILOE & SONS,

LEAD, GLASS, OIL, and COLOUR MERCHANTS,

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Stock Lists and Prices on application. Please quote *Chronicle.*

SAVE YOUR FIRE

and keep a fixed temperature under glass, by using "FRIGI DOMO," made of prepared hair and wool: a perfect non-conductor of cold.

PROTECT YOUR PLANTS

"FRIGI DOMO"

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FOR PRICE LIST & PARTICULARS ADDRESS:

BENJAMIN EDGINGTON

2 DUKE ST. LONDON BRIDGE

The Best and Cheapest Fuel for Greenhouse Boilers, STOVES, and HEATING APPARATUS.

HENDREFORGAN ANTHRACITE SMOKELESS COAL.

The UNITED ANTHRACITE COLLIERIES (Limited), supply their Nut or Cobble Coal (the Nuts being about the size of a Walnut, and the Cobbles about the size of a man's fist) delivered in truckloads to any Railway Station.

This coal is *absolutely smokeless*, and it requires much less attention than any other description of Fuel, burning for 12 hours, *at least*, without any supervision, and giving from 5 to 10 degrees more heat than Coke.

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Quotations for London delivery can be obtained for the Northern, Western, and South-Western districts from Messrs. G. R. CARTER AND SON, Coal Exchange, E.C.

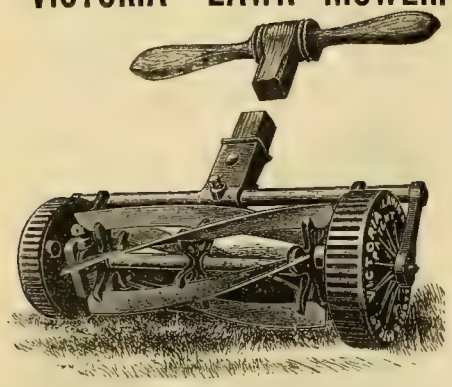
And for the South-Eastern district from Messrs. W. DOWELL AND CO., Coal Merchants, Greenwich, S.E.

RAFFIA.—RAFFIA.—The very best material for Tying up Plants and Flowers of all descriptions, about half usual price:—6*d.* per pound parcel, postage 3*d.* first pound, 1½*d.* each pound after, from the great Bulb Importer.

ROBERT SYDENDAM, Tenby Street North, Birmingham.

TRY THE NEW PATENT

"VICTORIA" LAWN MOWER.



Simple, well made, durable, easy to work, reasonable in price. It possesses unique advantages over any Mower yet introduced.

PRICES COMPLETE WITH GRASS-BOXES:—

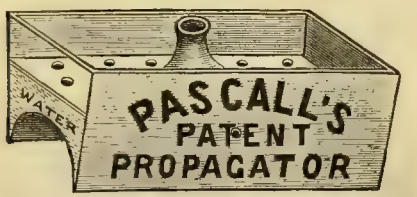
9 inches.	11 inches.	13 inches.	15 inches.
28s.	32s. 6d.	38s.	46s.

FOLLOWS & BATE, Limited,

Patentees and Manufacturers of the "Climax," "Manchester," "Tennis," and "Royal Prize Medal" Lawn Mowers.
70,000 sold since, 1869,

GORTON, MANCHESTER.

☞ To be obtained from all respectable Ironmongers and Seedsmen throughout the Kingdom; or, if any difficulty is experienced, direct from the manufactory.



Made in superior earthenware, 14 in. long, 6½ in. deep, and 6 in. wide. Inside, 2¾ inches from the top, is a perforated movable false bottom, upon which the soil for cuttings or seeds is placed, the lower half being filled with water, which is replenished when required through the funnel. It fits evenly on 4-inch hot-water pipes, and will be found a simple and effectual means of utilising them for propagating purposes. With the false bottom removed it forms an effective vaporiser.

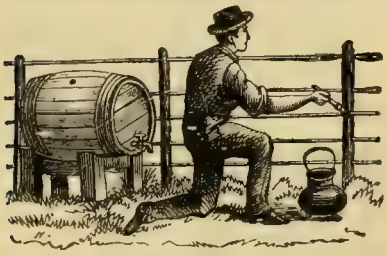
Price 3s. each; glass shade for top, 1s. 6d. extra.
Price for any quantity, carriage paid, on application.

Garden Pots. Ours are unsurpassed by any in the Trade. They are well burnt, porous, and of a splendid colour and shape. Samples carriage free. Orchid Pottery of every description. Send for Price List.—**THOS. PASCALL & SONS, South Norwood Pottery, Surrey, S.E**

HILL & SMITH'S

BLACK VARNISH

for Preserving Ironwork, Wood, or Stone.



(Registered Trade Mark.)

An excellent substitute for oil paint, at one-third the cost. Used in all London Parks, at Windsor, and Kew Gardens, and on every important estate in the Kingdom. Has stood the test of forty years' trial. Requires no mixing; can be applied cold by any ordinary labourer.

Price 1s. 6d. per gallon at the manufactory, or carriage-paid to any railway station, 1s. 8d. per gallon in casks of 36, 20, or 10 gallons.

CAUTION.—Every Cask bears the above Registered Trade Mark. Beware of cheap imitations.

HILL & SMITH,

Brierley Ironworks, Dudley;
118, Queen Victoria Street, London, E.C.
47, Dawson Street, Dublin.

CONWAY C. WARNE

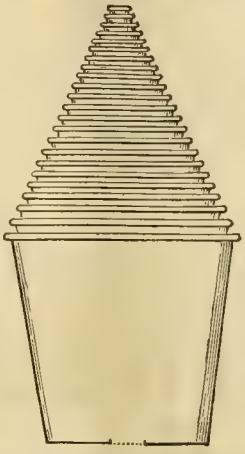
(Successor to JOHN MATTHEWS).

THE ROYAL POTTERIES,
WESTON-SUPER-MARE.

21 Gold and Silver Medals for excellence in Garden Pots, 1 to 40 inches in diameter, are of superior quality, and do not turn green. Stronger and better shape than machine made pots.

A test of over 50 years has proved that Weston Pottery is the best.

See Testimonials.



Horticultural Pottery Established 1836.

Terra Cotta Vases, Orchid Pots, Pans, &c. Patent Plant and Orchid Protectors, Fountains, Statuary, &c.

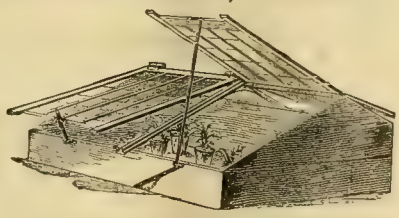
Price Lists and samples sent free.

Large Book of Designs 1s. 6d.

Colonial Orders of any description executed with care and dispatch.

Note.—The Largest Flower Pot Manufactury in the World. Present Stock over 7,000,000.

BOULTON & PAUL, Horticultural Builders, NORWICH.



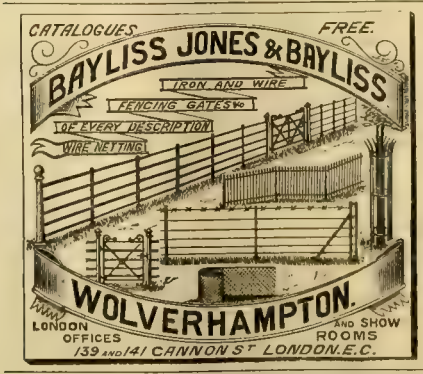
No. 74.—THREE-QUARTER SPAN GARDEN FRAME.

The most useful of all Frames that are made, owing to the extra height and convenience for attention. They are 13 inches high at front, 24 inches high at back, and 32 inches at the ridge, bolted at the corners, easily taken to pieces if required. The Lights are 2 inches thick, fitted with set-opes, and arranged to turn over, back and front, for ventilating. Glazed with best 21-oz. English glass, and painted four coats.

	Length.	Width.		
1 Light Frame,	4 ft.	by 6 ft.		£2 15 0
2 " "	8 "	by 6 "	Cash Prices, Carriage and Packing FREE.	4 7 6
3 " "	12 "	by 6 "		6 0 0
4 " "	16 "	by 6 "		7 12 6
5 " "	20 "	by 6 "		9 5 0
6 " "	24 "	by 6 "		10 17 6

CARRIAGE is paid to any station in England and Wales, to Dublin, Cork, Derry, Glasgow, and Edinburgh, or stations equivalent.

CATALOGUES POST-FREE.



To Nurserymen, Seed Merchants, and Florists.

J. BLACKBURN AND SONS are offering Archangel Mats lower than any other house in the trade; also Petersburg Mats and Mat Bags, Raffia Fibre, Tobacco Paper, and Shading. Prices free.—4 and 5, Wormwood Street, E.C.

FOR SALE, 1,000,000 yards of Galvanised WIRE NETTING; 35 tons of BARB WIRE, 4-pointed, 7 inches apart; 40 tons of Galvanised 7-ply STRAND; 300 tons of Solid-drawn STEEL FENCING WIRE, Nos. 4 to 8, both Plain and Galvanised; also Galvanised EYE-BOLTS and Screwed EYES for Vineries.—Send for Lists to THE LONGFORD WIRE CO. (Limited), Warrington.

GREENHOUSES & PIT LIGHTS.

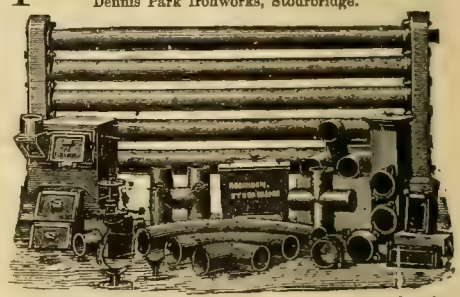
BEST QUALITY ONLY.

Pit Lights, 6 ft. × 4 ft. × 2 in. thick, with either 3 or 4 bars for 8 in. or 10 in. glass, 4s. 9d. each; or, by the 100, 4s. 6d. each.
1¼ × 3 Rafters, 7s. per 100 feet.
1¼ × 2½ " 6s. per 100 feet.
All other materials at equally low prices.
Free on Rail. Cash with Order. Send for Quotations.

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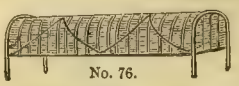
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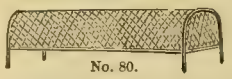


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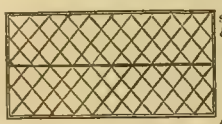
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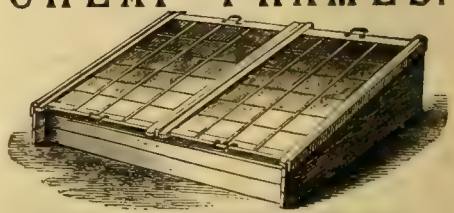
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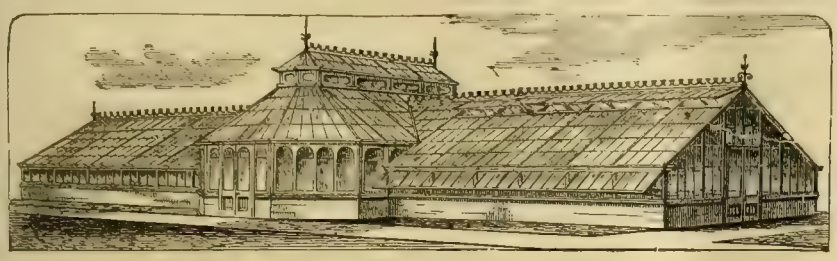
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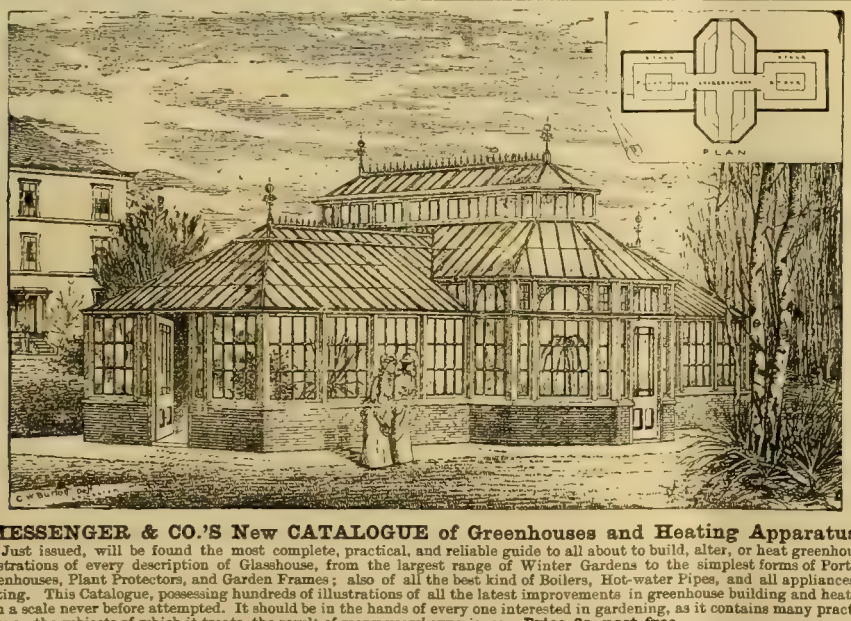
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Mr. G. BRADDY, late Gardener at Watcombe Park, Torquay, has been appointed Head Gardener to J. H. LERMITTE, Esq., The Knightons, East Finchley, Middlesex.

Mr. J. HILL has been appointed Gardener at Babraham Hall, Cambridge.

Mr. V. LIOT, lately of The Lodge, Farnham Royal, Bucks, has been appointed Gardener to C. BATHURST, Esq., Lydney Park, Gloucestershire.

Mr. NEIL SINCLAIR, Head Gardener for the past fifteen years at Easthampstead Park, Berks, has been appointed as Gardener to A. WYNNE CORRIE, Esq., Park Hall, Oswestry, Salop.

Mr. C. A. LONG, Foreman in the Gardens, Bloxholm Hall, has been appointed Head Gardener to Sir THOMAS WHICHCOTE, Aswarby Park, Folkingham, Lincolnshire.

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GARDENER (HEAD); age 32, married.—A. GOODEN, Norton Atherstone, would be pleased to engage with any Lady or Gentleman requiring the services of a good all-round man. Can be highly recommended. Seventeen years' experience.

GARDENER (HEAD); age 28.—Mr. JOHN MCKENZIE, Linton Park Gardens, Maidstone, will be pleased to recommend his Foreman, James Hughes, for the past five years, to any Lady or Gentleman requiring the services of a thorough good man.

GARDENER (HEAD).—A LADY can confidently recommend her Head Gardener. Most conscientious, and highly experienced in Growing good Fruit, Flowers, Vegetables, and Chrysanthemums. Abstainer.—G.H., The Grove, Stanmore, Middlesex.

GARDENER (HEAD).—A GENTLEMAN who is reducing his Gardening Establishment wishes to recommend his Head Gardener. He is thoroughly experienced in all branches of the profession, and has held his present position for ten years.—Address, H.G., Street & Co., 30, Cornhill, E.C.

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GARDENER (HEAD WORKING).—Age 32, married; eight years' good character. Can be well recommended as being a good practical man in all branches of Gardening.—C. EMBLEY, Wotton-under-Edge, Gloucestershire.

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GARDENER (HEAD WORKING or good SINGLE-HANDED).—Age 27, married; seeks re-engagement. Fourteen years' good practical experience. Good references as to ability, &c.—F. STROUD, Waltham St. Lawrence, Twyford, Berks.

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GARDENER (HEAD), or good SINGLE-HANDED.—Age 26.—JOHN CHESHER, gardener to J. M. Heathcote, Esq., Connington Castle, can with confidence recommend H. Knightley, who has been under him four years as Foreman.—H. KNIGHTLEY, Connington, Peterborough.

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GARDENER.—Age 42, married, no family; Land and Stock. Wife Dairy and Poultry. Nine years' character. Twenty years' experience. State wages.—HUNT, Felday, Dorking, Surrey.

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GARDENER (good WORKING).—No family; thoroughly experienced in all branches. Wife good Laundress. Good character.—J. J., 2, Leeson Road, Herne Hill, Brixton, S.W.

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GARDENER (SINGLE-HANDED), or one with one or two men under him.—A GENTLEMAN wishes to recommend his Second Gardener who has been in his service over four years.—H. GOULD, Broadlands, Ascot, Berks.

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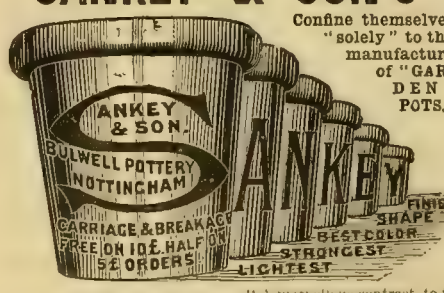
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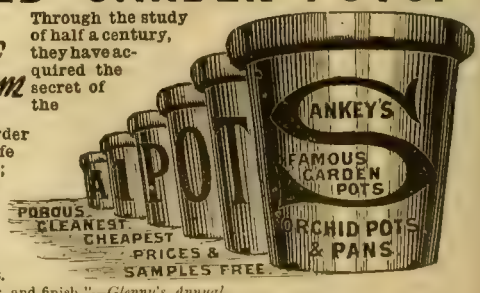


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NOTICE TO ADVERTISERS.

FRIDAY NEXT, *April* 19, *being* GOOD FRIDAY, *the* "GARDENERS' CHRONICLE" *will be published on* THURSDAY, *April* 18.

ADVERTISEMENTS *for* NEXT WEEK *must therefore reach the Office not* LATER *than* WEDNESDAY MORNING, *April* 17.

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All Seedsmen and Florists.

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THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.

WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

PASTUPLANTA, the best Artificial Manure. It enriches the soil with the fertilisers drawn from it by plants; no unpleasant smell; admirably adapted for all pot plants. In bags: 112 lb., 19*s.*; 56 lb., 11*s.* 3*d.*; 28 lb., 6*s.* 9*d.*; 14 lb., 4*s.*; 7 lb., 2*s.* 3*d.* In tins, 1*s.* each. Sole Manufacturers, PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

Fruit, Flowers, and Vegetables.

THOMAS, Covent Garden Market. *Telegraph Address*, "THOMASES, London." Telephone, No. 2822. See large Advertisement, p. 457.

SALES BY AUCTION.

Monday Next.

A large assortment of JAPANESE LILIES and IRIS, including about 2000 Lilium auratum and large Bulbs of Lilium album Kraetzeri and rubro vittatum; a quantity of various English-grown LILIES for the open border, Japanese IRIS, Hardy HERBACEOUS PLANTS, CARNATIONS, CHRYSANTHEMUMS, DAHLIAS, PICOTEES, HOLLYHOCKS, GLADIOLUS, Hardy ORCHIDS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, April 15, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Barnet.

In the High Court of Justice; Chancery Division, Cornwell *v.* Cornwell.

IMPORTANT TO BEGINNERS.

At a Nominal Reserve, to close accounts, the Old-established NURSERY BUSINESS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Hadley Nursery, High Street, Barnet, on TUESDAY NEXT, April 16, at 1 o'Clock precisely, in three lots, the Beneficial Interest in the LEASE of the NURSERY, known as the Hadley Nursery, High Street, Barnet, comprising 5 Acres of capital Land, 8 Greenhouses, Dwelling-house, and Seed Shop, held for 11 years at a Nominal Rent; also a valuable PLOT of FREEHOLD BUILDING LAND fronting the High Street, and the LEASEHOLD NURSERY of about 2 Acres at Barnet Common.

Particulars obtained on the Premises; of Messrs. HOUGHTONS AND BYFIELD, Solicitors, 85, Gracechurch Street, E.C., and Barnet; of Messrs. SCOTT AND BAKER, Solicitors, 10, Gray's Inn Square, W.C., and Hatfield; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Tuesday Next.

ORCHIDS IN FLOWER for Easter Decoration.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, April 16, at half-past 12 o'Clock, a large quantity of ORCHIDS IN FLOWER, principally from private collections, including Cœlogyne cristata alba, grand varieties of Dendrobium Wardianum, Cœlogyne cristata and Lemoniana, Lycaste Skinnerii alba, Odontoglossums, &c.

On view morning of Sale, and Catalogues had.

Tuesday Next.

IMPORTATIONS of ORCHIDS received direct for UNRESERVED SALE, just to hand in very fine condition.

MESSRS. PROTHEROE AND MORRIS will include in their SALE, on TUESDAY NEXT, April 16, at half-past 12 o'Clock precisely, the following importation of ORCHIDS received direct for Unreserved Sale:—

500 CYPRIPEDIUM SANDERIANUM, 700 DENDROBIUM VEITCHIANUM, AUREUM, and LOWII, 140 VANDA SUAVIS, and TRICOLOR, 5 cases of SACROLABIUM, CŒLESTE, 2 cases of ÆRIDES MITRATUM, SACCOLABIUMS, VANDA PARISHII, and a new kind of VANDA, all for sale without reserve, together with 500 ANÆCTOCHILUS, 200 CYMBIDIUM EBURNEUM, 200 CYPRIPEDIUM INSIGNE, &c.

On view morning of Sale, and catalogues had.

Tuesday Next.

GREENHOUSE and BEDDING PLANTS, CARNATIONS, PICOTEES, CAMELLIAS, and AZALEAS in pots; EVERGREENS, &c.; also a few Standard and Dwarf ROSES.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, London, E.C., on TUESDAY NEXT, April 16, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had at the Rooms; and of the Auctioneers, 67 and 68, Cheapside, E.C.

Streatham Hill, S.W.

By order of the Executors of the late John Southgate, Esq.

UNRESERVED SALE of the whole of the well-grown STOVE and GREENHOUSE PLANTS, many fit for exhibition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, on the Premises, Selborne, Leigham Court Road, Streatham Hill, S.W., 3 minutes' walk from Streatham Hill Railway Station, on WEDNESDAY NEXT, April 17, at 12 o'Clock precisely, in consequence of the large number of lots, the whole of the well-grown STOVE and GREENHOUSE PLANTS, grand specimen Camellias, trained Azaleas, two magnificent Lapagerias (alba and rosea rubrum), a large quantity of Decorative Plants, Palms, Crotons, and Dracænas, a capital collection of Chrysanthemums, a magnificent strain of Herbaceous Calceolarias, Cyclamen, and Cinerarias, and other items.

May be viewed the day prior, and morning of Sale. Catalogues had of Mr. SALTER, the Head Gardener, on the Premises; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Wednesday Next.

60,000 Seeds of ARECA LUTESCENS, just received, in splendid condition; 10,000 fresh Seeds of CORYPHA AUSTRALIS; 3 lb. of FREESIA REFRACTA ALBA Seed.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, April 17, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Wednesday Next.

A Choice Collection of about 5000 FERNS and other STOVE and GREENHOUSE PLANTS; a great variety of English-grown LILIES and Hardy BULBS; 2000 LILIUM AURATUM from Japan; IRIS, DAHLIAS, TUBEROSES, BEGONIAS, FREESIAS, ANEMONES, GLADIOLUS, Hardy ORCHIDS; 10,000 fresh Seeds of CORYPHA AUSTRALIS, 60,000 Seeds of ARECA LUTESCENS, and 3 lb. of FREESIA REFRACTA ALBA Seed.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, April 17, at half-past 12 o'Clock precisely.

On view morning of Sale and Catalogues had.

Highly Important Sale.

The Unrivalled Collection of SUCCULENT PLANTS, formed by the late J. T. Peacock, Esq., and enjoying a reputation probably unequalled in Europe.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executors to SELL by AUCTION, on the Premises, Sudbury House, Hammersmith, W., on WEDNESDAY and THURSDAY, May 1 and 2, at 11 for 12 o'Clock precisely each day, without reserve, the whole of the Valuable COLLECTION of SUCCULENT PLANTS, including many species that are unique, and others of extreme rarity, including the Entire Stock of the beautiful new Cereus, J. T. Peacock, Gasterias, Hawarthias, Agaves, Phyllocatus, Sempervivums, Mesembryanthemums, Opuntias, Yuccas, Echinocactus, &c.

Also 120 fine plants of Todea superba, several large Camellias, Lapageria alba and rosea, and other plants.

No plants will be sold privately prior to the Auction.

Catalogues may shortly be obtained of Mr. VICKERY, Head Gardener, on the Premises; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

Preliminary Notice.

The far-famed SUDBURY HOUSE COLLECTION of ESTABLISHED ORCHIDS,

Formed by the late J. T. Peacock, Esq.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Executors of the late J. T. Peacock, Esq., to SELL by AUCTION, without reserve, on the Premises, Sudbury House, Hammersmith, W., on MONDAY, May 13, and fourfollowing days, at half-past 12 o'Clock precisely each day, the ENTIRE COLLECTION of ESTABLISHED ORCHIDS, being the contents of twenty-three Greenhouses. For description of plants, see *Gardeners' Chronicle*, March 23 last.

No Plants will be sold privately prior to the Auction. The Collection may be inspected at any time by cards, to be obtained of the Auctioneers. Catalogues may be had when ready of Mr. VICKERY, the Head Gardener, on the Premises; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

The Celebrated Downside Collection of Orchids.

PRELIMINARY NOTICE.

Alteration of date to May 28 and 29.

The whole for Sale absolutely without reserve.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from W. Lee, Esq., of Downside, Leatherhead (who has sold the Estate and is relinquishing the cultivation of Orchids), to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, May 28 and 29 (instead of June 4 and 5 as announced last week), the remaining portion of the above renowned Collection of ESTABLISHED ORCHIDS, the whole for Sale absolutely without the least reserve.

Further particulars will appear next week.

Wednesday Next.—(Sale No. 7911).

LILIUM NEPALENSE.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 17, by order of Messrs. Hugh Low & Co., a quantity of fine Bulbs just to hand, of the rare and lovely LILIUM NEPALENSE.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7911.)

CYPRIPEDIUM HIRSUTISSIMUM.
" PARISHI.
VANDA CŒRULEA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 17, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a quantity of choice IMPORTED ORCHIDS, in the finest possible condition, comprising a grand lot of Cypripedium hirsutissimum, amongst them splendid specimens, many hundreds of Cypripedium Bellatulum, C. Parishi, Dendrobium suavissimum, Dendrobium looks like an unusually strong form of D. crystallinum, D. capillipes, D. Jenkinsi, Vanda Amesiana, V. Bensoni, V. cœrulea, a fine lot with fresh healthy leaves, and other CHOICE ORCHIDS.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7911.)

SPECIAL SALE OF ORCHIDS IN FLOWER AND BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 17, at half-past 12 o'Clock precisely, a fine Collection of ORCHIDS IN FLOWER and BUD, comprising:—

Cœlogyne cristata alba
" " Lemoniana
" " Chatsworthia, 2½ feet across
Cattleya Mendelii, fine var.
Odontoglossum Hystrex
" Rossi rubescens
Lælia purpurata, fine forms
Den. Wardianum, grand var.
" Cambridgeanum
" Farmeri album
" Ainsworthii
" thyrsiflorum
&c., &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.—April 17.

460 CYPRIPEDIUMS, semi-established, from New Guinea. Amongst them will be found grand varieties, such as C. Prestans, C. Neo-Guinense, and many new species.

Also 130 DENDROBES, semi-established, from New Guinea, supposed to be all new, and in the way of the rare and beautiful D. stratioles and D. strebloceras.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 17.

On view morning of Sale, and Catalogues had.

Thursday Next.

5000 Grand Bulbs of LILIUM AURATUM, just received from Japan, in the finest possible order.

MR. J. C. STEVENS will include the above in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, WC., on THURSDAY NEXT, April 18.

On view morning of Sale, and catalogues had.

Thursday Next, April 18.

PHAIUS TUBERCULOSUS,
" HUMBLOTI,
Also the new and splendid PHAIUS HENRYII.
} Three of our grandest discoveries.

MR. J. C. STEVENS has received instructions from Messrs. F. Sander & Co., St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 18, at half past 12 o'Clock precisely, the above extraordinary ORCHIDS. Collector has just arrived with this splendid consignment, and the plants are in the finest possible order. The Sale will also contain 50 choice Hybrid CYPRIPEDIUMS, a fine plant of the rare Odontoglossum nevadense, several plants of the true Odontoglossum nævium majus, Lælia grandis, about 500 imported CATTLEYA GASKELLIANA, 100 ANGRÆCUM SESQUIPEDALE, 25 A. Sanderianum, imported Odontoglossum Alexandræ from the best district, Cymbidium eburneum, Vanda cœrulea, Dendrobes of sorts, and many other Orchids.

On view morning of Sale, and Catalogues had.

A Portion of the Well-known Collection of Orchids,

formed by Captain Huicks, of Thirsk.

MR. J. C. STEVENS has received instructions from Captain Huicks (in consequence of his houses being overcrowded) to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., towards the end of APRIL, a portion of his well-known Collection of ORCHIDS, including some fine specimens and choice varieties.

Date and fuller particulars in next Advertisement.

Isle of Wight.

To Nurserymen, Florists, Speculators, Builders, and others.

The VALUABLE and OLD-ESTABLISHED NURSERY GROUNDS, known as "Shide Cross Nursery," with comfortable Dwelling House, 8 large Glass and Forcing Houses (with heating appliances and every convenience for carrying on a lucrative business), Stabling for 7 Horses, and enclosure of Meadow Land, the whole containing an area of about 2½ acres. This property, being in a high and healthy position on the confines of the borough of Newport, commanding fine and extensive views of the interior of the Island and the Hampshire Coast, is admirably adapted for the erection of a gentleman's residence, and having extensive frontage to 2 roads of 820 feet offers every facility for immediate profitable development as a Building Estate. It is also very suitably placed for persons requiring a Poultry Farm.

MESSRS. FRANCIS PITTIS AND SON will SELL by AUCTION, at the "Bugle Hotel," in Newport, on WEDNESDAY NEXT, April 17, 1889, at 4 o'Clock in the afternoon, by direction of the owner, Mr. Gould, the above VALUABLE FREEHOLD PROPERTY, with possession.

Vendor's Solicitor, R. ROACH PITTIS, Newport and Cowes.

Horticulturists, Sundriesmen, and Others.

In Bankruptcy. By order of the Chief Official Receiver.

ESTATE of BENJAMIN FIELD, Paragon Road, New Kent Road, S.E.

MESSRS. IZARD, DAWE, AND IZARD, will SELL by TENDER, in Two Lots, on WEDNESDAY NEXT, April 17, at 12 o'Clock, STOCK of a HORTICULTURIST'S SUNDRIESMAN, with loose Trade Fittings and Office Furniture of the estimated value of £100; also LEASE of WAREHOUSE, 19 years to run at £50 per annum, with Trade Fixtures and Goodwill of the Business.

For cards to view and further particulars, apply at the Auction Offices, 147, Cannon Street, E.C.

To Gentlemen, Florists, and Others.

TO BE SOLD, as a going concern, a VALUABLE FREEHOLD NURSERY and BUSINESS, containing about 4 acres, 28 large and well-built Greenhouses (all fully stocked), 2 Coach Houses, 2 Stables, large Office, 4 Sheds, 3 Vans, Cart and 2 Horses, and other requisites. Situate within 4 miles of West End. First-class opportunity for the formation of a syndicate or Company. Every convenience for carrying on an extensive and profitable business.

Apply, EYDMANN AND SON, Auctioneers, &c., Acton, W.

Hampton-on-Thames.

FOR SALE, at very low reserves, LAND well adapted for Fruit Growing, Glass Erections, &c., in large or small quantities.

Apply to Mr. J. EMBLETON, Suffolk House, New Hampton.

Rodmersham, near Sittingbourne, Kent.

TO BE LET (with immediate possession), a comfortable HOUSE, with about 3 Acres of first-class Fruit Plantation, 6 Glass House, and Premises, all in good working order, held (with other Premises let off and producing £55 12s. per annum) under Lease which can be renewed.

Apply to Messrs. JACKSON AND SONS, Valuers, &c., Sittingbourne.

To Fruit and Market Growers.

TO BE LET, on LEASE, about 1 acre of LAND and numerous GREENHOUSES, well stocked with Fruit Trees and Vines, attached to a Private Residence. Most satisfactory terms for renting will be made to a substantial tenant.

Full particulars on application to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

To Nurserymen and Rose Growers.

TO LET on LEASE, LAND specially adapted for Nursery and Rose Growing purposes, situate a few minutes from a main line and Junction Railway Station, twenty miles from London.

Apply to A. B., Auction Mart, Tokenhouse Yard, City.

JAPANESE LILIES.—EIGHT LOVELY KINDS.—Carters' Case of 50 fine Bulbs, as imported from the Japanese Bulb Farms. Price 26s., sent packing and carriage free to any Railway Station in England and Wales on receipt of Postal Order for 23s. 9d. Full names of the eight varieties on application to

CARTERS', Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

A BIG SALE.

UNDER NOTICE TO QUIT

FROM ST. JOHN'S COLLEGE, CAMBRIDGE,

AFTER TWENTY-FOUR YEARS' TENANCY.

RENTS REGULARLY PAID.

THE ABOVE ACTION HAVING BEEN TAKEN BY ST. JOHN'S COLLEGE,

CHARLES NOBLE

Has no alternative but to clear at any price, magnificent RHODODENDRONS, 5 to 7 feet high, unequalled in the Trade.

Buyers must book to Sunningdale Station, S.W.R.

CHARLES NOBLE, BAGSHOT.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received fine importations of the following, and many other ORCHIDS:—

DENDROBIUM JAMESIANUM.
,, INFUNDIBULUM.
,, FORMOSUM GIGANTEUM.
,, DENSIFLORUM.
,, CYPRIPEDIUM BELLATULUM.
SACCOLABIUM BLUMEI MAJUS.
AERIDES CRASSIFOLIUM, and many others.

Full particulars, Post-free, on application to

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

GRANDEST VIOLET Known.—Dark Double Violet VICTORIA (three First-class Certificates), price reduced to 9s. per dozen, good plants, full of buds.
Also my new VIOLA SNOWFLAKE (four First-class Certificates), at 12s. per dozen.
Terms, Cash with order to
Mr. J. CHAMBERS, Westlake Nurseries, Isleworth, W.

FOR SALE, about 50 1-yr. VINES in Pots, Planting Canes, including the best sorts, will be offered cheap. Also a large quantity of strong DAHLIAS, pot roots, including many of the best sorts for quotations.
Apply to W. SHAND, Nurseryman, Lancaster.

TO CYCLAMEN GROWERS.—I am offering my entire beautiful strain of above, of 3000 plants half of them have 10 petals on one blossom, with beautiful marked foliage and very large flowers now in blossom, and can be seen at any time.—For particulars apply to
ARCHBALD STREETER, Avenue Nursery, Grays.

CHRYSANTHEMUMS.—Cheap offer of strong plants; M. Marthe, Sœur Melanie, Ethel, and a few others good for Cutting; 6s. per 100, carriage paid, for Cash.
J. W. CHAPMAN, Florist, Ramsgate.

ENGLISH YEWS, 3, 4, 5, and 6 feet.
BOX, Green, 3, 4, 5, and 6 feet.
,, Variegated, 3, 4, 5, and 6 feet.
PINUS AUSTRIACA, 3, 4, 5, and 6 feet.
All well furnished, and finely rooted. Many thousands.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

STANDARD and HALF-STANDARD, Autumn Budded TEA ROSES, in pots (Bride's Niphetos, &c.), just started from dormant buds, 12s. per dozen, 90s. per 100; Larger Trees, nice heads in bloom buds, 18s. per dozen.
W. DAY, Sandygate Rose Nurseries, Sheffield.

STRAWBERRIES.—Good Plants of all the best of the new and old varieties. One of the largest Growers in the Trade. Stocks true. Prices reasonable. Send for Special Descriptive LIST free.
JOHN WATKINS, Fruit Grower, Pomona Nurseries, Withington, Hereford.

ROSACANINA URALENSIS SEED.—The best and most hardy Wild ROSES for Grafting; price per 33 lb. package, 30s., delivered at St. Petersburg.
Orders for fresh 1889 Seed from the Orenburg Heaths are already booked by
R. NIEMANN,
Imperial Botanic Gardens, St. Petersburg.

Eucharis Blooms for Easter.

R. BULLEN, Lewisham, is now Booking Orders for any quantity; 8s. per dozen, packing free, cash with order.

FOR SALE, Specimen Plant of DAVALIA CANARIENSE FERN. Price £1 10s., or EXCHANGE for TUBEROUS BEGONIAS. Apply to
W. GREY, Mackney, Ballinasloe, Ireland.

SEAKALE.—Strong crowns for April planting, 5s. and 7s. 6d. per 100. Carriage paid. Trade supplied.
WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey, and Flower Market, Covent Garden, W.C.

A WELL-STOCKED GREENHOUSE.—ABUTILONS, all the best and newest; 12 fine sorts, 3s. 6d.
BEGONIAS (evergreen class), fine for summer or winter; 6 fine sorts, 1s. 9d.
HELIOTROPES (Cherry Pie), fragrant and free bloomers, best new and old sorts; 12 for 2s. 6d.
LANTANAS, fine for greenhouse decoration, pretty and free; 12 sorts, 2s. 6d.
SALVIAS, distinct and pretty; 6 fine sorts, 1s. 6d. Half number at same rates. New CATALOGUE of these and everything else you want for Greenhouses of Gardens, free for 3 stamps.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

IMMENSE STOCK of ORCHIDS.—Best value in the Trade; must be cleared to make room for fresh importations. Great opportunity; splendid order for potting.
Rarest and loveliest of LILIES, Auratum Rubro-vittatum, true, lovely white, intense band of carmine, no markings or spots or yellow; truly dazzling.
AURATUM VIRGINALE, pure ivory white, no markings or spots; chaste and beautiful.
These two Lilies will take the lead in any group and secure prizes. Usually sold at 21s. each—will take 5s. each, to clear, post-free.
JAPANESE MAPLES, Silver Banksian Medal.
,, TREE PÆONIES, 7 First-class Certificates.
,, IRIS, most gorgeous, 4 First-class Certificates.
CATALOGUE of the above on application to
W. GORDON, The Nurseries, Amyand Park Road, Twickenham.

ENCLOSE Post-Office Order for 2s., and by return you will get 1 packet of MELON, 1 packet of MARROW, and 1 packet of TOMATO SEED. Warranted best extant.—R. GILBERT, High Park, Stamford.

FORBES' CATALOGUE for 1889 is the largest, best, most reliable and complete ever issued on Florists' Flowers.
It consists of 112 pages of closely-printed matter, with Prices and full descriptions of all the newest and best Pansies, Violas, Phloxes, Pentstemons, Antirrhinums, Hollyhocks, Delphiniums, Pyrethrum, Potentillas, Auriculas, Dahlias, Pelargoniums, Fuchsias, Petunias, Begonias, Perennials, Stove and Greenhouse Plants, Ferns, &c., all of which are made a leading speciality and can consequently be had better than anywhere else.
The CATALOGUE itself is a most useful and convenient reference book on all sections of Florists' Flowers, and it should be in the hands of all, and carefully perused before ordering elsewhere.
Free on application.
JOHN FORBES, Buccleuch Nurseries, Hawick, Scotland.

LARGE SHRUBS and CONIFERÆ.—Berberis aquifolia, 1½ to 2 feet, 12s. per 100; Box tree, 1½ to 2 feet, 12s. per 100; Cotoneaster Simonsii, 3 to 3½ feet, 10s. per 100; Deutzia crenata, flore-pleno, strong, 4s. per dozen; Grislinia littoralis, 1½ to 2 feet, 35s. per 100; Irish Ivy, 4 feet, 6s. per 100; Laurel, common, 1½ foot, 6s. per 100; 2 feet, 10s. per 100; 3 to 4 feet, 16s. per 100. Colchic Laurel, 2 to 2½ feet, 16s. per 100; 3 to 3½ feet, bushy, 20s. per 100. Portugal Laurel, 1½ to 2 feet, 20s. per 100. Rhododendron ponticum, 1 to 1½ foot, 22s. per 100; 1½ to 2 feet, 30s. per 100; 2 to 2½ feet, 35s. per 100; 3 feet, 50s. per 100; 4 to 4½ feet, bushy, 80s. per 100. Abies Douglasii, 3 to 4 feet, 35s. per 100; 4 to 5 feet, 50s. per 100; do., 6 feet, 70s. per 100. Araucaria imbricata, 2 to 2½ feet, 30s. per dozen; 3 to 3½ feet, 48s. per dozen; 3 to 4 feet, 60s per dozen. Cupressus Lawsoniana, 2½ feet, 20s. per 100; 3 to 4 feet, 40s. per 100. C. stricta, 2 to 2½ feet, 40s. per 100; 5 to 6 feet, extra fine, 18s. per dozen. C. erecta viridis, 1½ to 2 feet, 25s. per 100; do., 2 to 2½ feet, 35s. per 100. Picea Nordmanniana, 1½ to 2 feet, 30s. per 100; do., 2 to 2½ feet, extra, 40s. per 100. Retinospora plumosa, 18 inches, 25s. per 100; 1½ to 2 feet, 30s. per 100; 2½ feet, extra, 40s. per 100. R. squarrosa, 1½ foot, bushy, 30s. per 100; Thuia Lobbii, 1½ to 2 feet, 12s. per 100; 2 to 3 feet, 24s. per 100; 4 feet, 50s. per 100; 6 feet, 18s. per dozen. Thuiopsis borealis, 2½ to 3 feet, 8s. per dozen; T. dolobrata, 1 foot, 30s. per 100; 1½ to 2 feet, 12s. per dozen; 2½ to 3 feet (fine), 30s. per dozen.
GARLIES MITCHELL, Nurseryman, Stranraer.

GERANIUMS — PELARGONIUMS — GERANIUMS.—All the finest sorts, from English and Continental raisers, for Pot Culture for Summer or Winter, bought in every spring, tried and inferior kinds discarded. 12 fine Single Zonals, 4s.; 12 fine Doubles, 4s.; 12 beautiful Ivy-leaf varieties, 4s.
PELARGONIUMS, the finest flowers, best habits, most robust growers, 12 fine varieties, 6s.; 12 large Plants, 9s. or 12s. All you want for a Garden may be selected from our new CATALOGUE, free for 3 stamps.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

A. Lietze, Rio de Janeiro, Brazil,

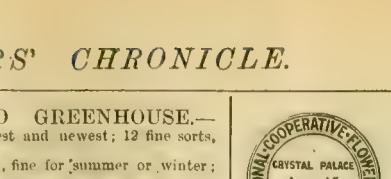
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£300 in PRIZES, MEDALS, and CERTIFICATES for FLOWERS, FRUIT, VEGETABLES, and HONEY. Open to Members of all Co-Operative Societies in the Kingdom. (£200 for produce grown from "One and All" Seed of the Agricultural and Horticultural Association, Limited).
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Cheap Bedding Plants.—Special Offer.

WILLIAM BADMAN offers as under, from store pots, all well rooted, and fit for present potting. The present is a good time for making up losses sustained during the winter:—
VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6s. per 100; 12 choice named varieties, 8s. per 100.
LOBELIA, Bluestone, pumila magnifica, Brighton Blue, 3s. per 100.
CALCEOLARIA, Golden Gem, 6s. per 100; Camden Hero, fine dark, 10s. per 100.
HELIOTROPE, Jaun d'Amour, Miss Nightingale, 6s. per 100.
AGERATUM, Imperial Dwarf, blue, 5s. per 100.
COLEUS VERSCHAFFELTI, bedding crimson, 8s. per 100.
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TROPÆOLUM, Vesuvius, Coccinea elegans, 10s. per 100.
FUCHSIAS, in 12 good named varieties, 8s. per 100.
PELARGONIUMS, Show and Decorative, from single pots, 3s. per dozen, 20s. per 100.
NOTE.—Not fewer than twenty-five of any one sort supplied at above rate. Packing included. Terms cash.
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To the Trade.

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H. AND F. SHARPE will be pleased to give special quotation for their fine selected stocks of home-grown MANGEL WURZEL and TURNIP SEEDS of 1888 growth, and raised from picked bulbs. The growth is strong, and the prices will be found very reasonable. Samples may be had on application
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12 lovely kinds of any class, 3s.; 25 lovely kinds of various class, 6s.; 50 lovely kinds of various class, 11s.; 100 lovely kinds, of various class, 21s.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

To the Trade.

SELECT LIST of Perennials, Biennials, and Choice Florist's Flower Seeds, just published; and also AGRICULTURAL SEED CATALOGUE, which may be had free on application to
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EUCHARIS.—9-inch Pots, well filled with strong, clean, healthy flowering Bulbs, 4s. 6d. per pot. Cash with Order.
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"THOMAS STEPHENSON."
A beautiful bronzy-crimson sport from "Criterion," indispensable for exhibition. A grand, full show flower; broad petals, slightly incurved at the tips, a lovely yellow shade on the reverse of the petals.
FIVE FIRST-CLASS CERTIFICATES. Orders booked from all the principal Chrysanthemum Growers. (See E. Molyneux's opinion, *The Garden*, 890, &c.)
Rooted plants ready end of March; 7s. 6d. each, 3 for 15s.
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Very Special Trade Offer.

Owing to the many thousands consigned to me this season I make this special sacrifice to make room for fresh arrivals.
Extra fine hard heavy flowering bulbs, measuring 8 inches round, 1 dozen, 3s. 6d.; 50, 11s.; 100, £1; 1000, £8.
SPECIAL QUALITY.—Every bulb selected, the very best, measuring 9½ inches round, 6, 3s. 9d.; 12, 6s.; 50, £1; 100, £1 15s. Better bulbs impossible. All carriage paid. Packed in cocoa-nut fibre.
Every bulb warranted sound
Direct, Japanese Importer,
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BEGONIAS.—Choice mixed single, all colours, grand Continental prize strain, fine tubers, 12, 3s. 3d.; 50, 11s.; 100, 18s.; double and semi-double, mixed, 12, 5s.; 50, 16s. Worth double. All carriage paid.—W. H. HUDSON, Tottenham.

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beg to announce that their LIST of the above is now ready, and will be sent post-free on application. Specially worthy of note are

MARCHIONESS OF LORNE, H.P. (Wm. Paul & Son).—Plants ready in May, 10s. 6d. each.

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Rose Growers by appointment to Her Majesty the Queen,
WALTHAM CROSS, HERTS.

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Now is the time to plant :—

GLADIOLI,	of which we grow 20 acres.		
DAHLIAS,	do.	do.	2 ,,
PYRETHRUMS,	do.	do.	3 ,,
DELPHINIUMS,	do.	do.	3 ,,
GAILLARDIAS,	do.	do.	2 ,,

"The largest collection in the world," for which the highest awards of the Royal Horticultural and Royal Botanic Societies of London have been given.

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ANEMONE CORONARIA—ST. BRIGID.

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No better Strain existing.

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1400 species and varieties of Stove, Greenhouse, & Hardy Ferns.

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BUY AND TRY
THE PENNY PACKET SEED COMPANY'S
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And you will pronounce them the Best in the Market, as none but genuine, good, new season's seeds are supplied.

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Also a Select List of

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CHOICE FLORISTS' FLOWERS

Our collection of these includes all the newest and most beautiful varieties in cultivation, and Customers ordering from the following list may rely on only the finest sorts being sent. The plants are strong and healthy, and in nearly all instances from single pots:—

Post or Carriage Free at Prices quoted.

	Per dozen.—s.	d.
ABUTILONS, in beautiful variety, to name, 6 for 2/6	4	6
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STREPTOSOLEN JAMESONI, beautiful plant for pots in the greenhouse, each, 9d., 3 for 2s.		

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NORWICH.

THE REAL WHITE ELEPHANT

OR IMPROVED WHITE ELEPHANT POTATO.

This is a sport from Daniels' White Elephant Potato, but has the great advantage of having a pure white skin. It is one of the heaviest croppers grown. Cooks splendidly.

PINK PERFECTION.

The handsomest coloured round yet raised. A sure prize-taker.

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All the best of the old and new varieties in commerce. Over 200 varieties to select from, at moderate prices. Send for Descriptive CATALOGUE, containing lists for various purposes and other useful information. The most complete in the Trade.

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GIANT and COLOSSAL.

Strong plants now ready.

Special Prices on application.

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NEW and very lovely; invaluable for Table Decoration. No garden should be without this charming flower. Sow at once. 1s. per packet.

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INVITES AN INSPECTION FROM INTENDING PLANTERS TO

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Having stout straight stems, fine heads, and splendid roots. All have been transplanted within two years:—

ACACIA BESSONIANA, 12 to 14 feet; A. SEMPERFLORENS, 12 to 14 feet; ACER DASYCARPUM, 12 to 16 feet; A. DASYCARPUM WIERII LACINIATA, 10 to 14 feet; A. NEGUNDO VARIEGATA, Standards, 8 to 10 feet; A. LEOPOLDII, 12 to 14 feet; A. REITENBACHII, 12 to 14 feet; A. SCHWEDLERII, 12 to 16 feet; A. WORLEYII, Standards, 12 to 14 feet. ASH, Mountain, 10 to 14 feet. BEECH, Common, 10 to 12 feet; Purple, Pyramids and Standards, 10 to 16 feet. BIRCH, Silver, 12 to 16 feet. CHESTNUT, Horse, 14 to 16 feet. Double White, 10 to 16 feet; Scarlet, 12 to 16 feet; Spanish, 12 feet. ELMS, English, 10 to 12 feet; Guernsey, 12 feet. LIMES, 12 to 16 and 20 feet; Silver-leaved, 10 to 14 feet. LIQUIDAMBAR, 6 to 10 feet. MAPLE, Norway, 14 to 16 feet. OAK, English, 10 to 14 feet; Scarlet American, 12 to 14 feet; PLANES, 12 to 16 feet. POPLAR BOLLEANA, 10 to 16 feet; P. CANADENSIS NOVA (the true variety), 12 to 16 feet; SYCAMORE, Common, 14 to 16 feet; Purple, 14 to 16 feet. THORNS, Double Scarlet, 8 to 10 feet; White, 8 to 10 feet. WALNUTS, Common, 10 to 12 feet.

Weeping Trees.

BEECH, Weeping, Pyramids and Standards, 8 to 12 feet; Weeping, Purple, Pyramids and Standards, 7 to 12 ft. BIRCH, Young's Weeping, Pyramids and Standards, 8 to 14 ft. ELMS, Weeping, Pyramids and Standards, 7 to 14 feet. LARCH, Weeping, Pyramids, 8 to 10 feet. OAK, Weeping, English, Standards, 10 to 12 feet. POPLAR, Weeping, Pyramids, and Standards, 10 to 12 feet. SOPHORA JAPONICA PENDULA, Standards, 8 to 9 feet.

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WOKING, SURREY.

STRAWBERRIES IN POTS.

Strong, to plant now for fruiting this year.

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NOTE.—One dozen of each of the foregoing (five dozen in all), correctly named, and well packed, will be sent, carriage paid, for 20s. Descriptive CATALOGUE on application.

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SPRING, 1889.

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Selection of the above, from Borneo, Manilla (Philipines), Bangkok, Java, Rangoon (Burmah), &c., to the extent of £5 and upwards, packed and shipped (at consignee's risk) on receipt of order with remittance, Address,

THE ORCHID NURSERY,

UPPER WILKIE ROAD, SINGAPORE,
Special care given in packing.
NEW VARIETIES ALWAYS ON HAND.

WEDNESDAY NEXT.—(Sale No. 7911.)

LILIUM NEPALENSE.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 17, by order of Messrs. Hugh Low & Co., a quantity of fine Bulbs, just to hand, of the rare and lovely

LILIUM NEPALENSE.

On view morning of Sale, and Catalogues had.

WEDNESDAY NEXT.—(Sale No. 7911.)

CYPRIPEDIUM HIRSUTISSIMUM.
CYPRIPEDIUM PARISHI.
VANDA CŒRULEA.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 17, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a quantity of choice IMPORTED ORCHIDS, in the finest possible condition, comprising a grand lot of CYPRIPEDIUM HIRSUTISSIMUM, amongst them splendid specimens, many hundreds of CYPRIPEDIUM BELLATULUM, CYPRIPEDIUM PARISHI, DENDROBIUM SUAVISSIMUM, DENDROBIUM looks like an unusually strong form of D. CRYSTALLINUM, D. CAPILLIPES, D. JENKINSI, VANDA AMESIANA, V. BENSONI, V. CŒRULEA, a fine lot with fresh healthy leaves, and other CHOICE ORCHIDS.

On view morning of Sale, and Catalogues had.

THURSDAY NEXT, APRIL 18.

PHAIUS TUBERCULOSUS
PHAIUS HUMBLOTII
Also the new and splendid **PHAIUS HENRYI.**

} *Three of our grandest discoveries.*

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On view morning of Sale, and Catalogues had.

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ROSES—CLEMATIS—ROSES—all in pots, can be sent and planted any time; the finest named sorts. See Catalogue, with colours, descriptions, prices of these, and all you want for a Garden, free for 3 stamps. 12 fine TEA and NOISETTE ROSES, 15s.; 12 Hybrid Perpetual ROSES, 12s.; 12 Extra-sized Tea and Noisettes to force now, 30s.; for Arbours, Pillars, Walls, &c.

3 CLEMATIS, in 3 distinct colours, 3s. 6d.; 6 CLEMATIS, in 3 distinct colours, 6s.; 12 CLEMATIS, in 3 distinct colours, 10s. 6d.

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CABBAGE PLANTS, Autumn Sown, Shilling's Queen, Early Rainham, Drumhead, Savoy, 2s. 6d. per 1000, 45s. per 20,000, packed; 100, free, 1s. 3d. King Cos, Bath Cos LETTUCE, Aigburth Brussells Sprouts, 4s. per 1000, packed; 100, free, 1s. 6d. Strong FLOWER PLANTS—Wallflowers, dark Red, Purple, Brown, Yellow; Sweet Williams, Papavers, Pyrethrums, Dianthus, 3s. per 100, 25s. per 1000, packed; 1s. per dozen, free.

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PELARGONIUM ZONAL LILLIPUT—PRESIDENT AUG. VAN GEERT.

Beautiful novelty, with large flowers, lovely double white, colouring towards the centre in strong carmine; golden foliage.

Price: each 4s.; six plants, 16s.

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80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2s. 6d. each; Beauty of Worcester, a magnificent purple, excellent for bedding, recently sent out by us, reduced price 2s. 6d. each. Descriptive LIST on application.—RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

CALADIUMS, GLOXINIAS. — Lovely CALADIUMS of the finest sorts, splendid varieties, handsome foliage, clean, easily grown; 12 sorts, 6s., 9s., 12s.

Gorgeous GLOXINIAS, rich colours, pretty foliage, lovely flowers; 12 for 6s., 9s., 12s. New CATALOGUE of these and all other plants, 130 large pages, free for 3 stamps.

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SMALL SHRUBS and CONIFERÆ. — Araucaria imbricata, 10 to 12 inches, 50s. per 100; Abies orientalis, 1-yr., 30s. per 1000; American Arbor-vitæ, 1½ foot, 60s. per 1000; Sweet Bay, 1-yr., 30s. per 1000; Scarlet Chestnut, 1-yr., 6s. per 100; Cupressus macrocarpa, 1-yr., 30s. per 1000; Lawsoni, 18 inches, 60s. per 1000; erecta viridis, 4 inches, 30s. per 1000; do., 1 foot, 12s. per 100; stricta, 1 to 1½ foot, 12s. per 100; Cedrus atlantica, 1-yr., 1-yr. transplanted, 10s. per 100; Escallonia macrantha, pots, 14s. per 100; Portugal Laurel, 1-yr. transplanted, 20s. per 1000; Limes, 1-yr. transplanted, 16s. per 1000; Pinus Cembra, 3-yr., extra, 16s. per 1000; P. Strobus, 2-yr., 2s. per 100; Scarlet Oak, 1-yr., 3s. per 100; Privet ovalifolium, 8 to 9 inches, 10s. per 1000; Retinospora plumosa, 10 to 12 inches, 10s. per 100; Thuia dolobrata, 8 to 9 inches, 80s. per 1000; do., 10 inches, fine, 12s. per 100. T. Ellwangeriana, 6 to 8 inches, 6s. per 100; Veronica Traversii, 6 to 8 inches, fine, 6s. per 100; English Yew, 1-yr., 1-yr. transplanted, 20s. per 1000; do., 8 to 10 inches, 7s. per 100. Irish Yew, 6 to 9 inches, 10s. per 100.

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To the Trade.

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H. AND F. SHARPE'S Special Priced LIST of the above comprises all the finest varieties in cultivation raised expressly for Seed purposes. The prices are unusually low this season, and may be had on application.

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BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Seed saved from Prize Plants. In beautifully illustrated Packets, choice mixed, Single or Double varieties, 1s., 2s. 6d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 5s. 6d.; 6 ditto, 3s. Tubers, Named Singles, from 12s. to 42s. per doz.; Unnamed Seedlings, 12s. to 21s. per doz; Bedding, choicest, 6s. and 9s. per doz.; choicest Named Doubles, from 42s. per doz.; Unnamed, very choice, 24s. and 30s. per doz.; choicest Mixed, 18s. per doz. Order direct from us, to procure our splendid strain. CATALOGUES gratis.

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FUCHSIAS, TUBEROUS BEGONIAS. — 10,000 FUCHSIAS, just the cream of all the Fuchsia family in flower, habit, and freedom; 12 lovely sorts, 3s. 6d.; 25 sorts, 6s. 6d.; 50 sorts, 12s. 6d.

TUBEROUS BEGONIAS.—We have so improved the quality of our seedlings that we discarded last season all the named singles, the seedlings being much finer; 12, all different shades, large flowers, dwarf habit, 4s.; 12 finer, 6s.; 12 lovely double varieties—all these are named sorts, 21s.

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£3000

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JUNE 13, 1889,
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Mr. J. PERKINS, Thornham Gardens, Eye	1	1	0
Mr. J. GOUGH, Harefield Gardens, Uxbridge ...	1	1	0
Mr. D. ROBERTS, Prestwold Gardens, Loughborough	1	1	0
Mr. J. H. PEARSON, Beeston, Notts	2	2	0
Mr. W. WARD, Little Aston Gardens, Sutton Coldfield	10	10	0
Mr. G. TURNER, Greenhill Gardens, Telford, Surrey	5	14	8
Mr. J. SMITH, Mentmore Gardens, Leighton Buzzard	1	1	0
Miss MARY DRAKE, Elm Park Gardens, S.W. (annual)	1	1	0
G. F. WILSON, Esq., Heatherbank, Weybridge, Vice-President	10	10	0

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HEATH'S BULB MITE EXTERMINATOR.

After many and exhaustive experiments extending over a series of years, Mr. Heath the celebrated Gardener at Sedgwick (a frequent contributor to this Paper), has at length succeeded in producing a chemical compound, which proves fatal to this most destructive pest. His experiments have been watched with the utmost interest, by several Gardening Friends, at whose request he has placed it in my hands to manufacture. **In Tins,** sufficient for from 50 to 100 Bulbs, according to size, with full directions, **5s.**

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For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale, Worms, Wood Lice, &c.

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SAFE—ECONOMICAL—EFFECTUAL.

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Prepared only by
DUNCAN, FLOCKHART & CO., Chemists to the Queen Edinburgh.

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As an Insecticide, Mildew Destroyer and Cleanser.

We invite a comparison of the above with other Emulsions or Mixtures of Paraffin, whether sold under fancy names or otherwise, as regards perfection of preparation, miscibility with water, stability after dilution, efficacy, safety and cheapness. It contains three-fourths of its volume of Paraffin, now acknowledged to be the best remedy for the destruction of all insects infesting plant life. One Gallon makes 160 Gallons of Insecticide. Prices, delivered free to any address:—1 Pint, 1s. 6d.; 1 Quart, 2s.; half Gallon, 3s.; 1 Gallon, 4s. 6d., tins free; 4 Gallons for 7s. 6d., tin to be returned. Larger quantities at reduced rates. Sole Proprietors—

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THE ONLY COMPLETE COLLECTION EXISTING,

COMPRISES NEARLY 500 VARIETIES.

AWARDED *many Gold and Silver Medals, Cups, Prizes, and Certificates, by the Royal Horticultural Society, Royal Botanic Society, Crystal Palace Company, &c., &c.*

AWARDED *by the Colonial and Indian Exhibition, London,* 1886, *a Commemorative Diploma of Merit.*

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See Wood-Engraving *Gardeners' Chronicle,* of March 31, 1888, for a few of Barr's Two-coloured Trumpet Daffodils.

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1 ,, ,, ,, ...	.. 21/, 30/, 42/, and 63/.	3 ,, ,, ,, ...	10/6, 15/, 21/, and 30/.
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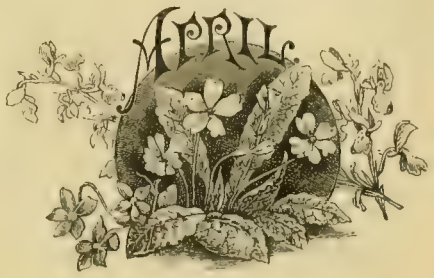
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NOTICE TO ADVERTISERS.

Friday next, *April* 19, *being* Good Friday, *the* "Gardeners' Chronicle" *will be published on* Thursday, *April* 18.

Advertisements *for* next week *must therefore reach the Office not* later *than* Wednesday Morning, *April* 17.



THE

Gardeners' Chronicle.

SATURDAY, APRIL 13, 1889.

THE HISTORY OF GARDEN IMPLEMENTS.

IT is a very singular fact, that one of the most important phases in the history of gardening has been almost universally neglected. No one seems to have considered an enquiry into the rise and progress of horticultural implements as worthy of attention. And yet, if we trace the question to its source, we shall discover some highly interesting particulars. There is, indeed, no positive beginning to this subject, for it takes us into speculative regions of the Stone Age, the Bronze Age, and the Iron Age, when the primary objects of human life were practically the same as at the present moment. It is impossible to say in what age mankind began its march towards civilisation, or when the nomadic stage gave place to one which embraced certain elements of restfulness.

At our present degree of advancement in nearly every conceivable section of mechanism, it is difficult to conceive a community or a nation whose weapons of defence and tools for labour were composed entirely of stone, wood, or bone. The rate of improvement in these implements has only corresponded with that of humanity.

As a matter of course the primitive articles of husbandry of different nations do not show any great variety. Professor Nilsson, in his *Stone Age in Scandinavia*, has demonstrated that the implements known as "hoes" both of stone and elk horn, must have been suitable for the systems of land tillage. In America, chipped flint hoes, consisting of broad blades with deep lateral notches near one end, by which they can be attached to a handle, are not at all rare. The Delaware and Iroquois Indians are said to have used formerly the shoulder-blade of a deer, or a tortoiseshell sharpened and fastened to a thick stick. Another class of agricultural implement known as "spades" is described in Dr. Abbott's *Primitive Industry*; this consists of oval plates of flint,

*

flat on one side and slightly convex on the other, the outline being chipped into a sharp edge. And many more examples might be cited. But it seems strange that the Bronze Age, which was such a rapid stride towards civilisation, should have handed down to us very few, if any, examples of improvements in the implements to which reference has been made. Dr. Evans—than whom there is no more trustworthy authority—says that sickles are the only undoubtedly agricultural implements in bronze with which we are acquainted in this country.

Passing on to another phase in the history of the world, the earliest and most valuable contribution to our subject is that of G. Julius Pollux, a grammarian, who was born at Naucratis in Egypt, and flourished in the reign of Commodus, about A.D. 175. He gives us a long list of various artizans, with which he unites their tools, and describes other articles. As he writes in Greek, and quotes the denominations and characteristics given by Homer, Aristophanes, Sophocles, and others, he shows what trades and things were common both to Greeks and Romans. The only section of his work of special interest to us is that of husbandmen, and under the general term of γεωργοι he includes gardeners, nurserymen, mowers, venders of potherbs, woodwards, and those who had the management of Figs, Olives, and Vines. He mentions, *inter alia*, a three-pronged fork, a sickle, and a spade. In reference to the last (σκάπάνη), it is mentioned by Theophrastus (*History of Plants*, 2, 7, 1) as an implement used by husbandmen; but Theocritus speaks of the same as being a digging tool used by athletes for exercise. Pollux also mentions a rake or hoe (σκαλίς), and Strabo refers to the same as an instrument for stirring or hoeing; and as a sort of mattock or shovel, it finds mention in Xenophon's *Cyropædia* (62, 34). A digging tool, driven with both hands, as some, or one with two prongs, as others, is also named. Another (δίκελλα) did duty as a mattock or hatchet, or both; it had two points, is represented on a coin of Valerius Asciculas, and is referred to by Sophocles (*Antigone*, 250, Euripides, and others. A *pastinum* was a two-pronged tool used to set plants with, or prepare the ground for them, and answers to the κρώπιον (= a bill-hook) of Pherecydes.

The spades of the Saxons appear to have been, from the Bayeux Tapestry and numerous old illustrations, about a yard long (including handle and blade); they were made probably of one piece of wood; the handle was set in one side of the blade, and not in the middle, as at present. The cutting-edge was round, and was defended with a piece of thin iron, or other metal, of the shape of a horse-shoe. A capital illustration of this sort of spade is given in Caxton's *Game and Playe of Chesse* (1474, "The Labourer"). The spade figured in a "maze" in Didymus Mountain's *Gardener's Labyrinth* (1571, p. 53) appears to have the handle situated as in modern examples, but the cutting edge is round, although a square example appears on p. 25. The engraving of Saxons digging out a fox with a triangular spade in Blaine's *Rural Sports* (i., 380) is said to be taken from an illuminated manuscript recorded in Strutt's *English Sports*. From Professor Rogers' valuable *History of Prices* we glean several interesting particulars relative to the commercial value of various implements. The spade, for example, of the Middle Ages, appears to be known under the name of "vanga." The prices of this, up to the end of the fourteenth century, varied from 2½*d.* to 4*d.* and 5¾*d.* each. In 1449 a "vanga" was sold for 4*d*, a shovel for 4½*d.*, and a "garden knife" for 4*d.* Between 1411 and 1521 spades or vangæ varied in price from 2*d.* to 11*d.* each, and about or shortly after the last named they became known as spades, and sold at from 6*d.* to 1*s.* each.

Hoes have at all times played a prominent part in gardening matters, and it is to be regretted that the early history of this implement is so obscure. Professor Rogers says that before the plague of 1348 hoes were sold at 3½*d.* each, but afterwards the price rose to 6*d.* From 1401 to 1582 hoes sold at from 7½*d.* to 1*s.* each. They were known as Hercia and Herpica, "Rastra," which were, perhaps, very small hoes, were sold at from 1*d.* to 3*d.* each. At about this period also "weed-hooks" were sold from 1*d.* to 3*d.*, and hedging-bills at about 7*d.* each. Mattocks were very early in use, and it is recorded that four were sold before 1348 for a little over 8½*d.* apiece.

From the Saxon and Anglo-Norman manuscripts engraved by Strutt in his *Manners and Customs of the People of England*, there is scarcely any difference between the scythes and sickles of to-day and those of a thousand years ago. The ancient scythe, however, had a long, straight shaft, instead of the curved handle of to-day. Up to about the middle of the fourteenth century scythes fetched about 10*d.* each, although soon after the period indicated 2*s.* 2*d.* was an average price, Professor Rogers pointing out that it is not easy to distinguish, from the manuscript, a scythe from a sickle, the distinguishing adjective of the latter, *manualis*, not being always added to the generic *falx*. From 1401 to 1582 scythes were about 2*s.* each, and sickles from 3*d.* to 6*d.* Iron forks, hay and corn forks, appear very early in the records of the fourteenth century, but these scarcely claim attention in this place.

Very little improvement appears to have been made in garden shears until the commencement of the present century. In 1816, James Ogden, gardener to T. D. Ashley, of Dunckinfield Lodge, Ashton-under-Lyne, was awarded 10 guineas for his "communication" of three pairs of shears to the Society for the Encouragement of Arts, Manufactures, and Commerce. The paper was published in the *Transactions* of the Society, and it was reprinted in the *Repertory of Arts*, January, 1817 (2nd series, xxx., 97—8), and a plate is given in it where the shears are shown both open and shut. Ogden claimed that "the general principle of these differs in action from that of the common cutting shears, which tend to force from them the object intended to be cut; whereas the shears now sent are so contrived as to draw nearer to them the article to be cut without making a false stroke." The *Gardeners' Magazine* of June, 1830, describes some very handsome pruning instruments of the sliding shears description manufactured by Steere & Wilkinson. *A Treatise on the Present State of the Manufactures in Metals*, 1833 (ii., 44), figures three—the bough-lopping shears, of extraordinary power; the pruning scissors with circular edge; and the Grape and flower gatherer, 4 feet long. They were improvements rather than novelties, and are still in use, with, perhaps, a few unimportant alterations. A bill for pruning, cutting, or lopping, is by no means a modern implement in England, for it is mentioned in Caxton's *Reynard the Fox* (1481), and there is even a much earlier allusion. An implement of the same name, used for digging purposes, was in use in 1050, and probably more closely resembles our present pickaxes than anything else.

If horticultural implements were few, and their form primitive up to the end of the sixteenth century, things very quickly changed. "Merciful God! what a sort of tools have you here!" is the irreverent exclamation of the one of two "characters" in Gervase Markham's work on Gardening (1633). And the surprise was somewhat justifiable, for the host shows his guest, "hatchets and sithes of all sorts, corne and grass sithes, stuble sithes, handbills, sickles, knives, pease-hookes, spades, shovels, wedges, draghooks, great saws, lesser saws, handawes, timber saws, pitchforks, iron hooks, iron forks, twybils, dung forkes, tongs, shears, scissors, mattocks, files, cleavers, claspes, lancets, strings, cutting knives, gelding tools, clipping shears . . . garden-rakes, dibbles, hammers . . . rakes, single and double."*

Such, then, were the accoutrements of the gardener in the earlier part of the seventeenth century, and looking at the list in what way we may, it cannot be said that he had much to grumble about. Indeed, to compare the usual equipment of the gardener of to-day, but bearing in mind the vastly different conditions of gardening in the two epochs, the list must be considered as especially interesting and noteworthy. The numerous implements were called into existence by the exigencies of the rise and rapid progress of gardening during the latter half of the sixteenth century. *W. Roberts.*

* *The Whole Art of Husbandry.* By C. Heresbach, translated by Barnaby Googe, and enlarged by Gervase Markham, i., 16.

New or Noteworthy Plants.

GALANTHUS FOSTERI, *Baker, n. sp.**

The bulbs of this new Snowdrop were imported by Professor M. Foster, from the neighbourhood of Amasia, in the province of Sirwas, in North Central Asia Minor. So far as the flower goes, it looks most like the larger forms of G. Elwesii, but the leaves are broad and bright green, like those of G. latifolius, and the apical lobes of the inner segments of the perianth are short and erect, as they are said to be in G. græcus, which I have never seen, either living or dried. In G. Elwesii the inner segments of the perianth are narrowed suddenly just below the apical lobes, which are square and much larger than in G Fosteri, spreading at the tip, and more or less crisped. In G. Elwesii the inner segments form a narrower tube than in any other species. Both Elwesii and Fosteri have a large green blotch on the lower part of the body of the inner segments. In G. Fosteri the stamens are not more than half as long as the inner segments, whilst in nivalis, Elwesii, and latifolius they are three-quarters as long. The anthers in Fosteri have a distinct apiculus, as in nivalis and Elwesii.

It is a fine plant, and no doubt will become a general favourite. I received it first from Mr. Jas. Allen of Park House, Shepton Mallet, so well known as a cultivator of Snowdrops, and since have had a boxful from Professor Foster direct. It flowered this year with Elwesii late in March.

Leaves bright green, half a foot long at the flowering time, ¾—1 inch broad, simply concave down the face. Peduncle slender, faintly two-edged, much shorter than the leaves. Spathe-valve green, linear-convolute, 2 inches long. Pedicel 1½ inch long, cernuous at the apex. Ovary subglobose, ⅓ inch in diameter at the flowering time. Outer segments of the perianth oblong-spathulate, very convex on the back, rarely tipped with green, 1—1¼ inch long, ½—¾ inch broad at the middle, narrowed to a claw ¼ inch broad; inner segments obovate-cuneate, not so closely connivent as in G. Elwesii, ½ inch long, ⅜ inch broad, with a shallow apical indentation, the two apical lobes semi-orbicular, erect, not at all spreading nor crisped, the apical sinus with a horseshoe-shaped green blotch under it, the lower half of the segment covered with another obovate-oblong green blotch; inner surface all green, with white vertical lines, except a narrow white border. Stamens ¼ inch long: anthers with a distinct white apical spur above the yellow pollen-bearing portion. Style just overtopping the anthers. *J. G. Baker.*

* *Galanthus Fosteri*, Baker, n. sp.—Foliis late viridibus simpliciter canaliculatis; perianthii segmentis exterioribus magnis oblongo-spathulatis, segmentis interioribus obovato-cuneatis lobis apicalibus brevibus rotundatis erectis, dorso ad sinum macula viridi hippocrepiformi et infra medium macula viridi obovato-oblonga decoratis; staminibus segmentis interioribus duplo brevioribus, antheris apiculatis.

XYLOBIUM LEONTOGLOSSUM.

This is, perhaps, the finest of the racemose Maxillarias, as the members of this genus were formerly called. It is the Maxillaria leontoglossa, Rchb. f., described in *Bonplandia*, iii., p. 67. A good plant of it has produced three fine racemes in succession, during the last few months, at Kew. The segments are three-quarters of an inch long, very bright yellow, with numerous light maroon spots; the lateral sepals very strongly keeled, and broader than the dorsal

one, while the petals are narrower than the same. The lip is similar in colour, the side lobes small and obtuse, the central one thick and very fleshy, and studded with numerous purple-brown papillæ. There are three indistinct linear keels extending from the middle of the lip to the base. The very small bracts readily distinguish this species from most others, and taken together with the dense racemes, and the characters above pointed out, it cannot well be confused with any other. Although formerly united with Maxillaria, the habit and lanceolate, plicate leaves, prove its affinities to be rather with Bifrenaria, from which the absence of a double stipe to the pollinia is the chief distinguishing character. *R. A. Rolfe.*

Xylobium corrugatum.

This is another member of the same genus, now flowering at Kew, a plant having been sent from New Grenada by Patin. It is the Maxillaria corrugata, Lindl., *Bot. Reg.*, × × × *Misc.*, p. 8, and appears to be somewhat rare, as the type plant in Lindley's herbarium is the only other piece I have seen. The leaves are narrowly lanceolate, the racemes slender, and with three or four flowers; bracts very small; segments very light dusky yellow; petals with a pair of very faint reddish lines; lip oblong, membranous, with seven linear keels, which are crested, or broken up into numerous papillæ; colour bright yellow suffused with purple-brown about the middle, and with the tips of the papillæ reddish-brown. *R. A. Rolfe.*

Odontoglossum nebulosum var. candidulum, *Rchb. f.*

A good plant of this very pretty variety is now flowering in the Kew collection. It differs from the type in the total absence of spots on the sepals and petals, which in consequence are pure white, while the spots on the lip are reduced in number. It was described in these columns in 1867 (p. 710, with a figure). The sub-variety, candidissimum, of Messrs. Veitch's *Manual* (p. 53) must be the same thing. I also received a flower for name the other day from Mr. White, gr. to C. Dorman, Esq., of Sydenham. The heavily spotted varieties are perhaps the more showy garden plants. *R. A. R.*

PLANTS IN FLOWER AT KEW.

The following are amongst the most interesting of the plants now flowering in the houses:—

Rudgea macrophylla, a robust shrub, with leathery leaves and terminal heads of white flowers. It is a native of Brazil, where it forms large woody bushes. The Kew plant now in flower is only a foot high, and has opposite leaves a foot long by 4 inches in width. The flower-head is as big as a man's fist, and is composed of numerous crowded tubular white fleshy flowers, which remain fresh several weeks. The genus is related to Coffee and Cinchona.

Strophanthus Bullenianus, Masters.—A pretty-flowered shrub, with loose twiggy branches, few oblong leaves, and yellow and reddish flowers in which the segments are narrowed into tails. It is a native of West Tropical Africa. There is a figure of it in the *Gardeners' Chronicle* for 1870, p. 1471. S. longicaudatus is also in flower. It has longer tails, and is yellowish. This species is easily cultivated in an ordinary stove, and is in flower all summer. The genus is related to Apocynum, and is remarkable for the poisonous character of some of the species.

Illicium floridanum.—A beautiful-flowering plant for the greenhouse, or out-of-doors in the more favoured parts of England. It is comparatively little known. A plant in the house, devoted to economics, has been covered with deep purple flowers, which in structure are not unlike Passifloras. I. anisatum, the Star Anise—the fruit of which is used for flavouring liquers, &c.—and I. religiosum, both Japanese species, are also in cultivation at Kew. I. floridanum is a native of Alabama. Its leaves are supposed to be poisonous, on which account the plant has been called the Poison Bay.

The Acacias and Rhododendrons in the Temperate-house are many of them now in flower, the two large specimens of A. armata making a good display and filling the house with fragrance.

Aroids.—In addition to Godwinia gigas, noted last week, the following species of Arisæma are in flower:—A. Leschenaultii, A. galeatum, A. speciosum, A. helleborifolium, A. præcox (ringens), and A. Wrayii. The last-named is a new addition to the collection, and is characterised by the pretty red marbling of its stems. It is 30 inches high, the spathe 6 inches long, bent over at the top, where it is 2 inches broad, and is pale green with a large patch of white. The tail of the spadix is 9 inches long; the leaves are green, with a grey area along the midrib, and are divided into about eight lanceolate divisions, each 7 inches long. The mottling of the stem is most attractive. The species is nearest to A. helleborifolium.

Talauma Candollii.—A tall, Magnolia-like shrub, with large, fleshy, creamy-white flowers, deliciously fragrant. It is grown in the Palm-house, where it blooms several times annually. T. Hodgsoni, a large-leaved, tall-growing species, is in fine health in the Temperate-house, the cool treatment evidently suiting it better than warm. It is a native of Sikkim.

Drosera cistiflora (which will be referred to subsequently), is to be seen in the Orchid-house amongst the other species of Drosera.

Nymphæa tuberosa var. florescens (N. Marliacea, &c.), was the longest in flower last year—indeed, it was in bloom until the tank was emptied—and it is now flowering again. Several species of Homeria are in bloom in the Cape-house, where also the Oxalis are now in flower. There is also a flowering example of Morœa spathacea, a yellow Iris-like plant, better known as Dietes Huttoni. Oxalis cernua and the double-flowered variety are most beautiful little plants for a cool greenhouse. The flowers are large and of a bright sulphur-yellow colour. Many species of Oxalis are sufficiently ornamental to be widely grown as greenhouse plants.

Epidendrum bicornutum is in excellent form. One of the specimens bears ten flower-spikes, each with twelve or more flowers or buds. *W.*

THE DAFFODIL ROT.

Daffodil growers, especially those who have heavy and cold soils in their gardens, seem to be suffering more and more from a cause of destruction to their bulb crops which requires more investigation than it has yet received. The evil manifests itself in early spring. The growth of the young leaves, instead of being vigorous and healthy, becomes stunted and withered, the upper half of the leaves turning quite brown. In some cases unhealthy looking buds are thrown up in advance of the leaves; in others the bud withers up prematurely; the destruction is generally worst where the bulbs have become unduly crowded, but this rule is by no means uniform.

On digging up the affected Daffodils the seat of the evil seems to be the basal tunic, which is soft and rotten. Few or no roots have been thrown out. I have several times submitted lumps of these diseased bulbs to experts, but they have failed to discover any indication of the cause. That it is a disease, and not mere death from starvation, followed by decomposition, seems to be established by these considerations. Whole clumps go off precisely in the same way, and after the symptoms have once set in, if the bulbs are separated and transplanted, temporary relief seems to be given, but they generally all die in the next season.

I have no reason to think that any active germs of the disease remain in the soil, for I have two or three times, after Daffodils have died off in a spot, replanted it with others of a different variety which have continued to live and flourish there. Some kinds seem especially liable to rot off in this way, whilst other kinds I have never known to be attacked at all. The trumpet or Ajax section suffer most, if not exclusively. The variety which I have lost in the largest proportion is the large Irish spurius, commonly known as Ard-Righ. I have had this for about ten years, having been the first to introduce it to England. About the fourth year they began to go off, and have continued to perish of rot nearly every year. I have several times obtained fresh stocks from widely different parts of Ireland, and have planted them in all parts of my garden, in newly made beds, and in virgin soil, but always with the same result, that if left unmoved for more than three years they are liable to go off as described.

There is no gradual deterioration apparent; for two or three years the flowering and growth is quite healthy. Other varieties liable to perish in the same way are all the whites, especially the double cernuus; all the Pyrenean pale forms, except the Bayonne pallidus præcox, which rarely suffers; of Portuguese Daffodils, the self yellow Ajax, but not, as yet, the variety called by Mr. Tait bicolor. This year a large bed of nanus has suffered; and a large proportion of the minor from the Maritime Alps. Maximus I keep healthy by careful attention to soil and situation, and by transplanting at least once in two years. Once, and only once, I lost a large planting of scoticus.

The varieties least liable to be affected are the Pyrenean muticus and all its near relatives—the cultivated bicolors, viz., Horsefieldi, Emperor, Empress, &c. I have never under any circumstances seen any signs of rot in the old garden double Telamonius, though if left alone it at last dies out of starvation, the symptoms being quite different from those I have described. Lastly the whole tribe of Incomparables seem to enjoy immunity from the plague—so do all the varieties of poeticus, single and double.

I have hinted above that frequent removal seems the best preventive for the rot, though, as far as I have tried, removal is not a cure. My impression is that the disease, though it kills slowly in some cases, and rapidly in others, is always fatal. Another precaution is to lighten the soil, digging in plenty of sand or fine stone to a depth of 2 or 3 feet in heavy soils, and securing deep drainage besides.

Though I have said that crowding seems to encourage the evil, it is certainly not the only cause. Many imported Daffodils go off, apparently in the way described, in the first and second season. The worst sufferers are the Pyrenean moschatus. Some of my friends lose all their pallidus præcox. It is true that a tight-spathed mountain Daffodil from the Pyrenees, wrongly classed with pallidus-præcox, is a great sufferer, but I repeat that I have had the Bayonne forms growing for eight years or more in the same spot, and continuing healthy.

In conclusion I can promise that I am doing all I can to investigate this cause of serious loss amongst Daffodils, and I hope that others who have suffered in the same way will do the same. *C. Wolley Dod, Edge Hall, Malpas.*

OAK TREE BROKEN BY RIME, JANUARY, 1889.

The accompanying figure of the wreck of an Oak tree (fig. 82) is taken from a photograph by Mr. Herbert Tilson of King's Lynn, who was good enough to photograph for me a series of trees injured by the rime of the 7th January, 1889, in the vicinity of King's Lynn. This particular tree stood in the hedge by the side of the turnpike road, at Castle Rising, and may be taken as a fair specimen of the injuries done to our Oak trees by the rime frost of the above date. For about a mile the Oaks on both sides this road were similarly wrecked, not perhaps all as much as this one, but none of them escaped without losing some of their branches, either large or small. When we reflect that every twig bore a wall of rime, the crystals of which were not less than 1½ inch in length, the result is not surprising, although in this district such severe rimes are very uncommon.

It will be noticed that the majority of the broken branches are still attached to the tree—where they remain up to the time of writing (April 9). On close examination it will be seen that the fractures are many of them at the point where a small branch joins a larger one, or where a branch is attached to the main stem. This, however, was not always the case, many of the branches gave way in their entirety. In several instances where the weight of the rime was not sufficient to break a branch so that it either fell off altogether or hung down, the trees were injured by the branch being "sprung" or cracked longitudinally, so that when released by the thaw removing the superincumbent weight, its elasticity was sufficient to restore the branch to its original position on the tree and to close up the cracks. A specimen exhibited at the meeting of the Scientific Committee of the Royal Horticultural Society, March 26, showed this very plainly. It consisted of a branch about 3 inches in diameter, from which three smaller branches were broken so as to hang down; while a fourth, a somewhat smaller branch was only "sprung," and had returned to its original position, so that the fracture was only to be seen on close inspection.

About twelve or thirteen years ago a similar, but by no means so severe a rime frost occurred near King's Lynn, by which many trees were broken.

One noticeable feature of these rime-fractures of Oak trees is that branches of all sizes, from mere twigs to fairly-sized arms, are affected, and that in nine cases out of ten they remain attached to the trees for weeks and months. It is rare that a single branch gives way, generally there are several on each tree; and in this particular rime they were all upon the south or south-west side of the trees.

Trees of various kinds suffered—Oaks, Elms, Black Poplars, Willows, Weeping Willows, Alders, and Birches—but the evergreens—Laurels, Hollies, Fir trees, and Yews, escaped almost entirely. The effect of rime in this respect contrasting strongly with that of snow. The Beech is not a common tree in this district, but none which I have seen were broken, neither were the Ash trees, except in one or two cases, although many of them were loaded with their fruit. The smaller branches which were broken off the Elms remained hanging in the trees for some days, but when a large arm gave way it fell to the ground. The branches of the Black Poplars and Willows almost invariably fell to the ground. Many persons watched the branches of these trees gradually bending lower and lower under the weight of the rime until they gave way with a crack. *C. B. Plowright.*

Cultural Memorandum.

BEGONIA ODORATA.

At the present time this Begonia is one of the showiest plants we have in the warm house; and it has grown and flowered freely here since the beginning of the month of February. It is a desirable plant to mix with others grown for their foliage, being light in habit and an agreeable relief in any position; especially is this the case if the plants are raised slightly above a bed of Maidenhair Ferns, Dracænas, &c.

It is well to have two sets of plants, large and small—the former obtained by keeping the roots for a second year. Early in May cut the old plants down to within a few inches of the soilwhen new growth will spring from the base of the shoots, this being pinched at the points once only, so as to cause a bushiness of habit. These cut-back plants may be potted in 7-inch pots, and the smaller or second lot of plants will succeed well in 48's, it not being so much a matter of root space as of the careful supply of water, and occasionally of liquid manure towards the end of summer and during the time that they are in flower. Cuttings 4 inches in length, put in singly into 60's and placed on a mild bottom-heat, strike freely in April and May, and if these have the leading points pinched out once, neat little plants are obtained. A compost, consisting mainly of turfy loam, a small portion of peat, and leaf soil, will grow this sweet-scented species well. *H.*

SEXUALITY IN CATASETUM.

Over a quarter of a century has elapsed since the publication of Darwin's remarkable paper on Catasetum, in which the well-known sportive character of the genus, or its curious habit of suddenly producing different kinds of flowers on the same plant, was shown to be simply a case of the production of male and female flowers on the same spike. How that paper revolutionised current ideas is now matter of history. It showed that the flowers are normally unisexual, though occasionally the sexes are combined in the same individual, and that the so-called monstrous flowers are in reality quite normal in character, though differing in structure and appearance, on account of the different functions they had to perform in the economy of reproduction of the species. But while accomplishing so much in clearing up the natural history of the genus, it also indicated a condition of things which, on a moment's consideration, cannot but appear somewhat anomalous.

It certainly appears curious that any plant, in which the male and female flowers are so highly specialised, should also produce a third kind of flowers of an equally specialised character, but combining the two sexes in the same flower. Yet this is the condition of things indicated by the paper in question. On this very point, however, a paper was read before the Linnean Society at a recent meeting, a summary of which appeared on p. 407 in our issue of March 30, and as the paper in question appears to simplify the matter considerably, we may here touch on one or two points in it, especially as Darwin's conclusions have on more than one occasion found an echo in our columns.

The explanation offered by Mr. Rolfe, the author of the paper in question, is, that the three kinds of flowers investigated by Darwin were not only not borne on the same plant, but not even by the same species, and that Darwin's so-called hermaphrodite is in reality a male only. If this be so—and the reasons adduced for the statement certainly seem conclusive—it follows that Catasetum, although the sexes are highly different in appearance, does not differ in any other respect from other diœcious plants.

The reason of the confusion appears to be, that the females of several species resemble each other so closely that three, at least, of them have been confused under the same name. Darwin's hermaphrodite and female forms of Catasetum tridentatum are stated to be the male and female respectively of C. barbatum, the female of the former not having been investigated by Darwin at all. The effect of the paper in question appears to have been to shift the element of mystery from C. tridentatum to C. Gnomus; for the author pointed out that Rodrigues had described three forms, corresponding to what were formerly considered the three genera, Catasetum, Myanthus, and Monachanthus, all on the same individual of C. heteranthum, the Myanthus



Fig. 82.—Effect of rime on a tree at King's Lynn.

form of which (corresponding to Darwin's hermaphrodite) Rodrigues had stated to be identical with C. Gnomus. This plant is in cultivation at the present time, and the author stated that having examined a living specimen he had found it to be male only, consequently what the so-called Catasetum form of the same could be, remained a mystery.

Here, then, is a case where those who possess the plant may be able to assist in solving the mystery; the horticulturist and the botanist may go hand in hand in attempting to clear up what is certainly a very interesting question. The author appeals for assistance in the shape of materials from cultivators of these plants, and we feel sure that any examples of so-called sporting which may be forwarded to Kew would be duly appreciated and reported upon. Their ultimate destination would, in many instances, be the rubbish-heap, and cutting them a little before they fade, would only mean a few days less enjoyment, as was well pointed out by the President of the Royal Horticultural Society at the late Orchid Conference. Perhaps it is not too much to hope that some Brazilian gentleman may be able to forward dried specimens for the elucidation of so interesting a problem.

And we might include the singular genus, Cycnoches in the category. Darwin remarks that some specimens forwarded to him arrived in such broken condition that he could not examine them. Perhaps the author will now turn his attention to this sportive genus, of which Lindley remarked that he expected it would be found to sport into Catasetum. The danger of this now seems removed, but it would be of interest to have the phenomena of dimorphism investigated, as in the case of Catasetum.

The Female Form of Catasetum Bungerothi, N. E. Br. (fig. 83).

To the kindness of Mr. Lucien Linden, of Brussels, I am indebted for an extremely interesting specimen of Catasetum Bungerothi. It consists of an inflorescence bearing only three flowers, two of which are male, and the third is a female flower!

The position occupied by these three flowers is as follows:—The lower and uppermost flowers are male, the middle or second flower on the stem being female. In my drawing only the two lower flowers are shown, the third and uppermost flower being withered when received, I thought it unnecessary to to portray it, especially as it is in all respects identical with the lowest flower. The withering of this uppermost male flower so long before either of the lower flowers would seem to imply that the female flower robbed it of a good deal of nourishment, or else, that having lost its pollen masses it had served its purpose, and was no longer wanted by the plant; the lower flower, which had also lost its pollen masses, also began to wither before the female flower, although it remained tolerably fresh for three days after the upper male flower had fallen.

The female flower, as might be expected, is very different in form from that of the male flower, and, as is usual, I believe, with the female form in all the other species of the genus, the flower is reversed, that is, the lip is directed upwards instead of downwards. In my drawing I have represented the inflorescence as erect, but in the natural position it is horizontal, with the lips of the male flowers directed downwards. The ovary of the female flower is curved somewhat like the letter S, and at the same time is bent to one side. It is of a much darker green, and stouter than that of the male flower, and well furrowed. The sepals and petals are lanceolate-acuminate, and are shorter than those of the male flower, being 1½ inch long by half an inch broad, all strongly reflexed and of a very pale greenish-white colour. The lip is helmet-shaped, and not very unlike the helmet of Aconitum vulparia, Rchb. f., in form, the saccate part being about 1½ inch in depth, and very obtuse; the border of the lip is slightly pointed at the apex and quite entire; the sac is of a good yellow-ochre colour outside, fading to lemon-chrome at the border, inside it is of a rich deep yellow, similar to that of the yelk of an egg, paler towards the margin. The column is about one-third of an inch in length and very stout, with a slender, curved, and somewhat flattened horn at the apex. The stigma is a narrow transverse fissure. There is no trace of any pollen masses, caudicle, or gland.

It is well that the female form should have shown itself so early after introduction in so unmistakable a manner, for had it been separately introduced it would no doubt have received a new name, which is undesirable, for however different the flowers of the different sexes of Catasetum may appear, where the sexes are known, it seems to me best to retain one name for all the forms of the same species, labelling them male, female, or hermaphrodite form, as the case may be.

It is a little remarkable that such a fine Orchid as this has not been introduced until so recently, as it is now known to me to have been collected upwards of thirty years ago at a place in Venezuela which I will not specify, though it may perhaps, be the same locality as that where Bungeroth found it. As the male plant has proved to be so variable in colour—there being already in cultivation beside the type, a pure white form with a delicate rosy spot in the spur of the lip (var. album), a spotted form (var. Pottsianum), and a yellow form (var. aureum)—it is possible that the female plant may vary in a similar manner, although I have no knowledge at present that distinctly female plants have been introduced, or even exist, as it is quite possible that in some species of Catasetum the sexes may not exist as separate plants, but the propogation of the species by seed may be carried on by the occasional production of female flowers on plants that are other-

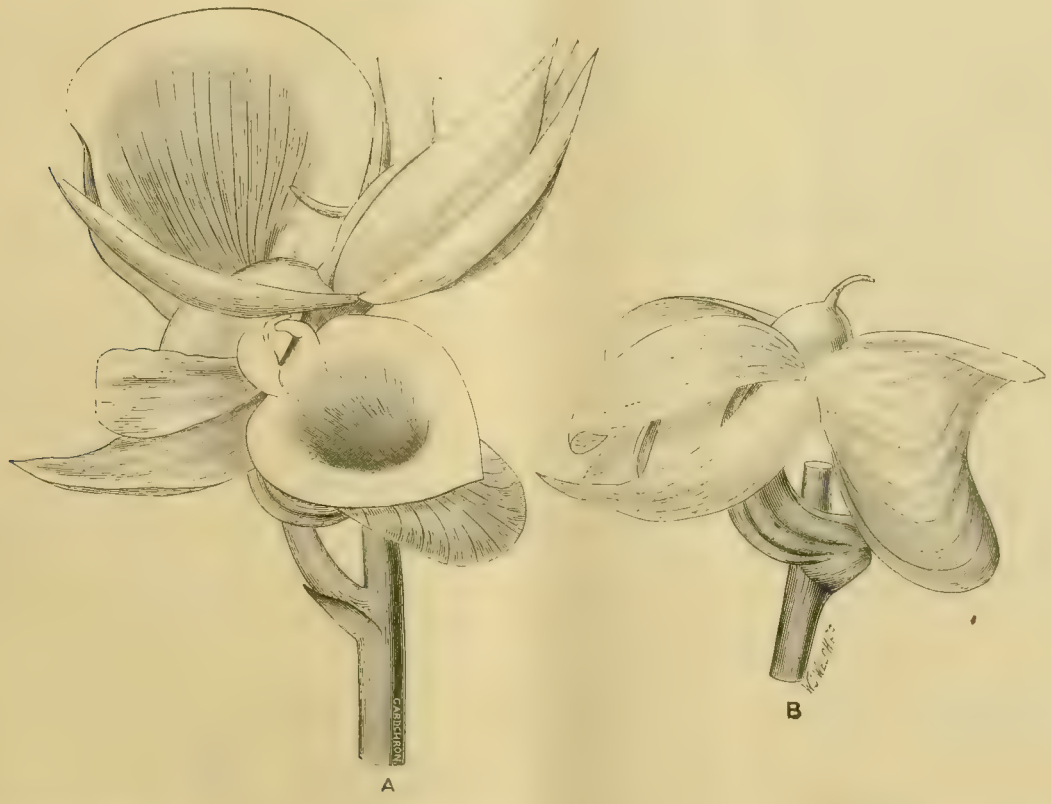


Fig. 83.—Catasetum Bungerothi: A, male (upper), and female (lower), flowers on the same spike; B, female flower from the side.

wise male, or the reverse. At any rate, if the female plant is introduced, it will be found well worthy of cultivation, although not so showy as the male plant. *N. E. Brown, Herbarium, Kew.*

CHLOROSIS.

This word, in accordance with its meaning in the Greek, denotes a pale, sickly, greenish, or yellowish-white condition of the leaves of plants, and has long been employed in pathology. Unfortunately, however, there are several different kinds of chlorosis, if we agree to separate the cases according to the causes to which they may be referred. For instance, the pale yellow colour of the leaves of a Potato-shoot growing in a dark place, is due to causes quite different from those which induced the sickly yellow appearance sometimes assumed by spring Wheat; and both these must be distinguished from the well-known phenomenon of "variegated leaves." Moreover, all the above examples belong to classes of phenomena different from the one to which we now wish to draw attention, namely, the sudden production of white leaves by plants normally green, such as is often observed in gardens, and on trees which have been heavily pruned. There are other kinds of paleness, also, such as those due to the attacks of insects, fungi, &c.; but of these it is not proposed to say anything further in this article.

Taking the cases quoted, it is sufficient for the present purpose to point out that the formation of the small, yellowish, tender leaves, on long, pale, soft, shoots, of plants growing in places deficient in light, is due simply to the want of light, and can only be remedied by exposure to the rays of the sun, or some luminous object which radiates light of the same kind; very often the merest streak of sunlight will do, and the previously small or aborted chlorophyll-corpuscles turn green, though a greater intensity of light will be necessary to enable them to do their proper work. This paleness, due to want of light, is called blanching or etiolation.

Another kind of paleness, also due to the non-development of the green colouring matter of the little chlorophyll-corpuscles, is caused by the temperature being too low for its formation.* This is often seen, as already stated, in spring Wheat; as the temperature rises the chlorophyll-corpuscles, which are present all the time and only need their proper colouring matter to become normal, turn green in a few days. This case has nothing to do with the yellowing of leaves by frost, which is due to destruction of the chlorophyll-corpuscles.

The causes which induce the foundation of variegated leaves are too involved to be discussed here, and it must suffice to state that the white-striped Ribbon-grass, and the white and green mottled variegated Maples, Abutilons, Richardias, Ivies, Hollies, &c., belong to a different category from cases of true chlorosis.

True chlorosis ("yellows") as now understood, is a diseased condition in which the want of green colouring matter is simply due to deficiency of iron salts. We are entirely ignorant as to the part played by iron in the formation of the green substance called chlorophyll, and that metal has never been satisfactorily proved to be a constituent of the chlorophyll, and yet it is very easy to prove that small quantities of iron are absolutely necessary for its development.

Probably the following is the most conclusive evidence on this subject. If a seed (Bean, Lupin, Maize, &c.) is allowed to germinate, and then placed with its root in a solution consisting of 100 parts by weight of distilled water and two or three parts by weight of a few salts of potash, soda, lime, magnesia, phosphorus, and nitrogen, the seedling can be made to grow, with proper precautions as to air, light, and temperature; and in a few weeks this "water culture" will yield a strong plant, which may even flower and bear fruit later. If every ingredient is pure, however, and no contamination is permitted subsequently (for instance by dust falling in) the young plant will soon cease to form green leaves, but will produce tender white ones instead, and would soon die if allowed to go on doing so. This is because there is no iron present, and the diseased condition of the leaves (chlorosis) may be set right in a few hours by adding one or two drops of a solution of an iron-salt to the liquid in which the roots are submerged, and the leaves acquire their normal green colour in a day or two. Still more conclusive, if possible, is the following experiment. If a few streaks of a very dilute solution of sulphate or chloride of iron are painted on a young chlorotic leaf, by means of a camel's-hair pencil, the parts so moistened (and only those parts) turn green in a few hours: the leaves absorb the solution, and the chlorophyll is enabled to complete its development at those spots. It is to be understood that in all such experiments the solutions of iron salts must be extremely dilute, as even ordinarily weak solutions of such minerals are poisonous. We do not know how the iron acts; we only know that it is absolutely necessary in small quantities for the development of the chlorophyll, and therefore for the life of the green plant.

Having now cleared the way to an understanding of what chlorosis properly is, as contrasted with other forms of disease—etiolation, blanching, albinism, &c.—I propose to consider the cases so commonly met with in gardens, with especial reference to some recent observations by Professor Sachs, of Würzburg,*, who set himself the task of devising some method by which the disease could be cured in the open—a task by no means so simple as might be supposed, as we shall see.

Even in the best kept gardens or greenhouses it is not an uncommon event to see certain trees and shrubs bearing branches on which all, or most of the leaves are white or white and green, and Sachs says this is especially apt to occur in wet summers, such as the past season of 1888: in many cases the leaves are white to pale green. It very often happens that only one branch or one side of a tree or a sucker from the base, is thus diseased; but here again every stage may occur. In such leaves the chlorophyll-corpuscles may be abnormally developed, or may be wanting, and the branches are apt to die off very rapidly.

In the typical case the disease is apparent immediately the leaf begins to emerge from the bud, but it frequently happens that the first leaves are normally green, and the newer ones successively paler, till at last only white ones are formed.

If we reflect that about one-half the dry weight of the plant consists of carbon, and that these pale chlorotic leaves are utterly incapable of assimilation, it will be understood that a tree or shrub badly affected with chlorosis may grow to death. Sachs states he has seen the disease particularly bad in Bocconia cordata, Castanea vesca, Magnolia tripetala, &c., and if a solution of iron salts can be got to reach the roots at once, as the chlorotic leaves emerge from the bud, the disease may be arrested; or if a very dilute solution of an iron-salt is painted on the leaf whilst quite young, it will turn green.† But the iron-salt must reach the leaves while quite young, and as they are unfolding; and this explains why, in some of his experiments, where the solution placed at the roots did not reach the leaves soon enough, the branches formed several white chlorotic leaves, succeeded later by deep green ones. In many other cases the solution was not effective during the current season at all—it did not reach the young leaves in time, and results could only be obtained in the following year.

It seems a simple operation to provide a solution of iron salts, and place it at the roots; but experience shows that the matter is much more complicated than may be supposed. In the case of pot plants, where the roots are already numerous, and touching the sides of the pot, a thorough swilling with a $\frac{1}{2}$ to 1 per cent. solution of common ferrous sulphate in water, will usually bring about the results desired; but it frequently fails, although a much weaker solution painted on the chlorotic leaves causes them to turn green in a day or two. The explanation of this and some other puzzling phenomena is as follows:—

All ordinary soils, and particularly the more calcareous ones, are possessed of an astonishing power of absorbing and "fixing" certain salts, especially those of potassium, phosphorus, and iron. If a flower-pot is filled with such a soil, and pure water is poured on allowed to drain away, the probability is that the drainage water will show no traces of iron when chemically tested; nevertheless, there may be considerable quantities of that metal in the soil, only it is in a condition which does not allow of its being easily washed or dissolved out. But a still more remarkable result is obtained if we now pour a dilute solution of ferrous sulphate or chloride on the soil thus washed; for the drainage water even now gives us iron reaction—it has absorbed and fixed the salt of iron, taking it from the water. and retaining it so strongly that many washings with pure water will not remove the whole of it. Sachs gives instances where certain soils were found to thus absorb and retain what look like enormous quantities of iron salts. The general recognition of this fact of the retention of certain soluble salts by soil is well known; but its importance in the particular case we are dealing with is now to be made clear.

We have seen that very little iron is needed for the production of chlorophyll, yet that most soils contain relatively large quantities of that metal,* but in a "fixed" condition. At ordinary times the root hairs of plants manage to obtain their very small requirements by the solution of this "fixed" iron, at the surfaces of the particles of soil, but in the cases of chlorosis as usually met with, it is evident that either the roots are not taking up sufficient of the iron, or the solution taken up is not reaching the young leaves quickly enough or in sufficient quantity. One of these conclusions seems inevitable, because if the soil were devoid of iron all the plants would be chlorotic; whereas we find only a plant or a shoot here and there so affected, as, for example, among a batch of Convolvuli. Moreover, experiment proves that, if we can only get a dilute solution to the seat of action, the chlorotic leaves turn green. Sachs quotes a classical case of a Robinia affected with chlorosis so acutely, that all the leaves were white; a hole was bored in one of the branches, and a funnel-tube placed in this, so that when a dilute solution of an iron salt was poured into the funnel, it at once mingled with the ascending water-current, and was conveyed upwards in the young wood; in a few days all the young leaves placed vertically above the hole were green.

A number of facts point to the conclusion that a fundamental cause for chlorosis is unduly quick growth; the rapidly elongating shoot unfolds its leaves quicker than the root-hairs can dissolve and absorb sufficient iron, or than the solution can be conveyed to the rapidly developing tissues of the young leaf. This is concluded from several observations, in addition to the foregoing. In the first place, it is a very common experience that young trees and shrubs (such as Robinia, Castanea, Quercus cerris, Q. Robur, Spiræa opulifolia, &c.), after being sharply pruned in winter, often sprout rapidly and abundantly in the following spring, and the new shoots grow so fast, that they reach a length of 2 or 3 yards in a few weeks; many of these long watery shoots arise from hidden buds, and they commonly produce first a few green leaves, and then, when the growth is most rapid, form only white ones. (I have observed a similar production of partially chlorotic leaves by the new flushes of leaves after bad attacks of fungi have defoliated a plant.) This seems to be because the young shoot soon uses up all the iron

* Leaves may be pale in damp cold soils from water-logging and deficiency of oxygen; improper supplies of potassium-salts also induce yellow leaves.

* *Erfahrungen ueber die Behandlung Chlorotische Gartenpflanzen.* Würzburg, 1888.

† The action is purely local, where the solution is placed, as may be well seen by painting letters, designs, &c., on the leaf, in iron-solution.

* Usually many hundred times the quantities needed by the plant can be extracted from the soil by acids.

collected in the bud, &c., and then the root-hairs cannot supply it in sufficient quantities, or the vascular tissues transmit it rapidly enough along the continually lengthening path.

Sachs has found that such shoots can be reached by iron salts placedin the soil in the summer, and that their later leaves turn green. Different plants show differences in behaviour in these respects; thus, the Elm and Vine rarely put forth such shoots as have been described, while Glycine sinensis and Spiræa opulifolia are very prone to sprout in this way.

Other evidence in support of the above view is afforded by the observation that chlorosis is rare in fields and woods, &c., where growth is slow and the roots have time to gather iron; whereas in gardens, where growth is often stimulated and hurried, the disease is much commoner. Again, a wet summer is apt to produce much chlorosis, as often seen in Convolvulus arvensis and the root suckers of Poplars, Birches, &c., and in pot plants standing in the open. Slow growing window plants, on the contrary, rarely show the disease.

Enough has been said to explain why we cannot expect to cope with this disease by simply pouring a solution of iron salts on the soil at the roots of a chlorotic tree; such a solution, unless so strong that it would kill the root-hairs and fine rootlets, would be absorbed and the iron-salt "fixed" by the upper layers of soil, long before it could be available for the roots.

Sachs finds, however, that if the solid crystals of ferrous sulphate (green vitriol) are dug into the soil at the roots of such trees, they dissolve slowly, and sooner or later yield sufficient iron to the roots for the purpose in view. He points out that the roots of a five or six years old Robinia, Chestnut, Elm, Spiræa opulifolia, Silver Fir, Pine, &c., occupy at least a cubic metre of soil, and in the Würzburg gardens this quantity of soil will retain 5 or 6 kilogrammes of ferrous sulphate, without the slightest fear of poisoning the roots; and in the cases of older trees, the roots of which traverse 5—10 or more cubic meters of earth, we may safely add 25—90 kilograms. However, it is not necessary to thus apply the maximum quantities, but by digging trenches along the course of one of the great roots, or one circular trench round the tree, we may put several pounds of the crystals in the neighbourhood of the "feeding rootlets," which will always be found from 20—50 centimeters deep. A good drenching will then wash a strong solution into the soil immediately in contact with the root-hairs, where the iron-salt will be precipitated on to the surface of the particles of soil, and from these the root-hairs will dissolve and absorb sufficient for the purpose in view. Sachs then gives the results of his trials with various species of Oak, Spiræa, Castanea, Magnolia, Celastrus, Chionanthus, Carya, Robinia, Abies, Bocconia, Wistaria, Akebia, Aristolochia, &c. *H. Marshall Ward.*

Fruits Under Glass.

Vines.—When the Grapes are cut from the early pot vinery the house can be used for Melons, or for the growing on of cut-back canes or eyes for another season. These should be potted into a nice fibry loam, with some bone-meal added, using well drained 12-inch pots. Train up to the light, and encourage them to grow freely, stopping the Vines when they attain the length of from 7 to 10 feet. Pinch the laterals to the first leaf.

In the second house Grapes will be colouring and swelling. Give a little top-dressing of loam and manure, and water well at this stage. Keep up a free circulation of warm air, and reduce the atmospheric moisture gradually, removing any active fermenting materials. A night temperature of 60° to 65° may be maintained, forcing as much as possible by day, with a temperature of 70° to 75°, running up to 80° to 85° with sun-heat in the morning at closing time, and damp down the walls and paths.

The Vines in later houses, in which Grapes are also swelling, should have attention in the way of stopping and tying the shoots. Do not overcrowd with laterals, but allow each leaf room to develop itself. Water the borders when necessary, and damp down when shutting up with sun-heat; be liberal with the air, and on mild, warm days allow a free circulation from front to back. Do not let the berries get too large before thinning the free-setting kinds—Muscats should be left till later, simply removing the smaller ones now. Keep a drier atmosphere where any Vines may be in bloom, and give plenty of air on all favourable occasions. Disbud in the later houses as soon as the bunches can be detected, leaving the shoots where possible close to the main stem. Syringe in the morning, and again at closing time.

Planting Vines.—The present is a good time for making up and planting inside Vine borders. I prefer the turf about 3 inches thick; and the turves should be wheeled into the house a fortnight before making up the inside border. Allow about 6 feet in width, and 2 feet 6 inches in depth,which will allow for sinking. Lay the turves as closely as possible grass-side downwards, and on each layer sprinkle some of Thomson's manure, old mortar rubbish, wood-ashes, and a little of the finer portion of the turf to fill up all crevices, making the whole quite firm, and so on, till the border is within 6 inches of its proper level, and ready to receive the Vines, which should have been prepared as follows:—Having made some wooden rafts, 3 feet long, by 2 feet wide, placing on these a layer of turf; shake out the Vines, and spread the roots on the turf, covering them with a little fine soil, and finishing off with another layer of turf; cut the Vines back to the height of the first wire of the vineries to be planted, place them in a genial growing temperature; leave the three top growths. When root-action has taken place, the Vines can be put on the border without disturbing them, and the turf levelled round to its proper height, they will then grow on at once. My experience is, that turf lasts longer when not broken and chopped up. *W. Bennett, Rangemoor, Burton-on-Trent.*

The Hardy Fruit Garden.

Alpine Strawberries.—Where these are esteemed, as they justly deserve to be, the fruits will be improved both in size and flavour by some attention being given them during the growing season. When fruit is desired the first season from plants raised from seed, the seeds should have been sown early in February in pans or boxes placed in heat, and the young seedlings should have been carefully pricked off, when large enough, at 2 inches apart, in a moderately warm frame, where the heat of the fermenting material was declining, so that by the time the young plants have made a good start, and were fit to be hardened off, the heat would have quite left the beds. By the end of the present month, or in the beginning of the month of May, the plants should be in a fit state to be planted out in the fruiting bed—planting them, if possible, in showery weather. The plants, although alpines, thrive more satisfactorily when they are planted on a rather light loam and made firm about the roots, being somewhat shaded from the sun during the hottest part of the day. The plants may be either planted in double rows, 8 inches from plant to plant, and 18 inches between the rows, or 1 foot apart each way. Young plants may also be taken from the old beds, and planted in beds at once, which will yield good supplies of fruit this season. Well decayed manure should be spread over the soil among the plants, and occasionally deluging the beds with manure-water will help them greatly.

Fruit-tree Grafting.—All kinds of stock and fruit-tree grafting should be pushed on quickly, so as to bring it to a close before growth gets much advanced. At this season crown or rind grafting may be practised with success, as the bark will now part freely from the wood, first giving care to the forwardest plants, following these with the latest starters. A few good Plums to work on new stocks or headed-back trees are Rivers' Early Prolific, The Czar, Belgian Purple, and Prince Englebert; these are very heavy and constant croppers, good alike for home and market purposes.

Earlier Grafted Stocks.—The grafts which were put on the stocks in March should be looked over occasionally to see if the clay has not been washed off by rain, or cracked by drought, and all necessary work in either case be done at once, as much of the success in grafting depends on keeping the grafts air-tight and moist until union takes place.

Strawberry Beds which may have been unavoidably neglected should at once be put in order, otherwise the young tender growth may get injured. Remove all weeds and give the soil a good treading, especially close to the plants, afterwards applying a mulching.

Fruit Borders.—An examination should be made of the borders where Apricots and Peaches, &c., are planted, and the soil, if found to be at all dry, should be thoroughly watered. Work of this kind at this season may seem to some to be unnecessary, but recent examination has disclosed the fact that the borders are much drier than is good for the trees; examine, therefore, the borders, especially if the soil be light loam. I think much fruit is lost by neglecting to water the borders when dry at this season. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

Pot Herbs.—*Burnet.*—The situation for this plant should be open, the soil not rich, and a dressing of lime-rubbish or chalk should be mixed with the soil. It may be raised from seed, which may be sown in drills 10 inches apart, and when the plants are large enough, they should be thinned out to 6 inches apart. It can also be propagated by cuttings or division of the root. When the plant throws up its flower-stems, these must be removed, in order to secure a constant supply of young growths.

Marigold.—The flowers are used for flavouring A light, dry soil, with full exposure to the sun, suits the plant, but a rich soil causes the flowers to come of larger size, but accompanied by poor flavour. The deep orange-coloured flowers possess most flavour. The flowers should be gathered when of full size, dried in the shade, and stored in a dry place. Seed may be sown annually, but if some of the flowers are allowed to remain on the plants, the plant will perpetuate itself without trouble. Seed may be sown in drills 10 inches apart, and when the plants are a few inches high, they should be thinned to a like distance in the rows. The thinnings can be readily transplanted, watering during dry weather until they are established.

Balm is a hardy herbaceous plant with a citron-like scent and aromatic flavour, which make by infusion a grateful drink for the sick-room. Although the plant will succeed in almost any soil, and in any situation, a clayey soil and sheltered situation are best. It is propagated by division and by cuttings. The shoots are cut with the leaves in September, and dried in the shade.

Hyssop.—An aromatic evergreen shrub, a native of Southern Europe, is propagated by seed and cuttings or divisions of the plants. When struck from cuttings these should have the benefit of a handlight. A light soil and an open situation are required.

Chamomile.—There are two varieties, the single and double flowering, and both like a dry situation and a light, poor soil. The plants are mostly propagated by division, but in course of time they deteriorate and it is found necessary to raise fresh stock from seed. A few of the best flowers should be left for this purpose, and these, when properly ripened, may be rubbed out, and the seeds sown in the spring. The plants should be set at a distance of 12 to 15 inches apart. The flowers should be picked when dry and laid out thinly in the shade, taking care to dry them thoroughly or they will get mouldy.

Rue.—A clayey soil with the addition of lime rubbish and an open situation should be afforded this plant. It can be raised from seed or cuttings in April. The plants require to be trimmed in spring and never allowed to form seed.

Purslane.—There are two varieties grown—the green and the golden; and both these require a warm situation and a rich light soil. It has to be sown frequently to secure a continuous supply. In February and March it requires the aid of a slight hotbed; but from April to August a south border will meet its requirements. *W. M. Baillie, Luton Hoo.*

Primula rosea. — Several patches of this charming carmine-coloured spring flower now in bloom in the gardens of Wm. Barber, Esq., Barrow Point, Pinner, prove it to be one of the best of early flowers. Mr. Odell states that the plants have no protection, and the coldest water never injures them. The gardens are also just now beautified by a large and varied collection of Primulaceæ and other spring flowers.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, April 18—Linnean.

SHOW.

SATURDAY, April 20—Mentz International (five days).

SALES.

MONDAY, April 15 { Lilies, Hardy Bulbs, &c., at Protheroe & Morris' Rooms.

TUESDAY, April 16 { Orchids in Flower and Imported Orchids, at Protheroe & Morris' Rooms. Carnations and other Plants, at the City Auction Rooms, by Protheroe & Morris.

WEDNESDAY, April 17 { Orchids in flower and bud, Imported Orchids and Lilium nepalense, from Messrs. H. Low & Co.; Semi-established Dendrobiums and Cypripediums, at Stevens' Rooms. Lilies, Plants, Palm Seeds, &c., at Protheroe & Morris' Rooms. Stove and Greenhouse Plants, at Selbourne, Streatham (Unreserved), by Protheroe & Morris.

THURSDAY, April 18 { Imported Orchids from Mr. F. Sander, at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—48°4.

Hardy Fruit Culture.

It is quite refreshing, after the flood of mischievous nonsense that has been published in the ordinary organs of the Press, to read the report of the paper on "Fruit Growing for Profit in the Open Air in England," which was read recently by Mr. William Paul before the Society of Arts. The Horticultural Press in general cannot be accused of having lent its columns to the "tall talk" that has been uttered on this subject. It has, indeed, opened its columns to the rational discussion of this subject. It has reported pretty fully the papers and discussions that took place last autumn. It has, when occasion demanded, pronounced its own opinion, which is, in fact, that of practical men, upon the several proposals, and while with marked unanimity, strenuously upholding the reasonable development of fruit culture under suitable circumstances, it has with equal singleness of purpose never lent itself to those exaggerations and distorted views which are likely to cause so much disappointment and loss to the unwary.

When the cry of disappointment comes, as come it will, the Horticultural Press of this country may well congratulate itself that it has lent no sanction to any misleading, not to say preposterous anticipations. Whether the daily papers can complacently say the same thing is another matter, but if their general and political departments are as untrustworthy as is, generally speaking, their horticultural intelligence, then the Press must be in a bad way. It is, however, not to be expected that the daily and quarterly journals should be specialists, but it is at least desirable that they should consult experts before giving publicity to what may be very pernicious misstatements Mr. Paul, whose competency no one can doubt, is very judicial in his remarks.



Fig. 84.—Key to supplementary sheet: A group of yellow daffodil. See p. 465.

20, Blondin
6, Sir Wm. Harcourt
4, Golden Plover
22, Telamonius (King Umberto)
19, Captain Nelson
8, Lincolnshire Yellow
25, Abscissus
13B, Nanus
13A, Minor
13C, Minimus
16, Shirley Hibberd
21, Thos. Moore
23, Cyclamineus
2, P. R. Barr
9A, Maximus
9B, Emperor
15, Spurius
18, John Nelson
1, M. J. Berkeley
17, Golden Spur
7, Spurius coronatus
14, „ Henry Irving
24, Obvallaris

"Much," says he, "that has been said and written on this subject has about it the clear ring of truth, but statements have also been made which, if accepted and acted on, will surely lead to disappointment, vexation, and a wasteful expenditure of money. To be told, on the one, that 'the salvation of England depends on the future of its fruit culture'—to be advised to break up rich meadows, already giving a good return to owners and occupiers, to form them into orchards, even in questionable situations; and, on the other side, that England cannot compete with foreigners in the open market on account of climate, facilities of transport, and unlimited competition, seem to me to be extreme views which will not bear the test of sober investigation."

We quite agree with Mr. Paul, and we recommend those concerned to consult his paper, wherein he deals with fruit culture under the following heads:—1, climate and situation; 2, soils; 3, sorts; 4, cultivation; 5, gathering, storing, and marketing; 6, holdings; 7, statistics. We do not intend now to follow the lecturer in all these particulars. They have been of late



A GROUP OF DAFFODILS. (See Rev.)

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APPOINTMENTS I

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THURSDAY, April 18–

SATURDAY, April 20–

MONDAY, April 15

TUESDAY, April 16

WEDNESDAY, April 17

THURSDAY, April 18

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Hardy Fruit Culture.

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treated of by specialists and others *usque ad nauseam*. Among those who know, there is really not room for difference of principle but only in matters of detail relating to particular localities and conditions.

Mr. Paul, however, touches upon one or two points on which his experience as a hybridiser is specially valuable, the more so as they relate to matters which the botanist has taken note of, but which have been far too much neglected by practical men. We refer especially to the period of flowering of certain sorts (Apples are specially indicated), and to the various frost-resisting qualities of the blossoms. This is a matter that has often been impressed upon the notice of cultivators in this journal by Mr. Berkeley and others, and various illustrations in explanation have from time to time been given from Chiswick and elsewhere. Nevertheless, it is to be feared that the subject has not been sufficiently brought home to the cultivator, who is too apt to look upon these matters as interesting subjects of observation for the botanist, but of no practical importance. Mr. Paul does not think so, nor do we.

The land question is, unfortunately, so much mixed up with party politics—that most irrational and unscientific of subjects—that we almost dread to allude to it, but at any rate we may note in passing that Mr. Paul, from his calculations, concludes that the fruit-grower, except under special circumstances duly noted, should not plant under a lease of less than thirty years' duration. Lastly, we may fitly conclude our notice of a very temperate and judicious address by citing its conclusion, with which all practical men must be in substantial agreement:—

"In conclusion, permit me to say that what I have advanced should not discourage the planting of fruit trees. On the contrary, if I have been understood as I wish to be, fruit culture in England may be judiciously extended to a very considerable degree. But it should be guarded and guided by the appropriate selection of climate, soil, sorts, and, above all, a high system of cultivation directed by a knowledge of the business. With regard to the question of supply and demand, I believe that a much larger quantity of English fruit would meet with a ready sale if put before the public in a tempting state. I may also say that I am clearly and decidedly of the opinion that there are thousands upon thousands of acres of land in Great Britain, at present bringing little or no profit to owners or occupiers, which if planted with fruit trees, might be made to return a good profit to both. Not that I think large fortunes are to be made by the enterprise, but that a fair remuneration will be secured for the outlay of capital, and the application of knowledge, industry, and skill. Fruit-growing, as a recreation, or for one's own use, is one of the most fascinating and diverting of occupations, and may be pursued with satisfaction by the uninitiated. But fruit-growing for profit is a different thing. Here, knowledge is wanted. The possession of it, rightly applied, will be attended with success; the absence of it with failure. It is the height of folly to suppose that this, any more than any other business or profession, can be made profitable without preliminary instruction and training."

Royal Horticultural Society.—Since the beginning of the year the number of new Fellows who have joined the Society amount to 106, and one Associate.

The Summer Show.—We have the pleasure to announce that their Royal Highnesses the Prince and Princess of Wales have signified their intention of visiting the above show, in the Temple Gardens, London, on May 30.

Group of Yellow Daffodils.—In the group of yellow Daffodils, engraved from a drawing by Miss Barr, are delineated many of the finest natural and garden hybrids of Daffodils bearing yellow, single flowers. There are included the smallest known variety—minimus—a discovery of Mr. P. Barr in Portugal; also N. nanus, and N. minor, but little larger; the pretty N. cyclamineus, and such imposing-looking and tall growers as N. maximus, N. Telamonius, Emperor Maximus, &c. The large engraving is furnished with a key (see p. 464), to which is appended a list of the varieties, commencing at the top.

Fog.—It is high time the Scientific Committee took up the question of "London particular" fog on plants. As we write (Wednesday) at mid-day London is enshrouded in blackness as dense as any experienced in the winter months. What the consequences will be to the Orchids and other flowers will be more interesting to ascertain than agreeable to look at. In the meantime gardeners will do a service by recording their experience of the effects of fog. Under the auspices of the Scientific Committee of the Royal Horticultural Society, and at the instigation of Mr. Dyer, a special report will be drawn up on this subject, and for this purpose the experience of growers is solicited.

The Gardeners' Orphan Fund.—A meeting of the combined committees to promote the *fête* on behalf of this Fund to take place in the Wholesale Flower Market, Covent Garden, on May 22, was held at the Caledonian Hotel on the 5th inst., Mr. George Deal presiding. The Secretary, Mr. A. F. Barron, reported that the Marchioness of Salisbury, the Countess Spencer, the Baroness Burdett-Coutts, Lady Bolsover, and Lady Dorothy Nevill had given permission for their names to be announced as Lady Patrons of the *fête*. The number of admission tickets being limited, the building cannot be at any time inconveniently crowded.

Brownea princeps.—Mr. Knight, the gardener to His Majesty the King of the Belgians, at Laeken, inform us, in a communication of April 8, that the splendid Brownea princeps there—a plant in fine health, and 12 feet high—had borne one head of flowers on a short branch or spur about 4 feet from the ground. The head was 28 centimetres (11 inches) in diameter.

Rose Shows in 1889.—In this, the second list of Rose shows, kindly furnished by the Hon. Secretary of the National Rose Society, Mr. E. Mawley, are comprised nearly all the Rose show fixtures of the current year. The few that are still missing will appear early in May:—Reigate, June 29; Farnham, July 3; Eltham, New Brighton, July 13; Carlton-in-Lindrick, July 16; and Christleton, July 23.

"The English Flower Garden."—A new edition of Mr. Robinson's work, with over 1400 engravings, will be published this week by Mr. Murray. Many of our most beautiful English gardens are illustrated, while nearly all the plants that will bear the free air in England are figured.

An Impromptu Market.—Referring to our article concerning the creation of more public markets, a correspondent mentions that, driven by the necessities of the case, quite a large impromptu market in vegetable and other garden produce has sprung up quite recently at Kew Bridge, over which pass towards London from West Middlesex and portions of the Surrey districts immense numbers of heavily laden waggons on their route to Covent Garden Market and elsewhere. At this spot, the thoroughfare being exceptionally broad, it has become the rule for greengrocers and costermongers from all the neighbouring towns and populous districts to intercept the market waggons and purchase what they require for their purposes. As many as from thirty to forty loaded waggons and a hundred carts or small vans may be found collected here on a market morning early, presenting to the local police a rather difficult problem in relation to highway obstruction, yet showing in a remarkably forcible way the need which exists for the provision of market areas, in which the sale of garden produce can be carried on, both wholesale and retail. In the case above referred to, of course no fees are paid; on the other hand, the market—if it merits such appellation—is carried on by the permission of the police, but at the early hour of the morning when the business is transacted, the vegetable waggons and dealers' carts form the bulk of the ordinary traffic. It is very obvious all the same that the public streets are hardly proper places in which to carry on the business of public markets.

Stock-taking: March.—The following is a summary account of certain imports into the United Kingdom from foreign countries and British possessions for the month of March, compared with the same imports in the month of March, 1888:—

	1888.	1889.	Difference.
	£.	£.	£.
Total value of imports	32,590,821	36,225,883	+3,635,062
§II.—(A.) Articles of food and drink—duty free	8,125,793	10,047,240	+1,921,447
(B.) — do., dutiable	1,941,919	2,034,316	+92,397
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	9,317,537	9,912,335	+594,798
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	2,234,380	2,698,199	+463,819
§IX. — Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,074,894	1,196,150	+121,256

The few appended excerpts are taken from the elaborate tables of imports whence the "summary" is derived:—

		1888.	1889.	Difference
§ II. Fruit:—				
Apples, raw	bush.	139,449	347,398	+207,949
Unenumerated, raw	,,	10,323	10,069	−254
Onions	,,	163,500	295,096	+131,596
Potatos	cwt.	48,304	34,821	−13,483
Vegetables, raw, unenumerated	Value	£56,181	£36,531	−£19,650

Here may be noted our impression that these returns might be made of greater immediate value to both producer and consumer if a specimen of precis writing, in the shape of notes to the nine sections—say, to the extent of a page, and properly grouped—were supplied by the Central Chamber of Commerce to the compiler of these tables for publication, month by month, as to the condition of British productions. Rapidity and fulness of "touch" in all departments of commerce is of great importance nowadays.

The "Botanical Magazine."—Recent numbers contain figures of the following plants:—

Lilium nepalense.—A handsome Himalayan Lily, with pendulous bell-shaped flowers, each more than 4 inches across, the segmens greenish-yellow, spotted at the base with purple; t. 7043 (see *Gardeners' Chronicle*, October 13, 1888, p. 412, fig. 57).

Sarcochilus luniferus.—A very curious Burmese Orchid, with numerous elongate roots, but no leaves; the numerous flowers are small, in erect racemes, each flower about three-quarters of an inch across, the segments yellow with red spots; t. 7044.

Stuartia Pseudo-Camellia.—A hardy Japanese shrub, with flowers like those of a single Camellia; t. 7045 (see *Gardeners' Chronicle*, August 18, 1888, p. 187, fig. 22).

Opuntia polyacantha.—A hardy Opuntia, described by Engelmann as O. missouriensis, but the name adapted has precedence. It extends from the Saskatchewan, in lat. 52° N., to New Mexico, and is very variable. It has flat oval joints, beset with tufts of white spines and yellow flowers, each about

4 inches across. It has been grown for several years unprotected at Kew (t. 7046).

Chironia peduncularis.—A perennial Gentianad, reintroduced from South Africa by Mr. Watson. It has ovate, solitary, tapering leaves, flowers on long stalks, each about 2 inches across, rosy-lilac (t. 7047) (see *Gardeners' Chronicle*, p. 325, vol. iv., 1888.

Ercmostachys laciniata.— A very handsome herbaceous perennial, native of Western Asia, with a stem about 3 feet in height, covered with white flocculent down. Lower leaves 2 feet long, 1 foot broad, ovate, deeply cut into narrow partitions. The flowers are arranged in a succession of whorls along the upper part of the stem; each flower is nearly 2 inches long, with a bilabiate corolla, the upper helmet-shaped, lip downy, the lower 3-lobed, lip bright red. The plant flowered at Kew in June last (t. 7048).

Delphinium Zalil.—A new species of Larkspur, discovered by Dr. Aitchison in Affghanistan, where in Khorasan it is so abundant in the pastures as to give them "a wondrous golden hue." The leaves are very deeply divided into linear segments and the numerous yellowish-green flowers arranged in terminal spikes, each flower about one inch across, with a curved spur. The flowers are collected for export to Northern Asia to be used for dyeing, and also for medicinal purposes (t. 7049).

Iris Barnumæ.—An Armenian species with linear-lanceolate leaves and purplish-brown veined segments, the outer ones bearded. The plant was introduced by Professor Foster (t. 7050).

Calandrinia oppositifolia.—A prostrate perennial with tufted linear-spatulate leaves and flowers in cymes, each flower about 1½ inch across, whitish, with numerous narrow petals (t. 7051).

Passiflora Hahnii.—A very pretty Mexican Passion-flower (t. 7052), described and figured in *Gardeners' Chronicle*, p. 504, vol. xii., 1879.

M. Chantin.—Visitors to the great Continental horticultural gatherings are familiar with the patriarchal countenance of M. Antoine Chantin, so well known for his introduction of various fine Caladiums. The *Jardin* of April 5, gives a portrait of this eminent horticulturist accompanied by a sympathetic notice of his career.

Aroids.—The meeting on Tuesday last at the Drill Hall was remarkable not only for the display of Daffodils and Orchids, but for an extremely interesting group of Aroids from Kew, including the gigantic Godwinia and a series of the elegant and interesting species of Arisæma, most of which have been figured in these columns. It is such displays as these which give an interest to these meetings that no mere trade-groups can pretend to afford. The Director deprecates any award being made to the plants exhibited from Kew, and rightly so, if the absurdity of giving the same award to these most remarkable exhibits as to plants principally of commercial interest be persisted in. The two classes are not comparable.

Impatiens Rodigasi.—Mr. Gumbleton informs us that the plant figured under this name in the *Illustration Horticole* is the I. flaccida of the *Bot. Mag.*, t. 5276.

Stachys.—M. Franchet contributes to the *Jardin* an interesting note, in which he gives some further information concerning the plant with the tuberous rootstock, and numerous names (all more or less inappropriate), which has excited attention of late years. The plant was described originally by Bunge as Stachys affinis. It is a native of Northern China, where its rootstock is grown under the name *Kan-lu*. It has also, but rarely, been met with cultivated in Japan. The plant is, it appears, mentioned at length in a Chinese Encyclopedia, where its tuberous rootstocks are aptly enough compared to rings of jade connected together, and yet independent the one of the other. Quite recently, it appears, M. Delavay has sent to the *Jardin des Plantes* from Yun-nan good specimens in flower and fruit of Stachys affinis. This is satisfactory, as clearing up the history of the plant, further as showing that it is not confined to the North of China. Siebold received the plant from Japan, but was not aware of its alimentary qualities. M. de Maximowicz met with it as a rarity in the gardens of Yeddo, and M. Faurie, a French missionary in Japan, mentions that it is cultivated for food in some parts of the last named country. M. Franchet concludes that the plant is, as before said, the Stachys affinis of Bunge (*Enum. Plant. Chin. bor.*, n. 289), that it is probably of Chinese origin, M. Delavay having met with it not only cultivated, but also in woods. It has not been observed in a wild state in Japan, where it is still rare in cultivation. The plant is fully described by M. de Maximowicz in the *Bulletin de la Soc. Imp. des Naturalists, Moscow*, vol. liv, n. 4. Our further experience of the plant during the last winter confirms our opinion as to its hardihood in the open ground, its prolific habit, and agreeable flavour. It was first figured in the *Gardeners' Chronicle*, January 7, 1888, p. 13. We owe a partial apology to Messrs. Carter for disputing their proposed name of Chinese Artichoke, for it turns out that it is really of Chinese origin. When Messrs. Carter withdraw the certainly incorrect term Artichoke, we will present them with the other half of the apology!

New Garden Plants.—The April number of the *Kew Bulletin* contains a list of the new plants, mentioned or described, in the various horticultural journals, the principal trade catalogues for the year 1888, in continuation of the corresponding list for 1887 published last year. These lists are most valuable.

Nottinghamshire Horticultural and Botanical Society.—The next monthly meeting will be held at the Arboretum Rooms, Nottingham, on Wednesday, April 17, at 7.30 p.m., when Mr. J. D. Pearson, Chilwell House, will read a paper on "Daffodils and Narcissi." An exhibition of specimen blooms will be held, containing many new and rare specimens of these flowers; and special prizes will be given for the best hand-bouquets, centre-piece for table, &c.

Daffodils from Cork.—Mr. Baylor Hartland sends us nice fresh blooms of The Vicar of Lulworth, so named at the Narcissus Conference of 1887. It has a perfect bloom—perianth primrose colour, with segments about an inch long, bluntly ovate, the corona a deep shade of yellow, short, but yet longer than the perianth, expanded, frilled at the margin. Mr. Hartland states that it is very dwarf, and the foliage broad and short. N. William Wilks, a handsome, small trumpet Daffodil, with expanded flat perianth segments standing out at a right angle to the corona, and of very pale primrose-yellow; the corona is but little expanded at the orifice, and is pleated along the edge, the colour a soft shade of yellow. It formerly was known as Sabini. N. Burbidgii is of the Poeticus section, the corona having a brilliant deep orange edge. It is very early at Cork.

Linnean Society.—At the evening meeting, to be held on April 18, at 8 p.m., the following papers will be read:—1, "On the comparative morphology of the Coniferæ," by Dr. Maxwell T. Masters, F.R.S. 2, "On Helcion pellucidum," by R. J. Harvey Gibson, F.L.S.

Plum Culture in Bosnia.—The most important product of Bosnia is Plums, and the food in a dried state is the principal article of export. The poorest peasant (says Mr. Consul E. B. Freeman, of Serajevo) has a few Plum trees by his hovel, wealthy landowners never think of planting any other kind of tree by their country houses, and on the result of the Plum crop, more than any other, depends the well-being of the agricultural population. Accurate statistics of the crop are not available, but in a good season about 40,000 tons of dried fruit are exported, representing a money value exceeding £200,000. The fruit is not only grown for dessert, however; a large quantity is consumed in the making of a spirit commonly drunk in the country, and known as Slibovitz. The Bosnians, moreover, are great makers of jam, and they prepare from the Plum a large quantity, which is manufactured without sugar. The export of dried fruit is almost entirely to Austria and Hungary; it does not appear that any of it comes to this country. Possibly, however, a market may hereafter be found for it in England; for the product is increasing, and the local Government has turned its attention to the establishment of drying ovens of a superior description to those hitherto in use. A large proportion of the crop of 1887 is said to have been lost, owing to the primitive and inefficient way in which the fruit was dried.

M. Chevreul.—This grand old Frenchman, who died a day or two since in his 103rd year, demands a tribute of homage as a hardworking man of science to the last—one who contributed in no small degree to the advancement of science and its application to practical ends. When the bedding-out fever was at its height, Chevreul's book on colour was often invoked.

United Horticultural Benefit and Provident Society.—The quarterly meeting of the above Society was held on Monday evening last, at the Caledonian Hotel, Adelphi, Strand. The chair was taken at 8 o'clock by Mr. E. Berry, and the usual business was gone through. Three new members were elected, making a total of nineteen for the past three months. A sum of about £11 has been paid to sick members during the quarter; but at the present time there is only one on the funds.

Birmingham and Midland Counties, April 10 and 11.—This was the tenth annual spring show, and the display compared favourably with that of former years. Orchids were a good feature, Messrs. Kenrick, Wyan, and Marriott being the leading exhibitors; and it is to be remarked that there was no contribution of Orchids from the Highbury collection; spring bulbs were, however, shown well from that place—other prizes in this section being taken by Messrs. Showell, Woolley, Millward and Brown and Mrs. Marigold. Auriculas and Cyclamen were very good from Mr. Clements, and miscellaneous non-competing groups of good quality were shown from Messrs. Pope & Sons, Vertegans, Niemand & Thomson, all of Birmingham.

Sheffield Horticultural Society.—At a meeting held on 3rd inst., a paper on "The Azalea," dealing with its cultivation, &c., was read by Mr. C. Cooke, Rotherham. There was also a nice small exhibit of plants by various members.

Notices of Books.

Key to the System of Victorian Plants. By Baron Ferd. von Mueller. (Melbourne, 1887-88.

We hold it almost as an article of faith that the botanical tyro should begin his education by making himself acquainted with the plants by which he is surrounded. It is the natural plan, the way in which the child is familiarised with everyday impressions and becomes enabled eventually to analyse them, trace them to their source, and turn them to account. To proceed from the known to the unknown is the safest plan, and involves less unlearning in the future. We know this is not the most popular plan now-a-days, when a student is set to work at the microscopical structure and the microphysics of the cell before he is able to recognise the difference between a Buttercup and a Sunflower, or, at any rate, before he is able to convey any intelligible account of those differences to any one else. The system of teaching by the investigation of selected "types" is excellent, but it is open to the risk that the pupil looks to his

"types" and to nothing beyond them. He does not, as he should do, take them as illustrations and examples to be compared withothers, but he confines himself to those particular plants and to none other. The consequence is that in the examination room, if one of the said types is put before the candidate he generally gives a pretty good account of it and often in the very words of his text-book, but if some other nearly allied plant be submitted to him, he is often unable to apply what he has been taught to the new combination before him, and he will make the excuse "I do not know anything about this specimen, because it is not one of the types." A little preliminary knowledge of the wild plants of his own neighbourhood, or of the orders represented by garden flowers, would secure a wider and firmer nucleus than the student now gets, around which to gather the details of minute anatomy and life-history. But botany undoubtedly offers difficulties to the beginner; it is undoubtedly very hard to make out the name of a plant from the descriptions given in books; illustrations are often misleading, and at best are evasions. Any plan, therefore, which renders the preliminary labour easier and less irksome is worthy of praise. It may not be the most philosophical method, but it will sometimes prove the means of starting a naturalist on his career who would be completely deterred by more philosophically correct procedures. Bentham, the greatest pure systematist of our times, began by the study of the analytical method of Lamarck, and how greatly he remained influenced by it, is shown by the series of Colonial Floras, in which he always employed analytical keys to facilitate the researches of the student, and especially in his *Handbook of the British Flora*. Baron von Mueller, who has already done so much to foster and develope all branches of botany in his adopted country, now presents us with a key to the system of Victorian plants. The title is perhaps a little ambiguous, but an inspection of the book shows that it is appropriate. An analytical table or key, being framed wholly on grounds of convenience, may, of course, be purely artificial or arbitrary in its arrangement. A natural system, the aim of which is to secure an arrangement which shall most closely represent the real or assumed affinities or degrees of filiation and descent, should, could it be perfected, have nothing more arbitrary about it than a genealogical pedigree; each plant should be in its proper place, and its exact relationship to all other plants should be precisely defined. Unfortunately this ideal has not been reached, and many circumstances concur to render it impossible that it ever will be realised. Nevertheless, it is capable of constant improvement, and every new fact is a step to perfection.

Baron von Mueller, in the work before us, combines the purely analytical and the purely genealogical methods with great skill. The principle is purely logical. A plant possesses certain characteristics or it does not; hence an alternative is offered to the student for his choice. He begins with two alternatives—a plant, for instance, has floral organs, or it has none: if it has, the venules of the leaf are mostly divergent, or they are mostly parallel. And proceeding exactly in the same way, with a choice of successive alternatives, the student at length arrives at his goal; he has ascertained, first, the name of the main division to which his plant belongs, then the order, then the genus, and lastly the species; and in so doing he has incidentally, but of necessity, learnt much of the characters of the order, genus, and species—information which will be increasingly serviceable as he goes on and compares one plant with another. Baron Von Mueller's book is professedly adapted for the colony of Victoria only, but it will prove nearly as serviceable for Tasmania, and, indeed, for a large portion of the Australian continent south of the tropic, and east of the centre. Its use to plant collectors and gardeners who have to deal with Victorian plants will be very great.

The least satisfactory part of the volume—or, we should rather say, the one that will give rise to the greatest differences of opinion—is the terminology adopted. Baron von Mueller, struck with the inconsistencies, inaccuracy, and misleading character of some of the botanical terms which have been handed down to us from our forefathers, sometimes from very ancient times indeed, makes an effort to correct them or to replace them by others more in accordance with the knowledge of the times. We greatly sympathise with the Baron's desires, but in the case of an elementary book of this character, professedly artificial in its treatment, the balance of convenience will probably be found in the retention of many of the old terms, and in the very cautious and carefully considered substitution of new ones. For an advanced treatise, intended for experts, the case is different — then the terminology should be in accordance with the knowledge of the day. The Baron may well plead in favour of the course he had adopted the circumstance that he is writing in a new country, and for students not habituated to old world methods. By substituting where requisite, a new terminology, the teacher obviates the necessity of the pupil having to unlearn much that he has learnt. The terms albumen, rib, nerve, vein, ovary, and many others in common use, are all incorrect; and the pupil would make serious blunders if he confounded them with parts of the same name in the animal kingdom. Nevertheless we do not think any thing would be gained by substituting albument for albumen when we have "peri" and "endosperm" already — nor do we think the abolition of the word "beaked," because it applies also to zoology, would be compensated by the adoption of "upwards much attenuated." Incidentally we may mention an error into which many botanists fall in the use of the word attenuate when they mean narrowed or angustate, or *vice versâ*.

The "epidermis" is not replaceable by "cuticle" in botany. "Facial" is not necessarily equivalent to anterior, and botanists would certainly expose themselves to ridicule if they spoke of a tail as a "basal attenuation." To the writer's views on nomenclature and priority there will probably be fewer objections raised, in spite of a tendency in some of the moderns to undo the simplicity and convenience of the Linnean nomenclature and the Candollean laws. The few changes made by the Baron in the allocation of the orders will mostly be welcomed as more fully expressive (than older arrangements) of the real relationships of the groups in question.

Professed botanists should read the author's paper, entitled "Considerations of Phytographic Expressions and Arrangements," read before theRoyal Society of New South Wales before using, particularly before criticising the "Key to the System." Indeed, it is unfortunate that this paper was not added to the volume as part of the introduction. In a previously issued volume, of which the present is the fellow and the complement, the names of the orders and genera are given in their usual sequence, without descriptive detail, and a series of woodcut illustrations of great value is given. Altogether, Baron von Mueller amply merits the congratulations and the gratitude of his fellow-workers and of students on the successful completion of what must have been a tedious and difficult task.

The Apiary.

We had just completed painting a long row of beehives, and made them look quite smart, when melancholy news reached us from Scotland. One of the craft in that country has invented (so he says) a hive which is not only going to eclipse every hive which has gone before it, but which will cause every beekeeper in existence to chop up his hives for firewood and take to the new one for ever. I, of course, take this with a grain of salt, and do not think I shall chop mine up this season, after the bad season we had in 1888, and after the paint mentioned above.

Scotland has lately lost a great beekeeper in the person of Mr. William Raitt, one of the editors of the *Beekeeper's Record*. He was a very clever man, and, like others who are really clever, very humble. Originally a successful schoolmaster in a Scotch elementary school, he gave up that drudgery for Strawberry growing and beekeeping. He was very successful with the Strawberries, but competition at length caused him to give them up, and he kept to beekeeping and the manufacture of comb-foundation. He was the first to introduce a comb-foundation machine into the British Isles from America, and was very proud of it. His comb-foundation was in great repute. He died suddenly and painlessly in the early part of January.

The Royal Agricultural Show at Windsor is raising great expectations, and it is hoped that beekeepers will put forth their full strength, and send what appliances and honey they can. It is too early in the year to expect much of the latter unless we have a very extraordinary season.

Bees may now be examined in the middle of warm fine days, and their wants attended to. If a hive is not very strong in bees, sometimes they will not take to syrup readily, much as they may require it. In this case it is a very good plan to take out an empty comb, and fill the vacant cells with syrup, and put it down amongst the cluster. This will arouse the bees, and they will be much strengthened, and led to look upon things hopefully.

After this they might be fed from the top, as usual, for we do not advise the combs to be meddled with more than necessary. The spreading of the brood, advised by some, we regard as worse than useless, unless done by a very skilled hand. *Bee.*

Orchid Notes and Gleanings.

DENDROBIUM KINGIANUM.

As a species that can be grown in a cool house, and as one of the distinct Australian group of Dendrobiums, this deserves recognition. It is a most variable plant, some forms being of great beauty, as the figure in the *Orchid Album* for 1887 shows. The pseudobulbs are 4 to 9 inches long, tapering towards the top, where they bear three or four leaves, and where the flower-spikes also originates. This is 6 to 10 inches in length, and generally carries from eight to twelve flowers, sometimes considerably more. The colour of the flower varies greatly; in *Bot. Mag.*, t. 4527, it is given as purple; in the *Orchid Album* a white variety is figured, which a plant now floweisng at Kew greatly resembles, except that the flowers have a more rosy tint, the lip being dotted with rose-purple. Each flower is 1 to 1½ inch across, with two lateral sepals produced into a chin.

In the matter of culture this species is a welcome contrast to the majority of Australian Dendrobes, being easy both to grow and propagate. It appears to succeed equally well either in the cool or intermediate-house, and may be grown in pots of peat-fibre, or on suspended blocks of wood. The latter method is to be preferred, as it accords with the habit of the plant, and enables the spikes of flowers to be shown to the best advantage. *W. B.*

Cypripedium Williamsianum. ×

This plant will thrive in a lower temperature than its parents (C. villosum and C. Harrisianum), as we find the heat of the Cattleya-house best suited to its requirements. It grows well in a mixture of rough fibrous peat and turfy loam in about equal proportions. Cypripediums all require thorough drainage, and they also require to be kept moist at the roots at all seasons of the year, in order to maintain them in vigorous health; during active growth a liberal supply is necessary, and as it is a free-rooting variety a slight syringing overhead in summer will be highly beneficial, at which time also shading will be necessary when the sun is powerful. "*Orchid Album*," *February.*

Cœlogyne conferta.

There is quite a large group of Cœlogynes with flowers similar in colour to those of this species, but

which are distinguishable by differences in habit, size, and time of flowering. A plant received from Sir Trevor Lawrence is flowering now in the Kew collection, and proves to be quite a pretty little gem—perhaps the smallest of the group. The flowers are 1½ inch across, with the sepals and petals white, and the three-lobed lip yellow except at the apex, which is also white. Several of this type of Cœlogyne, such as C. oculata, C. corymbosa, and C. ochracea, are very effective when grown on rafts of Teak on which is placed a half-inch layer of peat and sphagnum. They do well in the intermediate-house. *W. B.*

Dendrobium fimbriatum.

I recently noted a finely flowered example of the above Dendrobe in Lady Majoribanks' interesting collection of Orchids, at Tillmouth Park, Northumberland, and although the plant was only what may be termed a half-sized specimen, in a 7-inch pot, it bore sixteen nodes of bloom. When well-flowered, as was this, it is one of the showiest of the genus. Amongst a number of other fine things in flower at the same place were some splendid plants of Dendrobium nobile, which Mr. McIntosh, the gardener, grows exceedingly well, some of the growths made last season being quite a yard in length. *J. G.*

Dendrobium nobile var. nobilius.

A recent note shows that this Orchid retains its high value. Eight guineas for a plant with only three pseudobulbs is a large price; but it is more consistent than the prices given for some hybrid Cypripediums, for few will not agree that this variety of the old D. nobile is the most beautiful of all Dendrobiums. It combines the advantages of large size and fine colour without being in the least degree gaudy. There is a plant now flowering at Kew with over twenty pseudo-bulbs, the flowers 3½ inches in diameter. The colour of the sepals and petals is a deep, glowing rosy-purple, except at the base of each, which is paler. The lip has a blotch of the darkest purple on the centre.

The variety D. Sanderiana is also in flower. It appears to be very similar, and the additional name scarcely necessary. *W. B.*

Phalænopsis amabilis.

As you will observe, the spike herewith sent measures 2 feet 3 inches in length, with ten fully-expanded blooms, and four buds yet to open, which with two blooms that have damped off, make a total of sixteen blooms without a branch. The individual blooms measure rather more than 3½ inches in diameter. I grow the Phalænopsis on the north side of the East India house, and chiefly in Teak wood cylinders, with very little packing material between the roots, and this consists of charcoal and sphagnum moss, plenty of water being afforded the plants in the season of growth. The floor of the house is sluiced down with manure-water, or is sprinkled with guano in the evening during that period; and I do not use any fixed shading for them. The leaves made two years ago measure 5 inches in length by 2½ inches in width, and in the past season the plants made leaves 14 inches long by 4 inches wide. I consider the key to Phalænopsis growing to be high temperature and abundance of root moisture, and in the air at the proper season, and these are far more essential than the aspect of the house or the position of the plants within it. *A. Evans, Lythe Hill, Haslemere.* [The specimen sent amply confirms our correspondent's statement. Ed.]

The Briers, Chislehurst.

At this place the owner, Mr. Watt, has taken greatly to Orchids, and has built two houses, one being for the cultivation of Cattleyas, and the other for Odontoglossums, and such as need a similar temperature and treatment. So far only such Orchids as are choice and rare have been purchased, and among the plants noted were Cattleya Wagneri, Cypripedium Schroderæ, C. grande, C. bellatulum, C. Crossianum, C. cardinale, Dendrobium Cooksonii. Of Orchids in bloom at the time of my visit were Cattleya Trianæ in variety, C. Lawrenceana, Oncidium sarcodes (this plant was carrying a branching spike of 147 flowers), Dendrobium nobile, D. n. nobilius, D. barbatulum (dense clusters of pure white flowers of long duration), Odontoglossum citrosmum album, Warscewiczella discolor, Phaius Wallichii; also a very handsome variety of Oncidium Kramerianum, Cypripedium Godefroyæ, C. Argus, the lovely C. hirsutissimum, Phalænopsis Schilleriana, P. amabilis and P. grandiflora, Angræcum hyaloides, A. citratum, A. Leonii, and several more. Mr. Humerston, Mr. Watts' gardener, seems to be a successful grower of these plants. *W. Robbins.*

ONE WAY TO GROW NARCISSUS.

We are indebted to Mr. Burbidge for the opportunity of illustrating (fig. 85) a method of growing these plants adopted by the Chinese, and indeed not altogether unknown here. The bulbs are simply placed in a bowl of water mixed with stones, some of which are placed over the bulbs so as to prevent them from floating. The variety figured is Grand Emperor, one of the Tazetta group, and which is held in high esteem by the Chinese, especially at their new year's festivals. The water should be changed every twenty-four hours. As the growth is rapid it is very interesting to watch. The story connected with the Water Fairy Flower has often been told, but it is worth repeating in Mr. Burbidge's words:—

"Thus once upon a time a father left his property to his two sons with the understanding that it should be equally divided; but the elder son seized all the tillable land and left the younger nothing but an acre covered with rocks and water. The younger son, failing to obtain justice, sat at the water's edge bemoaning his misfortune. A benevolent fairy appeared, and giving him these Narcissus bulbs, told him to drop them into the water. Shortly afterwards their flowers were developed, and the neighbours crowded to see the fairy's gift. In the course of a few years the badly-treated brother accumulated a fortune by the rapid increase and sale of his bulbs. Then the elder brother, envious of the prosperity of the younger, bought up great numbers of the bulbs—hoping to get a monopoly by getting all of them—at so heavy a price, that he was obliged to mortgage his property to procure funds for the purpose. He planted all his good land with bulbs, but they soon began to die, as they cannot live long out of water. He was ruined, while his brother, who had bought the mortgage, foreclosed it, and became possessed of the whole estate in time to replant some of the dying bulbs in the watery acre."

The Flower Garden.

The Tenderer Sorts of Bedding Plants.—To be enabled to increase the space for tender plants under glass any Violas and Pansies which it is not yet convenient to plant in their summer stations may be removed from glass structures and planted on warm sheltered borders, or at the foot of fruit walls. These plants, and Verbenas, Calceolarias, &c., I have often treated in this way, and besides the convenience of the arrangement the transplanting becomes of benefit to the plants, as they move without check at the final transplanting. With the exception of Alternantheras, all plants raised from cuttings may now be planted in boxes or potted, as the case may be. Alternantheras are the most readily increased of plants, and by making up slight hotbeds in frames and placing a layer of light sandy soil about 4 inches thickness, made firm, the cuttings may be pricked out from 3 to 4 inches apart; keep the frames close till the cuttings are well rooted, then afford air freely whenever the weather is mild. The plants may remain on these beds until they can be finally planted out in the beds.

Hardy Annuals.—Any of these may now be sown in the open border. Lupins, Larkspurs, Coreopsis, Mignonette, and Sweet Peas are as easy to grow as weeds, and seeds are cheap, so that all who are fond of the easily grown subjects, and have a little space of ground, should grow them.

Spring Flowers.—Of the half-dozen varieties of Daffodils that we possess, none is more beautiful than the Tenby, and none is larger, showier, or freer, than Sir Watkin. The varieties Emperor and Empress are also showy, but the two colours of the flowers do not tell in the mass as do the deep yellow of the first-named. Slugs are very destructive of the flowers and vigilance is required to preserve them from injury. Fresh lime, wood-ashes, bran, sawdust, and cocoa fibre are all of them good preventives, the latter being neatest in use, and bran the most tempting bait for those to use who do not mind searching for the slugs late in the evening and early in the morning. It really seems as if no kind of flower is exempt from the attack of slugs this season, for the blossom of Anemone blanda, Grape Hyacinths, Squills, and even Wallflowers, have been injured by them, and as a matter of course, such wholesale injury demands the immediate application of remedies, and increased watchfulness in the future.

Annuals.—With but very few exceptions these are best raised in frames, or on a sunny border, by the aid of hand-lights, but I do not forget that in some gardens neither of these appliances are at command, and when that is the case, the varieties grown should consist only of those kind which will do well under open-air treatment from the first. This class is sufficiently numerous for any garden, and it is simply a matter of waiting two or three weeks longer for the flowers than those need to do who have the convenience named, because sowing can be done in these structures weeks before it is advisable to sow in the open borders. The present is sufficiently early to sow in the open Stocks, Asters, Lupins, Silenes, Larkspurs, Candytufts, Collinsias, Corcopsis, Godetias, Nemophilas, Sanvitalias, Salpiglossis, Sweet Sultan, Convolvulus, Canary Creeper, and any others in favour.

Seeds of all these plants are so cheap, that a couple of shillings spent in the purchase of greater numbers would prove a good investment, inasmuch as all the plots required might be sown at once, and by this means saving the labour and time expended in transplantation, not to mention the risk there is sometimes of transplanted seedlings raised in this manner not doing well. It is the best to sow seed of all the plants that are required, and which, by timely thinning out and guarding against the depredations of slugs, will prove as good as frame-raised plants, except in the matter of earliness. Stocks, Asters, Zinnias, Phlox Drummondii, and others that were sown in frames a few weeks since, will now require full exposure to the air, except during frosty or rainy weather. Stocks and Phloxes do not transplant well from the seed-bed, no matter how thin the seed is sown, and pricking out of these must be done as soon as they can be handled. The others, with care, may be transplanted direct from the seed-bed, but they do much better when pricked out at first. Seedling Verbenas, Lobelias, and other half-hardy bedding-plants will do in the frames used for pricking off Stocks and Phloxes, heat for these being now unnecessary.

Bedding Plants.—Pyrethrum (Golden Feather) is invaluable, but being so easily raised and grown it has become so common that I use just as little of it as possible, and that little is raised by the aid of handlights placed on a sunny bank in the kitchen garden. The lights are taken off as soon as the seedlings are well up, and, except to water them sometimes, nothing else is done to them till they are transplanted to their summer quarters. The variegated Mesembryanthemum is my favourite substitute for the Golden Feather, and, except that it needs warmth to strike and grow it on for bedding, it is in other respects as little trouble to raise. If the beds are not occupied with spring flowers Calceolarias, Verbenas, Violas, and Pansies may be finally planted out; and where Echeverias are still used as edging plants, they may now be planted out without risk. They are nearly hardy in this part of the country—ours have wintered well, notwithstanding the severity of the weather in the early part of the year. I have got tired of them because of their artificial appearance, and they are now only used in the most formal carpet-bed arrangements. As the interest in hardy perennial plants increases, I hope that both these formal plants, and indeed formal arrangements altogether will disappear. Although, as a rule, Sunflowers, Ricinus, Hemp, and Tobacco, do best when raised in heat, potted on, and planted out at the end of May, I have successfully raised them by sowing the seeds in the beds. In dry warm positions this may be done without risk of failure, and if small bell-glasses can be used till the plants are an inch or two high, it will hasten their growth and prevent damage by slugs. *W. Wildsmith, Heckfield, Hants.*

HOME CORRESPONDENCE.

☞ *Correspondents will greatly oblige by sending early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

SALVIA GESNERÆFLORA.—This is one of the showiest of Salvias, and the plant, when not pinched much, has a nice free pyramidal habit, the branches being sufficiently stout to maintain their position without staking. The flowers are large and of a soft rich shade of scarlet, and are produced in long terminal racemes which spring from the main stem and lateral branchlets. Just now it is in fine form in one of the conservatories at Great Doods, Reigate. Although the plant is perennial it is generally considered best to grow up fresh plants annually, and there is no difficulty in doing so, as cuttings propagate freely. The young plants may be placed out-of-doors when all danger from frost has passed, and be potted in their flowering pots in June. The plants flower best when grown in small pots, say, 8-inch, and when housed for the winter the exhausted soil either should be topdressed, and occasionally weak manure-water may be given, which is preferable to overpotting them. *F. Ross.*

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—As so many kind friends have contributed liberally towards the £3000 required by next June, I think gardeners ought to do their best by way of supporting those liberal donors. I think if every gardener would give his £1 1*s.*, and then ask the clergyman of his district for a little help on Easter Sunday—if only for a part of the usual collection—the amount might be considered secured. I have made a start in that direction myself (enclosing the list of subscriptions up to the present) in the following way:—

"Sir,—As gardeners have frequently given their support to the Royal Agricultural Benevolent Institution, might I ask, please, if you would kindly think of its 'twin sister' on Easter Sunday, for which we shall be much obliged? We think the floral decorations will help the cause; or, if you prefer, a small donation will be thankfully received.

"The Rev. ——."

J. Perkins.

ORCHARD FRUITS.—The gradual development of all hardy fruit trees is being watched with great interest throughout all our market garden districts, where a crop is a matter of such supreme importance, and may mean the making of many growers after the somewhat defective seasons which have passed, just as the loss of a crop may break many. Not only are the trees and bushes generally looking remarkably well, and studded with fruit-spurs, but the continued comparatively low temperature keeps the buds so much in check, that there is little prospect of any considerable quantity of bloom being expanded until the spring is well advanced. That is doubtless a gain, although there may be some reason to fear that too prolonged checking may weaken the bloom; but the chief interest, after all, rather lies in watching the effects of the previous wet, cold summer upon the fruit bloom. There were last year plenty of fears expressed that, with such excessive moisture at the roots, and lack of sunshine, the wood would be so indifferently ripened that it would not carry fertile fruit-buds. Against that fear is to be set the fact that in no case was growth on trees of any description, abnormal or coarse; indeed, it was a remarkable fact that the great drought of the preceding year, and the exceeding wetness of the past year, alike seemed to exercise but little diverse influence upon deep-rooting trees. Now the wood on all kinds of trees seems to be just as firm and healthy as may be noted at any time; therefore, if a good fruit crop does not result this year, the wood will hardly be in fault. In the case of bush fruits, those look remarkably well, so far as leaf-buds are concerned, and seem full of promise. *A. D.*

A NEW DAFFODIL.—The variety—of which a few blooms are now sent that you may observe its characteristics — originated in Lord Annesley's park, Castlewellan, Co. Down. It is one of the most hardy and vigorous of any Daffodils I am acquainted with, and has been in flower since the beginning of January. The flowers which are sent were gathered in the open, and the large masses of it are very beautiful. Some of the clumps have from forty to fifty flowers open at one time. The flowers last ten days after being cut, and it should prove a capital variety to grow for market. Mr. B. Hartland says that it lasts longer in condition than any other which he has. *T. Ryan, Castlewellan, Co. Down.* [We have also received specimens of this fine Daffodil from Mr. Hartland. Ed.]

HEATH'S BULB MITE EXTERMINATOR.—After many and exhaustive experiments, extending over a series of years, Mr. Heath, the gardener at Sedgwick, whose article on Violet cultivation appeared recently in your columns, has at length succeeded in producing a chemical compound, which proves fatal to this most destructive pest. *D. Hartley, Kendal.* [A sample should be sent for trial to Chiswick. Ed.]

CAMELLIA JUBILEE.—To the excellent list of Camellias given on p. 427, I should like to add the above-named variety. It is very free to flower, as also to grow, and yet not too large, with foliage that is sometimes partly variegated, although I cannot say that this freak is any improvement to its appearance. The colour of the flower is white, marbled with rose, the centre nearly white, the imbricated petals broad and round—a shapely flower, which is generally admired. *S.*



Fig. 85.—Narcissus tazetta (see p. 468).

RHODODENDRON PRINCESS ALICE.—A magnificent example of this beautiful hybrid greenhouse variety was noted on the occasion of a recent visit to Tower House, Chiswick, the reidence of J. Donaldson, Esq. The specimen was growing in an 18-inch pot, and was carrying 300 trusses of its deliciously scented bell-shaped white flowers flushed with pink. It may be of value to gardeners to describe the main points of the method of culture pursued by the gardener, Mr. T. Bones. After flowering, the seed-pods are carefully picked off, the plant is kept rather close, and it is syringed on bright days to encourage growth. When the growth has well commenced, diluted manure water from the stable is given once a week, the plant is afforded water on all other occasions, and when it is dry enough to wet the whole of the ball. After the growth is completed, the plant is placed in the open until the end of the month of September when it is taken into a cool-house, plenty of air being given on favourable occasions. These plants are very impatient of frost. After the plant has set its flower-buds, a house ranging in warmth from 40° to 50° is found to suit its requirements admirably. In repotting big shifts must not be given, and the soil must be made firm; good drainage is another essential to success, while as to soil, good turfy peat is the best, and plenty of sand should be mixed with it. *B.*

ROSE GLOIRE DE DIJON.—I quite agree with what "Rosa" says (p. 428), that the old Glory is the king of garden Roses in whatever position it is placed. The blooms cannot compare in colour with those of a Maréchal Niel at its best, but for general usefulness in any position it certainly has no rival. I have seen splendid hedges, from 30 to 50 yards long, of this Rose, growing 5 feet high, and fairly smothered with blooms, in the month of September, where I have also noted it growing on the north side of a dwelling-house, rambling well; and on the south side of the same house this Rose was also planted; and what a long succession of bloom was secured from these plants on the two diverse aspects. For flowering during March and April in the greenhouse, Gloire de Dijon is indispensable. It is from the strong shoots of the previous year that the finest blooms are produced. This Rose has the excellent character of rooting freely from cuttings, and being a robust grower, it soon forms good plants. When it is worked upon the Brier it succeeds admirably. *S.*

GROWTH.—How much the weather of the intervening months of February and March has discounted the promise of mild January! Here we are in the month of April, and really the progress in growth seems little beyond what was seen when January went out. All movement is so slow that much concern is aroused lest the summer-time should be upon us before the crops are forward enough to resist heat and drought, should such features mark the ensuing summer-time. Such very hardy things as Peas and Broad Beans make scarcely any movement. The seeds have lain dormant in the soil so long that germinative powers seem to be appreciably weakened. Those who regarded the sound advice given earlier in the year, to sow later than usual, have found themselves to be none the better for early sowing, and something the worse. Not only has the ground been exceptionally cold all along, but continuous cold nights, northerly winds, and frequent cold showers, keep it so; hence there is no inducement on the part of either seeds or plants to move freely. Very hardy things, such as Primroses, Polyanthuses, Daffodils, &c., seem to take no heed, but Pansies, and many similar less hardy plants, are exceptionally late in showing bloom. Fruit trees seem to be very late, the bloom-buds coming on very slowly. Without doubt a week or so of really warm spring-like weather would produce a great outburst of bloom on Pears, Plums, Cherries, &c., but week after week passes by, and the warmth does not come. It may be thought advantageous to have a late spring, but a late spring means a short summer, and a short summer always signifies imperfect developement and maturation in a climate where the summer is seldom too warm. *A. D.*

FIGS.—Of the varieties of the Figs grown in this country in the open air, none is better known than the Brown Turkey, or Lee's Perpetual, as it is sometimes called. It is prolific, hardy, and of good quality. The Brunswick is another excellent Fig for the open air; it is an abundant bearer, the fruit large and well flavoured. The Castle Kennedy Fig is a very suitable variety for a wall, although some have found it to be a somewhat shy bearer. I have not found this to be the case; but, on the contrary, prolific and somewhat early, and quality very good. The Fig tree, in all its varieties, being somewhat tender, it is advisable, when cultivated in the open air, to give a slight protection of some kind during the winter months, such as a slight thatching of Rye, or Wheat-straw, or reeds, which should not be altogether removed until the latter part of the month of April. The Fig may also be successfully cultivated in the bush or standard form in the unheated orchard-house, or, what is still better, trained to a south wall under a glass roof with facility for thorough ventilation. Many years ago, in

a large garden in one of the eastern counties, where the land was very light, and also on the chalk formation, a portion of a high wall facing south, and some 120 feet in length was devoted to the Fig trees. During an exceptionally severe winter, however, when the temperature fell many degrees below zero, and although the Fig trees were slightly protected, they were killed to the ground. During the early part of the ensuing summer the roots of the plants thrust out many strong shoots, the best placed and strongest of which were nailed in, and the rest removed. It was then resolved to cover the whole south side of the wall with glass, which took the form of a so-called case, which was done at a comparatively small cost. This case consisted of two equal divisions, one being furnished with hot-water pipes, and the other left unheated. The wall was more than 12 feet high, and the shoots were trained to it vertically at about 1 foot 9 inches apart. These leading shoots were encouraged to develope lateral or fruit-bearing branches, which were annually thinned out, and very weakly ones rubbed off, while any leading shoot which failed to develope spurs or bearing branches was, as far as possible, induced to do so by a careful notching of the rind, to encourage dormant buds to break. It should also be stated that the roots were raised and carefully pruned, and a suitable soil freely mixed with the staple. The trees soon became very productive, and continued so for many years, and, so far as I know, up to the present time, although they must now be very old. The trees in the heated compartment ripened their fruit more or less early, as might be desired, and were succeeded by the trees in the unheated division, which, in its turn, was succeeded by the second crop from the trees in the early compartment, so that the season of ripe Figs was greatly lengthened. A shelf put up in the front of this case, and extending its entire length, was found useful for bringing forward Strawberries in pots, French Beans, Tomatos, &c. All varieties of the Fig are successfully cultivated under glass, but some varieties bear better and are finer flavoured than others. The following, however, may, with confidence, be recommended, viz.:—Brown Ischia, Brown Turkey, Black Bourjassotte, Grizzly Bourjasotte, Castle Kennedy, and Negro Largo, the last named considered to be one of the very best. *P. G.*

SNAPS OF FROST.—The "snaps" of frost to which your correspondent, "Wild Rose," recently alluded, have, I fear, done more damage than at first appeared. At Messrs. Peed's nurseries, Mitcham Road, Streatham, hundreds of trained Apricot trees in the open have been killed outright. I thought at first that they had been planted in the autumn, and were more susceptible in consequence; but I learnt, on inquiry, that they had not been disturbed for more than a year. Some of the stocks, even, were injured—the Julien suffering more than the Mussel stock. Peaches and Nectarines planted in adjoining quarters were less injured than the Apricots. Evergreens, such as Bays, Laurustinus, and Euonymus, have fared badly, and Roses of all kinds will have to be cleared of much frost-bitten wood. The damage was probably caused by the sudden changes of temperature which characterised the winter of 1888-9. Sharp "freezes," as the Americans say, occurred on several occasions after storms of mingled snow and rain, and the branches were more affected than they would have been by dry frost. I was glad to see plenty of fruit-buds on the pyramid Apple trees, and it is pretty evident that on the Paradise stocks Apple trees of even tender varieties defy the severities of our variable climate. *W. R., Streatham Hill.*

TRADESCANTIA ZEBRINA.—According to the *Dictionary of Gardening* the proper name of Tradescantia Zebrina is now Zebrina pendula. If there is anything in a name—and most people will assert that there is—it is certainly pertinent of this case, inasmuch as the new name is far more descriptive of the plant than the old one, as will easily be seen when we note its creeping or pendulous habit with its striped leaves. There are at least four more or less well-marked varieties, but I think they may all be referred to two—namely the green and the purple or green, and silver-banded forms. The first has a variety of creamy-yellow and white stripes, and the second a creamy-white and rose-tinted variegation. In both of these much-coloured varieties, it is not unusual for one-half of the leaves to be of the variegating colour, the other half—the mid-rib dividing it—to be of the ground colour, but the variegation is frequently marginal only, or in parallel bands. The under side of the leaves are normally either purple or green; but in these varieties, the colouring of the leaf is nearly the same on both sides—without, however, the lower side having the frosted silvery hue of the upper surface. This marking is most marked in the purple variety. The plant can accommodate itself to a great variety of treatment, and may be employed for draping hanging-baskets or planting-out to cloak ugly features in a house; indeed, if the temperature is warm, it may be used to furnish a carpet of verdure wherever desired. A common use for the plants is to conceal the pots at the front of a plant stage. It grows well in a temperature of 55°, but it will stand a lower one, but will make but little growth in winter, soon however picking up on the return of summer, the best plan is to propagate fresh batches, as required, filling whatever size of pots is deemed most suitable for the purpose with any porous rich compost. Dibble the pots full. The cuttings may be dibbled in quite thickly, and if possible, they should be placed in a brisk growing atmosphere; where they will soon get established. Under those conditions they will take plenty of water, but much shading is apt to make the bright coloured sorts revert to the commoner forms. Cut sprays of the plants last well in water, and if bright coloured are really handsome. *F. Ross.* [Where staging is employed in warm houses the plant is excellent to cover the soil or gravel beneath them. Some growers of Phalænopsis find the plant serviceable to plant beneath the Orchids, as by so doing, the air of the Phalænopsis-house is maintained in an equable, moist state without the constant attention of damping down. Ed.]

AMORPHOPHALLUS RIVIERI.—Is it not an uncommon occurrence for Amorphophallus Rivieri to flower in a greenhouse? I have one in flower at the present moment which has been grown in a greenhouse all the winter, and on one occasion the greenhouse was visited by the frost. *A. J. Hemmerde.* [It is not usual to grow the plant in a greenhouse, but as it will grow freely in the open air in warm situations, we think that it will succeed with much less warmth than it is customary to afford it. Ed.]

HEPATICAS.—What is the typical colour of the Hepatica? I have two old clumps (probably thirty years in the same place) of the white Hepatica, one with white, the other with red anthers. They are both gradually becoming blue, so that this year the clumps have a centre of dark blue flowers gradually paling off into a circle of white flowers. Does this show that the type is blue, to which they are both reverting? *Henry N. Ellacombe, Bitton Vicarage.* [The prevalent hypothesis is that the blue represents an advanced condition.]

EVERGREEN ASPARAGUS.—Not long ago I sent a query to the *Gardeners' Chronicle* for the true name of an Asparagus thus described by Duhamel du Monceau in his *Traité des Arbres*, 1755:—"Asperge toujours verte, a feuilles piquantes . . . . C'est la seule que conserve des tiges l'hyver et que forme un petit arbuste. Cette sorte d'Asperge ne craint point le froid." I am now able to answer the question myself, and say that it is as he described it, "Asparagus foliis acutis," now A. acutifolius. I mention it again because I would recommend it to anyone who likes a distinct hardy shrub. I have had it out for two winters unprotected, and it has not been the least injured. The feathery dark green sprays are very pretty, and to show you how evergreen it is, I enclose a few sprays. *H. N. E.*

SOCIETIES.

ROYAL HORTICULTURAL.

Tuesday, April 9.—The meeting on the above date at James Street, Westminster, was to have been mainly devoted to the Narcissus, but the season has proved so unpropitious that many would-be exhibitors were unable at the last moment to put in an appearance, and the interest of the day had to be divided with the Orchids, Primulas, and Pæonies of other exhibitors, and the fine miscellaneous exhibit from Kew. A good many visitors were drawn to the hall in view of the previously issued announcements, and to hear Mr. F. W. Burbidge descant on the genus Narcissus.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. S. Hibberd, R. Dean, P. Blair, H. Herbst, T. W. Girdlestone, E. W. Mawley, J. Walker, W. O. Leach, B. Wynne, R. B. Lowe, J. Fraser, G. Paul, H. Turner, T. Baines, W. H. Williams, and F. Ross.

As suitable adjuncts to Mr. Burbidge's lecture on the Narcissus, there were comprehensive collections of cut blooms of Daffodils and Narcissi, from Messrs. Barr & Son, King Street, Covent Garden, and from Mr. T. S. Ware, Hale Farm Nurseries, Tottenham. In the first-named group were several of the more recent introductions, Princess Ida showing up well, the brighter yellow of the fringe of the corona being very distinctive. In Mr. Ware's group were to be noticed the more well-known favourites. Both exhibitors employed Scillas, Anemones, &c., to relieve the yellow of the Narcissi. Mr. Ware also showed a plant of Convallaria majalis prolificans, in which the perianth segments become as bracts bearing sometimes perfect flowers in the axils. This plant is rather of more botanical interest than horticultural value.

Mr. R. Dean, Ealing, had a few pretty hardy Primroses, including the lately certificated "Blue Gem" and Lord Roseberry, having rich velvety carmine flowers of large size; there is a small white flake on the centre of the edge of each petal.

From Pendell Court Gardens (gr., Mr. F. Ross), there were specimens of Mutisia Clematis, which was shown at a recent meeting by the same exhibitor, and also pieces of Kennedya rubicunda, with clusters of deep maroon-red flowers of large size; this is a very good creeping plant for cool greenhouses.

Japanese Maples in small specimens and Tree Pæonies arranged together in a group were shown by Mr. W. Gordon, Twickenham, the fine colours of the Pæonies making a bright display. Conspicuous varieties were to be seen in the following:—Ivy, with rich rosy-carmine large flowers, semi-double, and of a charming *negligé* appearance; Lady Cordelia, pale blush, of moderate size, erect segments, semi-double; Mont Blanc, pure white, single; and Clementine, deep maroon, semi-double, and of medium size.

Other exhibits were a white Cineraria from Messrs. Vilmorin-Andrieux & Co., Paris, which received a vote of thanks; cut trusses of Rhododendrons, from Mr. R. Gill, gr. to Mrs. Shilston, Tremough, Penrhyn, Cornwall; Rose Gloire de Margottin, which is of a fine rich rosy-carmine colour and sweetly scented, from Messrs. H. Lane & Son, Great Berkhamsted; and Carnation Souvenir de la Malmaison, from Mr. H. M. Houldsworth, Wilton. The plant bore large well-formed flowers, some being 5 inches in diameter.

From H. B. May, Edmonton, came a single plant of Pteris Rex, a stout growing plant, about 18 inches in height, coarsely bipinnate, and of rich dull green colour.

The plants from Kew, noticed on a previous page, consisted of Arisæma præcox, with a trilobate leaf, light green spathe, showing pure white, with accurately defined chocolate-brown perpendicular lines, the lid is turned over so as to close the orifice, and is brown at the edge; A. curvatum has a speckled stem and a green spathe carried high above the foliage; A. Wrayii has a brown stem, marbled palmate leaves, the leaflets number four, and are dull green, with a rather indistinct variegation, the spathe is greenish-white; A. concinnum has a green stem, spathe, and foliage; A. speciosum has a mottled stem, the spathe standing on a very short footstalk—the leaves are trifoliate. Others of lesser beauty were A. Leschenaultii and A. galeatum. A plant of Godwinia gigas had a spathe 20 inches high, standing on a stem of 12 inches in height, and speckled like a partridge breast. A very pretty Orchid, Diacrium bicornutum (Epidendrum, habitat West Indies), came also from Kew; the flowers are borne on stalks 15 inches high, and numbered twelve on a stalk, either open or in bud. Individual flowers seen apart from the plant have much similarity to Phalænopsis. They are entirely white, with minute red dots on the tridentate lip. Rudgea macrophylla has a terminal corymb of white tubular flowers, densely set together, the coriaceous leaves measure 10 inches in length by 3 inches in breadth; Pleurothallis insignis, native of Caraccas, has fawn-coloured sepals and petals, with a lip of a rich brown colour; Restrepia elegans, likewise from Caracas, has flowers of a golden ground colour, with fine red-purple lines. Various alpine Primulas were exhibited

in bloom; several Orchis and Ophrys, Hyoscyamus orientalis, with dirty purple flowers; and a very pretty foliaged Eugenia myriophylla from Brazil, a decorative plant of great value, also as material for bouquets, and singularly like a narrow-leaved Podocarpus, though widely different in reality.

Messrs. J. Veitch & Sons, Chelsea, exhibited two Amaryllis, with flowers of moderate size, viz., Sirocco—a flower entirely of a shade of crimson, including the anthers—and Zephyr, a flower with a white ground, barred and stained with red.

Orchid Committee.

Present: Sir T. Lawrence, Bart., in the chair; and Messrs. J. O. Brien, E. Hill, J. Dominy, H. Ballantyne, H. M. Pollett, Dr. M. T. Masters, L. Castle, and F. Sander.

A grand show was made by a collection staged by Baron Schroder, The Dell, Egham (gr. Mr. Ballantyne). Dendrobiums nobile in various forms constituted the larger portion of this display, and were shown in well grown and finely flowered specimens—the colouring of the various varieties ranging from a rich rosy hues to white. The forms shown included album (Schroder's var.), with three spikes: Cooksoni, with four spikes; fine nobilius, and a large piece of elegans. Other Denbrobes comprised very freely flowered Leechianum, splendidissimum, Brymerianum, Farmeri (very fine), the new hybrid, D. micans, with a spike of some fifteen flowers. The sweetly-scented D. heterocarpum and the white singular D. barbatulum, with three spikes heavily set with flowers; and D. euosmum leucopterum, with a chaste and elegant flowers of white with a lake throat; the plant shown had a profusion of flowers and the delicate undulations of the perianth segments lent a very pretty effect. Of Lælias, L. harpophylla and L. Lawrenciana were conspicuous in large and freely-flowered pieces. Odontoglossums were also freely shown, O. Wilckeanum, in two fine varieties, being particularly striking; the one had a spike of large flowers of rich yellow ground, with a few large brown spots; the other had more brown markings on a paler ground. These, with a fine form of O. triumphans, with large and finely-coloured flowers, and a plant of O. elegans, with a well-furnished spike, were the chief of the Odontoglossums.

Another very interesting lot of good plants came from Messrs. F. Sander & Co., St. Albans; there were densely flowered, well-grown pieces of D. marmoratum, D. devonianum, and D. transparens, the delicate colourings of these three species being very pleasing. A good centre-piece was formed in Cattleya Skinneri with many flowers, and there was also a piece of C. Lawrenceana, to which two or three plants of Oncidium bifolium gave a brilliancy from their bright yellow flowers. Other good subjects were to be seen in Dendrobium Dalhousianum, D. Halli leucoglossum, a fine variety, with flowers of greenish-yellow, and heavy deep brown spots, with the lip large and white, with similar white spots; two varieties of Cymbidium Lowianum, of good quality, each with a spike of considerable length; and a piece of Cattleya Trianæ superba, pale rosy-pink, with an intensely coloured broad lip, the plants bearing a number of flowers of large size.

F. G. Tautz, Esq. (gr., Mr. Cowley), Studley House, Goldhawk Road, Shepherd's Bush, W., contributed a large well-flowered piece of Cymbidium eburneum, Lycaste Sanderiana, with fine flowers; a rich lilac form of Cattleya speciossisima, named Bella Donna; and Miltonia vexillaria leucoglossa, pale rose, the lip being lighter than the other plants; and also a fine form of the same name, M. v. purpurea, very richly coloured all over, and the flowers of good size, rendering it a very conspicuous object.

From Messrs. H. Low & Sons, Clapton, was shown a plant of Cypripedium bellatulum, which was introduced by this firm; and from G. Firth, Esq., Manningham Thorpe, Bradford (gr., Mr. F. Collins), was a cut spike of a pure white form of Phalænopsis Schilleriana, which was very pretty.

The contributions of Orchids from Sir T. Lawrence's treasure houses at Burford were, Cypripedium Curtisi, certificated on July 8, 1884—a vigorous plant, with fine slippers, which got a vote of thanks; Cattleya Lawrenciana; Angræcum Leonis, a well-bloomed small plant; Restrepia elegans; Cymbidium eburneum Dayanum, with flowers larger than the type, and possessing the faintest tinge of rose colour in the white; Lycaste Schilleriana; Catasetum barbatum proboscideum, an uncommon-looking flower of a green colour, barred on the inside of the various parts with black-brown; white filaments fill up the throat of the flower. The flower-stalks are short, and the whole plant of a dwarf habit.

Messrs. J. Veitch & Sons exhibited a small piece of Dendrobium Wardiano-aureum ×, in which the flowers have white petals tipped with purple—the lip faintly tipped with the same. The base of the lip has a rich red-brown blotch, surrounded with an outline of yellow, which is itself bordered with white.

The Lecture on Narcissus.

Mr. Burbidge hinted that the Daffodils and Narcissi of to-day had probably arrived at their present complex state of development by a very gradual change from ordinary starry-flowered primitive species of Amaryllids; and he further stated his opinion, that even the whole order of Amaryllids was merely a more complex and highly organised branch of the true Lilies. The wild species of Narcissi best suited for garden culture and hybridism, were shown to be six only, viz., N. Pseudo-Narcissus, N. Bu'bocodium, N. Tazetta, N. poeticus, N. triandrus, and N. Jonquilla and N. juncifolius, which merge into each other. These species are all wild in Europe; all come true from seed when fertilised with pollen from another individual of the same species, and they hybridise with each other with tolerable certainty; and all our best garden kinds of to-day are the result. Diagrams and lists of these species and their hybrids were shown, together with a map showing the generic distribution of the order Amaryllidaceæ. Mr. Burbidge pointed out that the anthers in Daffodils are uniseriate, springing free from the base of the tubular portion of the flower. In the true Narcissi, on the other hand, the stamens are biseriate and spring free just below the mouth of the tube; and it was clearly shown that the hybrids between these two main sections of the genus could be readily distinguished by their intermediate structure, the tube being shorter and broader than in true Narcissi, and the stamens have a medial insertion, *i.e.*, they spring free about half-way up the tube, and appear to be in one series by reason of the anthers being equal in length, although there is, as might be expected, some slight inequality in the insertion of the filament. The lecturer objected to hybrids of the same parentage being grouped under different sectional names, and pointed out that the N. poetico × Pseudo-Narcissus hybrids, such as N. Bernardii, N. incomparabilis, N. Barrii, N. Burbidgei, &c., were practically so near to each other that they could be included under one or at most two sectional names instead of four. The same is true of the N. Tazetta × Pseudo-Narcissus group, which includes N. Sabineii, N. Macleayi, N. Backhousei, and N. tridymus, all of which Mr. Burbidge believes should be grouped under the one head of N. Sabineii, the hybrid first figured and described in the *Bot. Register*, t. 762. Remarks were made on culture and bulb growth and development, also on the nomenclature of the hybrid sections. Double forms or reversions were alluded to, and the paper included a list of all the best kinds for garden culture—a list that is likely to be of service to those beginning the cultivation of these flowers of spring. It would, perhaps, astonish our grandmothers to know that one of the best of the new seedling Daffodils, Madame de Graaff, is priced at five guineas the bulb; and another, Gloria Mundi, one of the Peerless group, at 42*s.*; while the half-guinea, five-shilling, and half-crown bulbs crop up pretty frequently among the names of the best varieties. Culturally Mr. Burbidge deprecated the too constant use of rich and crude manures, and recommended frequent transplanting of the bulbs on all soils not naturally suited to their growth. Pure fresh meadow earth was said to be the best for these bulbs, and if on a gravelly bottom, so much the better, as in that case the roots did not suffer from too much moisture at the root during summer when in a comparative state of repose. Raised beds or sunny banks are recommended on low wet or in cold northern positions and climates, where there is sometimes a difficulty in ripening the bulbs. Whenever and wherever the bulbs appear unhealthy, or they do not flower satisfactorily, they should be marked at once for transplanting in June, July, or early in August following. The paper is to be published *in extenso*, we believe, in the *Journal of the Royal Horticultural Society*, and if illustrated as well as by Mr. Burbidge's diagrams and drawings, it will prove an interesting contribution to the history of these now popular and seasonable garden flowers.

Mr. Engelheart followed with a paper in which he discussed the developments and improvements needed for florists' and market-garden purposes.

Fruit Committee.

Present: R. D. Blackmore, Esq., in the Chair, and Messrs. H. Weir, A. Sutton, E. Crawley, J. Cheal, J. Barnett, J. Willard, G. Norman, W. Warren, G. T. Miles, G. Cliffe, W. Bates, F. R. Lane, W Wildsmith, J. Wright, G. Bunyard, J. Hudson, and Sir C. W. Strickland, Bart.

Mr. W. Unwin, Covent Garden, showed a box of six Cucumber fruits, called Covent Garden Favourite, which had grown by Mr. Featherby, Gillingham, Kent. They were symmetrical examples of 20 inches in length, and apparently of good quality.

Strawberry Harris' Early Forcing was shown by Mr. J. T. Harris, Great Lodge, Tunbridge. It has a Cockscomb shaped berry, bright in colour, is dwarf in growth, and ripening off from eight to twenty fruits on a plant.

Deans' Early Sunrise Potatos, with good firm skin, were shown by Mr. R. Dean, Ealing.

Mr. Divers, gr., Ketton Hall Stamford, showed a bedding Beet, with bright purple leaves, which had been sown last year, so that it was hardy enough to be efficient as a winter bedding or margin plant. A good, close growing, sprouting Broccoli came from the same gardens.

Miscellaneous.—The Scientific Plant Pot Company, 21, Commercial Street, Leeds, showed samples of their wares, see *ante*, p. 436; and Messrs. G. Smith & Co. showed samples of their tubular flower-holders, filled effectively with flowers and foliage.

Awards were made as follows:—

By the Orchid Committee.

First-class Certificates.

To Dendrobium euosmum leucopterum, from Baron Schroder, The Dell, Egham.

To Milltonia vexillaria purpurea, from F. G. Tautz, Esq., Studley House, Hammersmith.

Botanical Certificates.

To Lycaste Schilleriana, from Sir T. Lawrence.

To Catasetum barbatum proboscideum, from Sir T. Lawrence.

Award of Merit.

To Oncidium bifolium, from Messrs. F. Sander & Co.

By the Floral Committee.

Award of Merit.

To Rose Gloire de Margottin, from Messrs. H. Lane & Son.

Cultural Commendation.

To Carnation Souvenir de la Malmaison, from Mr. H. M. Houldsworth.

Medals.

Gold Medal, to Baron Schroder, for Group of Orchids.

Silver-gilt Banksian, to Messrs. F. Sander & Co., for group of Orchids.

Silver Banksian, to Mr. T. S. Ware, for group of Daffodils; to Messrs. Barr & Son, for group of Daffodils; to F. G. Tautz, Esq., for group of Orchids; to Sir T. Lawrence, Bart., M.P., for group of Orchids.

ROYAL BOTANIC.

April 10.—No doubt owing to the dull wet weather this show was of smaller dimensions than usual, and the attendance at the exhibition was sadly interfered with by the continual rain, and at one time of the day, by the black fog which prevailed. The exhibits were fairly varied, and Roses and Azaleas were very good. Certificates were not so freely awarded as on some occasions, but it is a question whether the Society is not still too liberal in this respect.

Azaleas shown by Mr. C. Turner, Royal Nurseries, Slough, were the best in the show, half-a-dozen well-flowered medium-sized plants securing for him the 1st place in the nurserymen's class—Mrs. Turner, Apollo, and Duc de Nassau may be named as the best, although all were very good, and the flowers large and clear.

In the amateur's class there was more competition and a better show on the whole. Mr. R. Scott, gr. to Miss Foster, The Holme, Regent's Park, led with heavily flowered specimens—Alexis Dallière and Dame Melaine, being the best; Mr. H. Eason, gr. to B. Noakes, Esq., Hope Cottage, Highgate, was a good 2nd, with somewhat smaller plants.

Roses were of good quality throughout, nine very fine specimens being staged by Messrs. Paul & Son, Old Nurseries, Cheshunt, who led amongst nursery-

men; the plants were evenly flowered and well grown, the leading varieties being W. Warden, Celine Forestier, Madame de St. Joseph, and La France. A few plants, not for competition, also came from this firm, and were equally fine.

Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, was a close 2nd, Magna Charta, Catherine Soupert, and Madame G. Luizet being very fine. In the miscellaneous class Mr. Rumsey had a large group of bush and standard Roses, numbering about fifty, for which a Large Silver Medal was given, the varieties just named, with Mdme. de Watteville. Souvenir d'un Ami, Miss Hassard, and other favourite varieties, were to be noticed.

Cinerarias were contributed by Mr. J. James, Woodside, Farnham Royal, Slough; Mr. J. Douglas, Great Gearies Gardens, Ilford; and Mr. D. Phillips, Slough, who took the prizes in the order of their names, 1st and 2nd lots being specially good in habit and bright in colour.

A few named plants not for competition were sent by Mr. James, among which the best were Conqueror, magenta, self; Paul Jones, crimson-magenta, with a narrow white zone; Favourite, dark purple-crimson, with a crimson zone; and Victor, a full crimson, self.

Messrs. J. Carter & Co., High Holborn, London, showed plants of the quilled Cineraria, Emperor Frederick, already certificated as Alexander Warwick.

The prizes offered for a collection of hardy herbaceous plants brought out two good groups, Messrs. Paul & Son, Cheshunt, being awarded the premier place for a collection in which varieties of the Primrose figured well, other plants being Helleborus hybridus, Epimedium pinnatum elegans, Megasea Stracheyi, Ranunculus ficaria vars., double Caltha palustris, Primula cashmiriana, and P. viscosa, Violets, Narcissi, &c.; and a pretty Tulip, T. Kolpakowskiana, about 6 inches high, flowers yellow, the outer segments flushed with red on the exterior face, the segments are erect, with the tips turned outwards. It is a very pretty flower.

Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, was 2nd, with Lilium Harrisii, Dielytra spectabilis, Spiræa japonica, Lily of the Valley in large pans, Anemone pulsatilla, Primula pubescens nivalis, and P. cashmiriana, and Narcissi.

For a collection of alpines, Messrs. Paul & Son were the only exhibitors, and took 2nd with a very large collection of well-grown plants. Varieties of Primula pubescens and of Hepatica triloba were plentiful and various; Saxifrages, such as Burseriana coriophylla, retusa, and atro-purpurea; Gentiana verna, and the pale blue Iris persica, were also shown.

Amaryllises were of fair quality, Messrs. Paul & Son leading with bright-coloured flowers, in which Vulcan, deep red, of medium size; and Salvator rosea, deep red, with white nerves, were singled out as the best. Mr. J. Douglas was a fair 2nd, his flowers not being quite developed.

This last exhibitor was in the premier place for twelve Auriculas, with very bright, clean flowers, Heather-bell, purple, grey edge, and good paste—Rev. F. D. Horner and Negro being the best; he also led for twelve Polyanthus. Mr. C. Turner, who was 2nd for Auriculas led for twelve alpines, with Pallas, Diadem, Purple Gem, and Butterfly as his best; Mr. Douglas was a good 2nd.

Mr. Phillips led for 9 Pelargoniums, with well-flowered plants of medium size, and again for Mignonette.

Messrs. J. Laing & Sons, Forest Hill, S.E., had a group of Crotons, Dracænas, some fine Cliveas, and a few Orchids, for which a Silver Medal was awarded.

Large Bronze Medals were awarded to Messrs. Barr & Son, Covent Garden; and to Mr. Ware, for collections of cut Daffodils. Messrs. Barr showing also Narcissus Her Majesty, which is like a pale spurius.

A Silver Medal was given to Messrs. Sander & Co., for a group of Orchids similar to that shown on Tuesday at the Royal Horticutural Society's meeting, including Dendrobium Harveyanum, which has flowers of bright yellow about 1½ inch across, the petels and lip being fringed, as in Brymerianum, only the lip is smaller.

Mr. Hibbert, gr. to W. Clay, Esq., Kingston, received a Bronze Medal for a collection of Cyclamen in pots; and for a large collection of varieties of Primula acaulis Mr. Ware was awarded a like recognition. He also had a few other specimens of Primulas, including P. marginata cœrulea, with grey-blue flowers; and a group of Pæonies from Mr. Gordon, Twickenham, won a Large Bronze Medal.

Messrs. J. Veitch & Sons, Chelsea, contributed a few novelties, including Amaryllis Sirocco, exhibited at the Royal Horticultural Society on Tuesday; hybrid Rhododendron Ne Plus Ultra, bright scarlet—very fine; Dendrobium micans× and D. Wardio-aureum×, the latter has flowers of white, flushed rose at the tips of the segments, the lip is expanding, with a deep red-brown blotch. In form the flower and plant is intermediate between the parents.

Mr. Firth, Bradford, had his white Phalænopsis Schilleriana, and Messrs. Paul & Son a specimen of Lilac Marie Lemoine bearing a profusion of fine white flowers.

Messrs. J. Cheal & Sons, Crawley, Sussex, sent a collection of well-kept Apples, and received a Bronze Medal; and very fine baskets and bouquets of cut flowers were shown by Messrs. Hooper & Co., Covent Garden (Large Bronze Medal).

Certificates.

Botanical.

To Dendrobium Wardio-aureum, from Messrs. J. Veitch & Sons.

To Dendrobium Harveyanum, from Messrs. F. Sander & Co.

To Phalænopsis Schilleriana alba, from G. Firth, Esq.

Floricultural.

To Amaryllis Sirocco, from Messrs. J. Veitch & Sons.

To Rhododendron Ne Plus Ultra, from Messrs. J. Veitch & Sons.

To Auricula Heather-bell, from Mr. J. Douglas.

To Cineraria Emperor Frederick (Alexander Warwick), from Messrs. J. Carter & Co.

To Primula marginata cœrulea, from Mr. T. S. Ware.

To Narcissus Her Majesty, from Messrs. Barr & Son.

To Amaryllis Vulcan and A. Salvator rosea, from Messrs. Paul & Son.

To Lilac Marie Lemoine, from Messrs. Paul & Son.

To Cinerarias Conqueror, Favourite, Paul Jones, and Victor, from Mr. J. James.

LINNEAN.

April 4.—Mr. Carruthers, F.R.S., President, in the chair. Mr. D. Morris exhibited a specimen of the hymenopterous insect, Eulæna cayenensis, concerned in the fertilisation of Coryanthes macrantha (see Crüger, *Journ. Linn. Soc.*, viii., 129), and obtained from Mr. Hart, of Trinidad. Referring to the illustrations of the structure of the flowers given in the *Gardeners' Chronicle* (xvii., 1882, 593, and xxiii., 1885, 145), Mr. Morris explained the process carried out by the insects, chiefly bees, in removing the pollinia and subsequently attaching them on the stigma. The observations of Crüger had been verified by Mr. Hart in the Botanic Gardens, Trinidad.

Law Notes.

COUNTER ACTIONS BY GARDENERS.

In the Aberdeen Sheriff's Court, before Sheriff Dove Wilson, on Thursday, the 28th ult., William Bisset, gardener, Pitmaxton House, Aberdeenshire, sued William Slora, gardener, Bloomfield, for £12, in name of loss and damage sustained by him in consequence of the defender having poisoned two of his dogs. It may be mentioned here that Slora was recently punished in the Aberdeen Criminal Court for destroying the dogs. On Thursday Slora lodged a counter claim for damages done by Bisset's dogs. The bill was as follows:—

120 Pansies (named), at 3*s.* per dozen	1	10	0
120 ,, ,, ,, ,, ...	1	10	0
50 ,, (unnamed), at 2*s.* per dozen	0	8	4
36 ,, ,, ,, ,, ...	0	6	0
96 dozen Calceolarias, at 1*s.* 6*d.*	7	4	0
35 Stocks (All the Year Round), at 6*d.* each	0	17	6
1 bed of white Lilies	0	5	0
53 square feet of glass, estimated at 1*s.* per square foot	2	13	0
	£14	13	10

(Restricted to £12.)

The evidence led for Bisset's action was somewhat similar to that given at the trial of Slora for poisoning the dogs, and was to the effect that, because pursuer's dogs had broken some of the glass of defendant's greenhouses, defender threatened to poison the dogs. Slora had shown some of the witnesses a packet which he said contained strychnine, and he said he would give the dogs a dose of something that would keep them at home. On the day after Slora made that threat Bisset's dogs were taken ill; one of them died that day, and the other died some days afterwards. Several pieces of meat containing strychnine were found on Slora's ground. The ground, it was explained, was not enclosed, so that any dog could wander on to it. For the defence several witnesses were examined to prove that pursuer's dogs had done a great deal of damage by breaking glass and destroying plants, and that defender used poison for vermin. There was considerable difference as to the value of the dogs, one witness declaring he would not take them for a present. Sheriff Wilson held it proved that Slora poisoned the dogs, and remarked that people who poisoned dogs had got to pay fancy prices for them, having to reckon with the injury to feeling such actions caused. £3 would be a fair sum for each dog. As to the counter-claim, it was surely rather extravagant, for 96 dozen of Calceolarias represented a tremendous amount of scraping by two dogs. It was not likely, however, that Slora would be so wicked as to poison the dogs without some excuse, and he allowed him £1. Slora must pay the expenses. If he had any complaint against the dogs, he should have sued the owner for damages.

Bremond *v.* Lewis Isaacs.

This was an action remitted from the High Court to the Whitechapel County Court, and came before Judge Bacon on the 9th inst. It was brought by Mr. Louis Bremond, of Allioules, France, against Mr. Lewis Isaacs, of 3, Victoria Warehouses, Mansell St., Aldgate, to recover £50 1*s.* 7*d.* for goods sold and delivered, or in the alternative, for damages for non-acceptance of a bill of exchange payable six months from date of invoice. The defence was that the goods (Roman Hyacinths) were not according to order, and that the defendant had to sell the bulbs at 60*s.* per 1000, although the plaintiff had charged him 80*s.* per 1000.

The jury found for the plaintiff for the full amount claimed, together with interest and costs.

The Weather.

THE PAST WEEK.

The following summary record of the weather for the week ending April 9, is furnished from the Meteorological Office:—

"The *weather* has been very dull, unsettled, and rainy in all parts of the kingdom. Towards the end of the period the rainfall over the north-western and western parts of central England was unusually heavy; at several stations on the 7th nearly 1 inch of rain was measured, and on the following day 1·56 inch fell at Ross (Herefordshire), 1·90 inch at Hereford, and 2·09 inches at Churchstoke. Thunder and lightning were experienced in different parts of England between the 4th and 6th, and again over our south-western counties on the 7th and 8th.

"The *temperature* has been below the mean in all districts, the deficit having been least (1° or 2°) in the south of England, the 'Channel Islands,' and south of Ireland, and greatest (5°) in the north-east of England and east of Scotland. The highest of the minima, which were registered on somewhat irregular dates, varied from 48° in 'Scotland, N.,' to 56° in 'England, E.,' and 'England, S.' The lowest of the minima were recorded in most places on the 3rd, and ranged from 28° in 'Scotland, E.,' to 34° in 'Ireland, N.' and 37° in the 'Channel Islands.'

"The *rainfall* has been rather less than the mean in 'Ireland, S.,' and the 'Channel Islands,' but more in all other districts; in the 'Midland Counties' the fall has been nearly four times as much as the mean.

"*Bright sunshine* has been very deficient generally, the percentage of the possible duration having ranged from 5 in 'England, E.,' and 6 in Scotland, to 7 in 'England, S.W.,' and to 35 in the 'Channel Islands.'"

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending April 9.	Accumulated Temperature. Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1889.	Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1889.	Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	4 —	0	26	— 27	+ 36	1 +	77	14.5	6	17
2	5 —	0	29	— 30	+ 21	6 +	58	5.8	6	22
3	5 —	3	22	— 50	+ 28	7 +	52	6.0	5	22
4	3 —	17	25	— 90	+ 128	1 +	52	4.3	20	22
5	3 —	17	21	— 89	+ 79	13 +	49	7.6	13	21
6	2 —	31	8	— 97	+ 94	4 +	52	6.0	25	21
7	4 —	7	20	— 31	— 10	4 +	63	11.6	6	22
8	4 —	11	19	— 66	+ 7	5 +	56	7.1	12	21
9	3 —	27	8	— 83	+ 90	1 +	52	10.0	27	26
10	3 —	18	8	— 17	— 38	4 +	71	9.7	6	18
11	1 —	28	5	— 25	— 12	2 —	59	9.1	18	26
12	1 —	33	0	— 40	— 14	2 —	62	7.0	35	32

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, April 11.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

Market quiet. Strawberries dull; a few samples of new Grapes to hand. Prices generally easier. *James Webber, Wholesale Apple Market.*

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	...	...12 0– ...	Mustard and Cress, punnet	...	0 4– ...
— French, bundle	21	0– ...	Onions, per bunch	...	0 5– ...
Beans, Jersey French, per lb.	...	... 3 6– ...	Parsley, per lb.	...	1 0– ...
Beet, red, per dozen		1 0– 2 0	Peas, French, per lb.		1 0– ...
Carrots, per bunch	...	0 6– ...	Potatos, per cwt.	...	4 0– 5 0
Cauliflowers, each	...	0 3– ...	— kidney, per cwt.		4 0– 5 0
Celery, per bundle	...	1 6– 2 0	— new French, lb.		0 6– ...
Cucumbers, each	...	1 0– ...	Rhubarb, bundle	...	0 6– ...
Endive, per dozen	...	3 0– ...	Seakale, punnet	...	2 6– ...
Green Mint, bunch	...	1 0– ...	Shallots, per lb.	...	0 6– ...
Herbs, per bunch	...	0 6– ...	Spinach, per bushel	...	5 0– ...
Leeks, per bunch	...	0 4– ...	Tomatos, per lb.	...	2 0– ...
Lettuce, per dozen	...	1 6– ...	Turnips, per bunch, new	...	... 0 5– ...
Mushrooms, punnet		1 6– ...			

Potatos.—Beauty of Hebron, 70*s.* to 80*s.*; Imperators, 60*s.* to 65*s.*; Dunbar Magnums, 130*s.*; Lincoln, do., 70*s.*; and Dunbar Regents, 110*s.* to 120*s.* per ton.

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.		6 0–18 0	Ficus elastica, each		1 6– 7 0
Arum Lilies, p. doz.		9 0–15 0	Genista, dozen	...	8 0–12 0
Azaleas, dozen	...	24 0–42 0	Hyacinths, dozen	...	6 0– 9 0
Cineraria, per dozen		8 0–12 0	Lily-of-Val., per doz. pots	...	...10 0–18 0
Cyperus, per dozen		4 0–12 0	Marguerites, doz.	...	6 0–12 0
Dracæna terminalis, per dozen	...	...30 0–60 0	Mignonette, doz.	...	6 0–12 0
— viridis, per doz.		12 0–24 0	Palms in var., each		2 6–21 0
Erica, various, doz.		12 0–30 0	Pelargoniums, dozen		12 0–18 0
Euonymus, in var., per dozen	...	6 0–18 0	— scarlet, doz.	...	4 0– 6 0
Evergreens, in var., per dozen	...	6 0–24 0	Primulas, per dozen		4 0– 6 0
Ferns, in var., doz.		4 0–18 0	Roses, H.P., doz.		...12 0–24 0
Foliage plants, various, each	...	2 0–10 0	— Fairy, doz.	...	9 0–12 0
			Spiræa, doz.	...	9 0–15 0
			Tulips, dozen pots	...	6 0– 9 0

Bedding Plants in variety from 1*s.* per doz.; per box, 1*s.* 6*d.* to 2*s.* 6*d.*

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutillons, 12 bun.	...	3 0– 6 0	Mignonette, 12 bun.	...	3 0– 6 0
Anemone, Fr., 12 bun.		1 0– 3 0	Narcis., paper-white (French), 12 bun.		2 0– 6 0
Arum Lilies, 12 blooms		2 0– 4 0	— double, 12 bun.	...	4 0– 6 0
Azaleas, 12 sprays	...	0 6– 1 0	Pelargoniums, 12 spr.		1 0– 1 6
Bouvardias, per bun.		0 9– 1 0	— scarlet, 12 spr.	...	0 4– 0 6
Camellias, white, 12 blooms	...	2 0– 4 0	Primroses, 12 bun.	...	0 6– 1 0
— red, 12 blooms	...	0 9– 2 0	Primulas, dbl., 12 sp.		1 0– 1 6
Carnations, 12 blms.		2 0– 3 0	Roses, Tea, per doz.		1 0– 3 0
Daffodils, dbl. 12 bun.		2 0– 4 0	— coloured, dozen		2 0– 4 0
— single, 12 bun.	...	1 6– 3 0	— red, per dozen	...	3 0– 6 0
— French, 12 bun.		2 6– 4 0	— Safrano, dozen	...	1 6– 2 0
— various, 12 bun.		4 0– 9 0	— do., (Fr.), doz.	...	1 0– 1 6
Eucharis, per dozen		3 0– 6 0	Tuberoses, 12 blms.	...	2 0– 4 0
Gardenias, 12 blooms		3 0– 6 0	Tulips, 12 blooms	...	0 6– 1 0
Heliotropes, 12 spr.		0 6– 1 0	Violets, 12 bunches	...	0 6– 1 0
Lilac, white Fr., bun.		4 0– 6 0	— dark, Fr., bunch		1 0– 2 0
— lilac-coloured, p. bunch	...	3 0– 5 0	— Parme, Fr., bun.		2 6– 3 6
Lily-of-Val., 12 spr.		0 6– 1 0	Wallflowers, 12 bun.		4 0– 6 0
Marguerites, 12 bun.		3 0– 6 0	— French, 12 bun.		1 0– 2 0

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	...	2 0– 4 0	Lemons, per case	...	12 0–21 0
— Canada and Nova Scotia, per barrel		7 0–17 0	Pine-apples, Eng., lb.		1 6– 2 0
Grapes, per lb.	...	2 6– 6 0	— St. Michael, each		2 0– 8 0
			Strawberries, per lb.		4 0– 7 0

SEEDS.

London: *April* 10.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that the late wet weather has for the time somewhat diminished the consumptive demand for farm seeds. Values all round show no material alteration, whilst stocks are getting into narrow compass. All descriptions of seeds, with the exception of Trefoil, which continues dear and scarce, are now obtainable in London on exceedingly moderate terms. The export of red Clover seed to France still goes on. Italian and perennial Rye-grass keep brisk and cheap. Sanfoin meets an active sale. Tares are slow. For blue Peas there is an improved trade. Bird seeds are neglected. Rape seed is firm. Mustard without alteration.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended April 6:—Wheat, 30*s.* 1*d.*; Barley, 25*s.* 4*d.*; Oats, 17*s.* 0*d.* For the corresponding week in 1888:—Wheat, 30*s.*; Barley, 31*s.*; Oats, 15*s.* 8*d.*

FRUIT AND VEGETABLES.

Spitalfields, *April* 10.—Savoys, 2*s.* to 4*s.* per tally; Cauliflowers, 6*d.* to 1*s.* 3*d.* per dozen; Turnip-tops, 6*d.* to 1*s.* per sack; Swede tops, 9*d.* to 1*s.* 6*d.* do; Sprouting Broccoli, 9*d.* to 1*s.* 3*d.* do.; Spinach, 1*s.* 3*d.* to 1*s.* 8*d.* per bushel; Brussels Sprouts, 6*d.* to 9*d.* per half-sieve; Greens, 1*s.* 6*d.* to 3*s.* per dozen bunches; Turnips, 2*s.* to 2*s.* 6*d.* do.; Carrots, 1*s.* 9*d.* to 3*s.* do.; Radishes, 4*d.* to 6*d.* do.; Parsley, 3*s.* to 4*s.* do.; forced Rhubarb, 1*s.* to 1*s.* 3*d.* per dozen bundles; natural do., 2*s.* to 2*s.* 6*d.* do.; Horse-radish, 1*s.* 2*d.* to 1*s.* 4*d.* per bundle; Parsnips, 9*d.* to 1*s.* per score; Beetroots, 9*d.* to 1*s.* per dozen; Seakale, 1*s.* to 1*s.* 3*d.* per punnet; American Apples, 6*s.* 9*d.* to 8*s.* 6*d.* per barrel; English do., 3*s.* 6*d.* to 7*s.* per bushel; English Onions, 6*s.* to 7*s.* per cwt.; Spanish do., 3*s.* to 4*s.* per case; Bordeaux do., 4*s.* to 4*s.* 6*d.* do.; Belgian do., 2*s.* to 3*s.* 6*d.* per bag; Dutch do., 2*s.* to 3*s.* 9*d.* do.; Endive, 1*s.* 6*d.* to 2*s.* per dozen; Carrots, 26*s.* to 32*s.* per ton; Mangels, 15*s.* to 18*s.* do.

Stratford: *April* 9.—There has been an excellent supply of all kinds of produce at the above market during the past week, and with a good attendance of buyers a brisk trade was done at the undermentioned quotations:—Cabbages, 2*s.* to 3*s.* per tally; Savoys, 2*s.* to 3*s.* do.; Cauliflowers, 1*s.* to 1*s.* 6*d.* per dozen; Turnips, 25*s.* to 30*s.* per ton; Carrots, household, 23*s.* to 25*s.* do.; do., cattle feeding, 18*s.* to 20*s.* do.; Mangels, 14*s.* to 17*s.* do.; Swedes, 14*s.* to 18*s.* do.; Onions, English, 120*s.* to 130*s.* do.; do., Dutch, 3*s.* 6*d.* to 4*s.* 3*d.* per bag; do., Bordeaux, 4*s.* to 4*s.* 6*d.* per case; Apples, English, 3*s.* to 7*s.* per bushel; do., American, 10*s.* to 15*s.* per barrel; Watercress, 6*d.* per dozen; Rhubarb, 1*s.* 6*d.* to 2*s.* per dozen bundles; Carrots, 2*s.* to 3*s.* per dozen bunches; Turnips, 2*s.* to 3*s.* 6*d.* do.; Cress, 2*s.* per dozen baskets.

POTATOS.

Borough and Spitalfields: *April* 9.—Full supplies, with very dull trade, and cheaper rates accepted for the common grades. Scotch Regents, 80*s.* to 130*s.*; English, 60*s.* to 105; Hebrons, 60*s.* to 90*s.*; Magnum Bonums, 60*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.* per ton. Other varieties, 60*s.* to 80*s.* per ton.

Spitalfields: *April* 10.—Quotations:—Regents, 90*s.* to 120*s.*; Magnums, 50*s.* to 70*s.*; Scotch do., 67*s.* to 90*s.*; Hebrons, 55*s.* to 60*s.*; Champions, 50*s.* to 60*s.*; Imperators, 60*s.* to 80*s.* per ton.

Stratford: *April* 9.—Quotations:—Scotch Regents, 80*s.* to 105*s.*; do., Magnums, 110*s.* to 120*s.*; English Magnums (light), 60*s.* to 80*s.*; do., dark, 55*s.* to 65*s.*; Hebrons, 55*s.* to 60*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, old, prime, 124*s.* to 140*s.*; do., best seconds, 80*s.* to 120*s.*; do., inferior, 36*s.* to 70*s.*; prime old Hay, 108*s.* to 126*s.*; new, 80*s.* to 105*s.*; inferior, 50*s.* to 75*s.*; old straw, 42*s.* to 48*s.*; new, 24*s.* to 40*s.* per load.

NOTICES TO CORRESPONDENTS.

Intelligent Readers, *do* please Note *that letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the* Publisher, and not to the Editor, but that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

*** **Correspondents are requested to note that, owing to the occurrence of Good Friday, their communications should reach us not later than Tuesday evening next.**

Addenda.—Mr. Robert Frisby, gardener at Worden Hall, desire us to add to the names of the chief prize-takers at the Preston show (see *Gardeners' Chronicle*, March 30, the names of Miss ffarington, Worden Hall, and E. G. Wrigley, Esq., Howick House, Preston.

American Nurseries: *H. B.* Massachusetts: Chase, 8, Pemberton Square, Boston; J. A. de Mar, Brighton, Boston; Hovey, Cambridge, Boston.—New Jersey: Brandis, 209, Washington Street, Hoboken.—New York; P. Henderson & Co., 35, 37, Cortland Street, New York; J. Thorburn & Co., 19, John Street, New York. You should advertise in American horticultural papers.

Bees and Beehives: *H. B. Book of Bee-keeping* (illustrated), by W. Webster (London: L. Upcott Gill, 170, Strand, W.C., 1888), 1*s.*; *Bees and Bee-keeping, Scientific and Practical*, by F. R. Cheshire; Vol. I., *Scientific*, 7*s.* 6*d.*; Vol. II., *Practical Management*, 8*s.* 6*d.* In these books are illustrations of various forms of bar-frame hives from which you could make a selection.

Correction.—In the paragraph entitled "Kew Bulletin," at p. 434, last week, it should have been stated that the species of Eucalyptus received at Kew from Tasmania, was E. coccifera, and not E. coccinea.

Diseased Gloxinia Leaf: *W. L.* A leaf-miner. The leaf showed signs of very rapid growth in a too moist atmosphere.

Insects: *R. N.* The Pear-snags sent appear to have been attacked by the caterpillars of the small moth Tortrix (Carpocapsa) Wæberana, figured and described in the *Gardeners' Chronicle*, September 6, 1884. *I. O. W.*

Mespilus Tsungarica: *W. E. G.* We shall be pleased to receive a specimen in the season.

Names of Fruits: *Calver, Ludlow.*—1, Rosemary Russet; 2, resembles Derbyshire Crab.

Names of Plants: *F. Ridge.* Cineraria platanifolia.—*W. X. Y.* Salvia rutilans (the Pine-apple scented Salvia).—*B. H. B.* No. 2 is possibly a Salvia; 3, perhaps a Gypsophila, but without flowers we can do nothing with them beyond the above guesses.—*Watney.* Cornus mas (the Cornelian Cherry).—*E. D. L.* 1, Orobus vernus, white

var.; 2, Corydalis bulbosa; 3, Corydalis solida var. alba; 4, Pulmonaria officinalis var. alba. — *Received without a letter.* 1, Begonia nitida; 2, Eupatorium riparium; 3, Helleborus fœtidus; 4, 5, 6, bedding Violas, which we cannot undertake to name. — *C. W. R.* Oncidium phymatochilum.—*A. B.* Berberis Darwinii; Mahonia nepalensis.—*W. B.* 1, Echium fastuosum; 2, Metrosideros floribunda, as far as we can tell without seeing any flowers; 3, Gnaphalium margaritaceum.—*Loughton.* 1, Cyrtanthus McKenii; 2, Eranthemum pulchellum; 3, Coccoloba platyclada.—*E. E.* 1, Cœlogyne ochracea probably, but in order to be certain we should like to see bulb and leaf; 2, Dendrobium nobile, a very fine variety; 3, Myoporum serratum, probably. —*A. C.* 1 and 2, varieties of Euonymus radicans; 3, Vaccinium vitis idæa.

Parrot Tulips: *Tulip.* We cannot account for your Tulips being without colour (their proper colour you must mean). Will you kindly send one of them for examination, and furnish particulars of management from the beginning.

Primula: *T. D.* The Polyanthus is an uncommon double form of a gold-laced variety. It is pretty, and worth propagating. The other is Primula sinensis fimbriata var., resembling P. s. f. Cottage Maid, which has been superseded by better ones.

Proliferous Nymphæas: *J. W.* Not uncommon; several species produce buds on the leaves constantly.

Rhododendrons: *Tulip.* In the absence of information as to general management, we should think that the cause of bud-dropping was dryness at the root—perhaps when fire-heat was much employed in frosty weather. If only once thorough dryness of the soil occurred, the loss of buds would follow.

Salt and Asparagus: *H. H.* Your garden is too near to salt-water for any crops in it to stand much in need of salt as manure; and, moreover, if the soil is rich in lime, magnesia, or potash, it will not be wanted; but in soils deficient in these constituents, salt acts as a solvent, liberating elements not otherwise obtainable by plants. Should a dressing of salt be decided on, a quantity equal to 1 lb. to the square yard will be sufficient at one time, an equal amount being again distributed over the bed in the course of a month later. The proper time is in spring and early summer, and if possible it should be applied in rainy weather. Whether salt be required or not as an aid to growth, slight dressings are of value in clearing the beds of the slugs.

Skimmias: *J. K. B.* An illustrated article on these plants is in preparation.

Smith's Weed Eradicator: *H. S.* This shall be tried and reported on.

Synopsis of the Queensland Flora: *G. M.* Apply to Mr. F. M. Bailey, Brisbane, Queensland.

Strawberry for Forcing Early: *C. W. R.* As an early variety employ Vicomtesse Hericart de Thury.

The Wild Daffodil; Narcissus Pseudo-Narcissus: *J. D.* We cannot tell you why the Anemones "come blind." It is probably owing to some cultural or climatal reason, but what we cannot say.

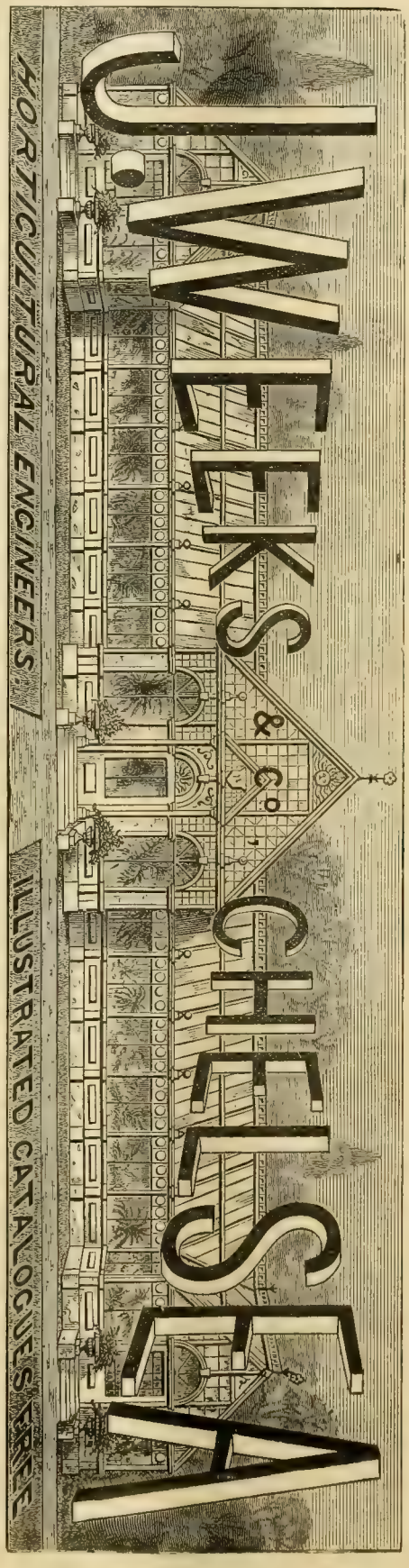
Vines: *S. Sharp, and Dulwich.* The wood was not properly ripened last year; hence the formation of tendrils instead of bunches.

Communications Received. — A. F. B.—A. E. J. V. & Sons.—F. S.—H. B. H.—N. E. B.—E. J.—W. K.—R. D.—D. R. P.—J. D.—E. M.—R. G.—D. D.—W. W.—W. Wythes. —F. R.—P. E. N.—W. B. H.—W. W.—W. E. G.—W. B.—G. F. W. (with thanks),—W. N. & Co.—C. Bordeaux.—C. C.—Sander & Co.

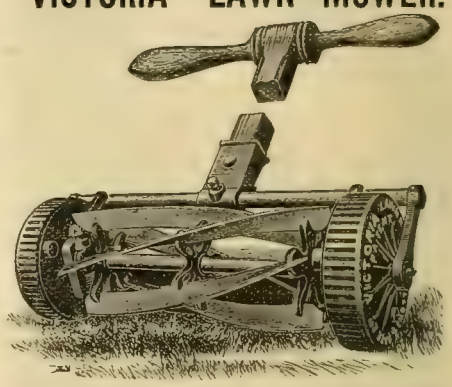
☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquiries in the current week.*

DIED.—We regret to announce the death of Mr. J. Ridout, Gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate. It took place, unexpectedly, on Thursday, March 28 last. Mr. Ridout was an excellent cultivator.

—— Also, on April 9, at 512, King's Road, Chelsea, S.W., William Coker, aged seventy-three.



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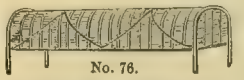
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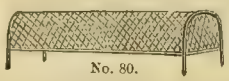
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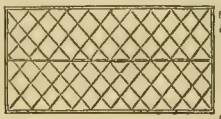
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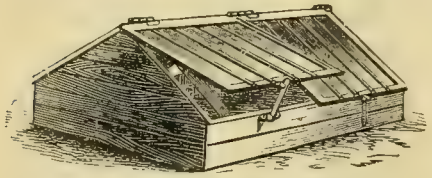
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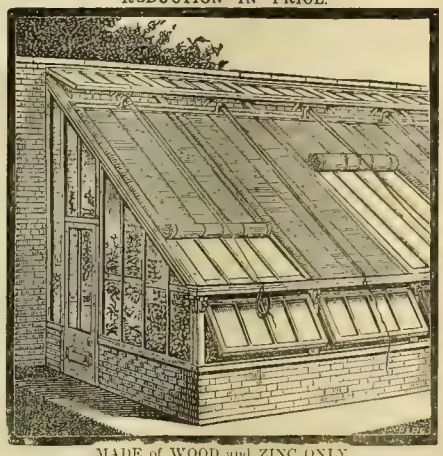
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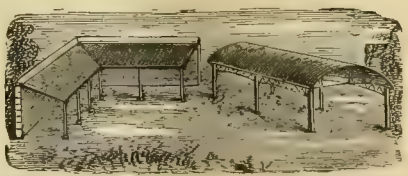
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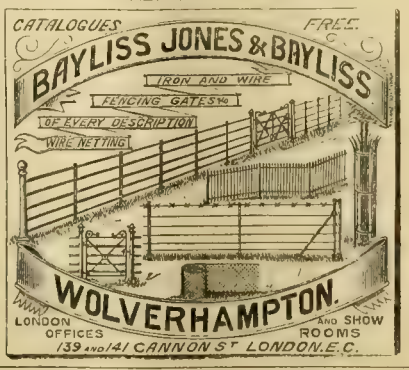


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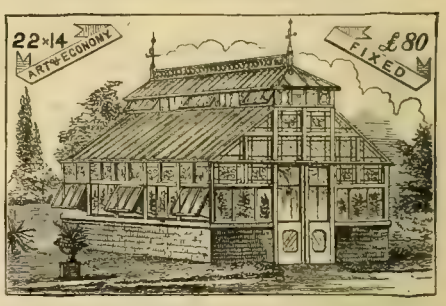
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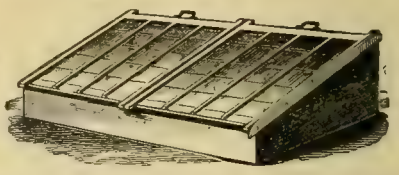
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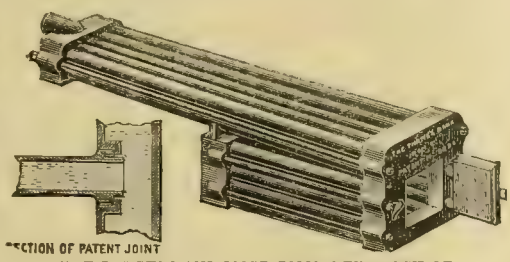
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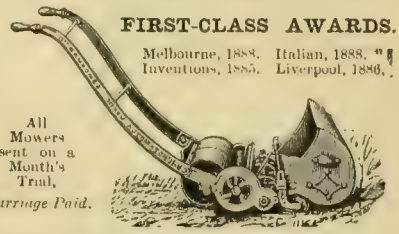
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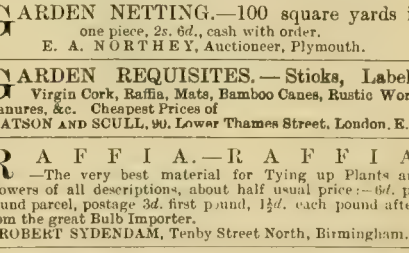
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THE KING OF THE BELGIANS,
The Late EMPEROR OF THE FRENCH. The EMPEROR OF RUSSIA,
And most of the Nobility, Clergy, and Gentry of the United Kingdom.

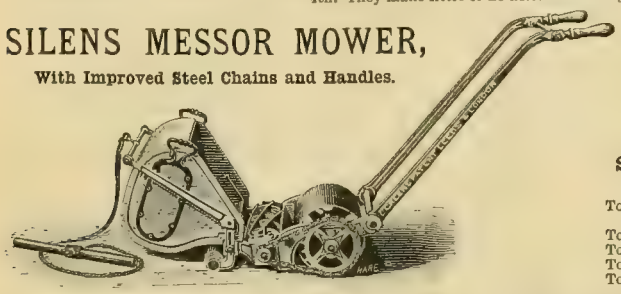
Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "*Journal of Horticulture*," *of June 9, says:* – "MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. GREEN & SON, of Leeds and London. As the Machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

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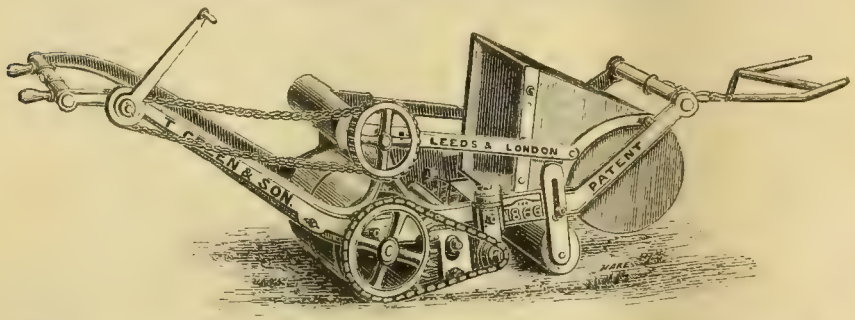


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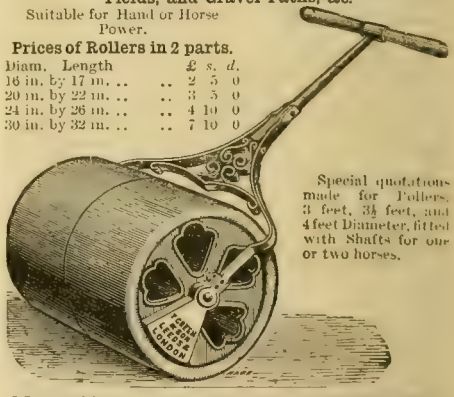
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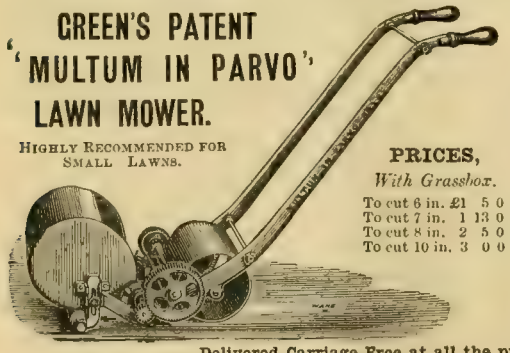
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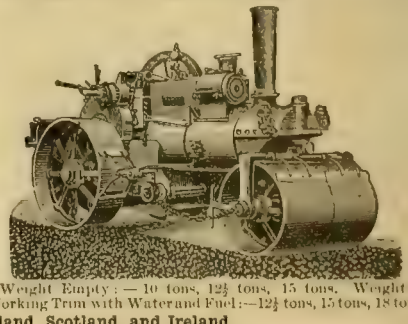
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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

ROYAL HORTICULTURAL SOCIETY.

GREAT FLOWER SHOW in the Gardens of the Inner Temple on MAY 30th and 31st, 1889.

Schedules and full particulars to be obtained on application to the Secretary at the Offices of the Society, 117, Victoria Street, S.W. Applications for space to exhibit to be made to the Superintendent, Mr. A. F. Barron, R.H.S. Gardens, Chiswick.

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Entries Close on Saturday, May 25th.

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SPECIMEN HOLLIES.—Best Green and Variegated sorts, in fine Pyramids and Standards. An Immense Stock. Sizes and prices on application. Also Specimen CONIFERS in great variety. Now is the time to plant.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PINUS AUSTRIACA., 9 to 15 inches, strong and well-rooted stuff, 25s. to 30s. per 1000.
EVERGREEN BOX, 18 inches to 2 feet, good bushy plant, £1 per 100. EPPS AND CO., Nurserymen, Ringwood.

CUT FLOWERS, BULBS, PLANTS, &c.—Best class of customers in district for good flowers.
Sales, WEDNESDAY and FRIDAY Night all the year round. Daily, when required. Largest and most centrally situated Horticultural Sale Rooms in Birmingham.—POPE AND SONS, 6, Phillip's Street (close to Market Hall), Birmingham.

Barr's Descriptive List of

SEEDS for PRESENT SOWING for the Flower and Kitchen Garden. Free on application to
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

IVIES.—Irish Ivy, very fine, in pots, neatly staked and tied, 5 feet, 6 feet, and 7 feet high.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey, and Flower Market, Covent Garden, W.C.

CHOICE FLOWER SEEDS.—Saved from the most refined and beautiful strains in existence, Made up in suitable collections. *Priced Lists Free.*
DICKSONS (*Limited*), The Royal Seed Warehouse, CHESTER.

SULPHIDE of POTASSIUM (Harris).—A certain cure for Mildew on Plants, Red Spider, Aphis, &c. Enough to make 32 gallons of solution, free for 1s. 3d. The only kind to use is "Harris's specially prepared Sulphide of Potassium." Sole Manufacturers:—
PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nurserymen and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SEND FOR New Illustrated CATALOGUE of Conservatories, Greenhouses, Garden Frames, Propagators, and Hand-lights, post-free, for 6 stamps, to be deducted from first order.—CHARLES FRAZER, Palace Plain Works, Norwich. Great Reduction in Prices.

CHRYSANTHEMUM CULTURE.—Standen's Manure, admitted by growers to be unrivalled for this purpose; in tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each.
Sold by all Seedsmen.

Fruit, Flowers, and Vegetables.

THOMAS, Covent Garden Market.
Telegraph Address, "THOMASES, London."
Telephone, No. 2822. See large Advertisement, p. 489.

SALES BY AUCTION.

Wednesday Next.—(Sale 7913.)

5000 splendid Bulbs of LILIUM AURATUM, L. a. MACRANTHUM, and other Bulbs from Japan; 500 choice named Dwarf ROSES from France; HARDY, ORNAMENTAL, and FLOWERING SHRUBS in great variety; CARNATIONS, PICOTEES, PINKS, and other BORDER PLANTS, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 24, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next, April 25.

LÆLIA GRANDIS, CATTLEYA LABIATA WARNERI, LÆLIA PERRINII, CATTLEYA INTERMMEDIA, extra large masses; MILTONIA CLOWESII and M. SPECTABILE, ZYGOPETALUM GRAMINŒFOLIUM; Z. MACKAYII, ONCIDIUM CRISPUM, &c.

MR. J. C. STEVENS has received instructions from Messrs. F. Sander & Co., to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 25, at half-past 12 o'Clock precisely, grand importations of the above, and many other fine ORCHIDS, in the best possible condition.

On view morning of Sale, and catalogues had.

Thursday Next.—(Sale No. 7914.)

A Portion of the Well-known COLLECTION OF ORCHIDS, formed by Captain Hincks, of Thirsk.

MR. J. C. STEVENS has received instructions from Captain Hincks (in consequence of his houses being overcrowded), to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 25, at half-past 12 o'Clock precisely, a portion of his well-known COLLECTION of ORCHIDS, comprising Cypripedium Hincksianum:—

Lælia anceps, White	Sobralia macrantha nana
Masdevallia Veitchii grandiflora	Dendrobium Brynerianum
,, Harryana Bulls-blood	Masdevallia Harryana "Comet"
,, Chelsoni	,, trochilus
,, Crossi	,, ignea Massangeana
,, ignea militaris	,, ,, Eckhardi
,, rosea	&c., &c.

On view morning of Sale, and catalogues had.

Thursday Next, April 25.

Received direct for Sale, without Reserve, Ten cases of ODONTOGLOSSUM ALEXANDRÆ, the well-known Pacho Variety, just arrived per s.s. Essequibo, and brought home under care of collector.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 25.

On view morning of Sale, and catalogues had.

Auction Rooms, East Street, Chichester.

MESSRS. HOBGEN BROS. are favoured with instructions from G. Gatehouse, Esq., to SELL by AUCTION, at their Rooms, East Street, Chichester, on SATURDAY, April 27, 1889, at 2 o'Clock precisely (removed thither for convenience of sale), a very valuable Assortment of ORCHIDS and other HOTHOUSE PLANTS, comprising:—

In ORCHIDS, the following choice varieties:—Cattleya Mossiæ, Mendeli, and Trianæ; Dendrobium nobile, Pierardi, moschatum, Paxsoni, Jamesianum; Odontoglossum Alexandræ, Pescatorei, grande, gloriosum, and vexillarium; Cypripedium barbatum, insigne, venustum, Boxalli; Cœlogyne cristata, Oncidium flexuosum, Papilio majus; Masdevallia ignea, Harryana, and bella; Zygopetalum Mackayi and maxillare; Cymbidium eburneum; Lælia anceps and majalis; Anthurium Scherzerianum; Aërides Fieldingi, nobile, and crispum; Vanda tricolar and suavis; Cyptopodium Andersoni.

In HOTHOUSE PLANTS:—Ixoras, Dracænas, Gardenias, Crotons, Caladiums, and Stephanotis; together with some Chrysanthemums and Azaleas.

On view the morning of Sale. Catalogues may be obtained in due course of HOBGEN BROS, Valuers and Estate Agents, East Street, Chichester.

Thursday Next.

GREENHOUSE and BEDDING PLANTS, CARNATIONS, PICOTEES, CAMELLIAS, and AZALEAS in pots; EVERGREENS, &c.; also a few Standard and Dwarf ROSES.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, London, E.C., on THURSDAY NEXT April 25, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday, April 26.

SCHOMBURGKIA LYSONI, in fine masses.

Messrs. Veitch, in their *Manual of Orchidaceous Plants*, say: One of the prettiest, and at the same time, one of the rarest of the genus. A stately plant, with stout, erect scape, bearing twenty or more large flowers on long foot-stalks. Flowers white, spotted, and barred with rich purple.

PROUGHTON SANGUINEA, one of the finest of crimson flowers, grand masses; and other rare Orchids.

Also about 200 lots of various Established and Imported ORCHIDS, and 1200 ODONTOGLOSSUM CRISPUM of the best variety, in capital condition, collected and sent home by Mr. G. Kalbreyer.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, April 26, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.

12,000 ODONTOGLOSSUM CRISPUM of the best variety, in capital condition, including several large masses, collected and sent home by Mr. G. Kalbreyer, for Sale without reserve.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE, on FRIDAY NEXT, April 26.

On view morning of Sale, and Catalogues had.

Tuesday, April 30.

ORCHIDS in FLOWER.—SPECIAL SALE.

MESSRS. PROTHEROE AND MORRIS desire to announce that their next SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be glad to receive notice of entries as early as possible.

Highly Important Sale.

The Unrivalled Collection of SUCCULENT PLANTS, formed by the late J. T. Peacock, Esq., and enjoying a reputation probably unequalled in Europe.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executors to SELL by AUCTION, on the Premises, Sudbury House, Hammersmith, W., on WEDNESDAY and THURSDAY, May 1 and 2, at 11 for 12 o'Clock precisely each day, without reserve, the whole of the Valuable COLLECTION of SUCCULENT PLANTS, including many species that are unique, and others of extreme rarity, including the Entire Stock of the beautiful new Cereus, J. T. Peacock, Gasterias, Hawarthias, Agaves, Phyllocatus, Sempervivums, Mesembryanthemums, Opuntias, Yuccas, Echinocactus, &c.

Also 120 fine plants of Todea superba, several large Camellias, Lapageria alba and rosea, and other plants.

No plants will be sold privately prior to the Auction.

Catalogues may shortly be obtained of Mr. VICKERY, Head Gardener, on the Premises; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

Friday, May 3.

MESSRS. PROTHEROE AND MORRIS will include in the above SALE, by order of Messrs. Seeger & Tropp, a splendid Specimen MAXILLARIA SANDERIANA, with 6 flower-spikes, which will no doubt be open on the day of sale; 1 CYPRIPEDIUM CASSIOPE, R. H. Rolfe; only 2 fine plants of this fine hybrid are in existence; 1 CYPRIPEDIUM PAGEANUM, Rchb. f., fine plant; 1 CYPRIPEDIUM SEEGERIANUM, fine plant.

On view morning of Sale.

Friday, May 3.—First Portion.

The justly celebrated COLLECTION of ESTABLISHED ORCHIDS, formed by C. Dorman, Esq., The Firs, Laurie Park, Sydenham. The whole of the Plants will be Sold (with a very few exceptions) without reserve.

MESSRS. PROTHEROE AND MORRIS have received instructions to OFFER by PUBLIC AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, May 3, at half-past 12 o'Clock precisely, the First Portion of the above justly celebrated COLLECTION of ORCHIDS. The plants are in splendid form, and include many fine specimens, the following comprising some of the leading special species and varieties catalogued:—

Odontoglossum Schroderianum	Cypripedium leucorrhodum, grand specimen with 6 growths
Cymbidium Philbrickianum	,, Morganæ, grand specimen with 6 growths
Angulua eburnea, the true white Clowesi variety	,, Thibautianum, most rare and beautiful
Lælia Perrinii nivea	,, Sellingerum majus
Cattleya Mendelii Morganæ	,, eoanthum superbum, grand specimen
,, Trianæ Backhouseana	,, euryandrum
,, exoniensis	,, insigne Wallacei
,, Trianæ magnifica	,, Harrisianum superbum
,, calumnata	,, vexillarium
,, Wagneri	Pleurothallis Roezli, magnicent specimen
,, Reineckiana	Odontoglossum aureum magnificum, awarded First-class Certificate
,, Wallisi	Masdevallia cucullata
,, Skinneri alba	Lycaste Skinneri alba
Dendrobium nobile nobilius	
,, ,, Cooksoni	
,, Leechianum	
,, Ainsworthii roseum	
,, splendidissimum	
Vanda Sanderiana	

Cœlogyne cristata alba, several fine plants

The plants will be on view the morning of Sale. Catalogues forwarded, post free, on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Preliminary Notice.

The far-famed SUDBURY HOUSE COLLECTION of ESTABLISHED ORCHIDS,

formed by the late J. T. Peacock, Esq.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Executors of the late J. T. Peacock, Esq., to SELL by AUCTION, without reserve, on the Premises, Sudbury House, Hammersmith, W., on MONDAY, May 13, and four following days, at half-past 12 o'Clock precisely each day, the ENTIRE COLLECTION of ESTABLISHED ORCHIDS, being the contents of twenty-three Greenhouses. For description of plants, see *Gardeners' Chronicle*, March 23 last.

No Plants will be sold privately prior to the Auction. The Collection may be inspected at any time by cards, to be obtained of the Auctioneers. Catalogues may be had when ready of Mr. VICKERY, the Head Gardener, on the Premises; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

The Celebrated Downside Collection of Orchids.

PRELIMINARY NOTICE.

Alteration of Date to MAY 28 and 29.

The whole for Sale absolutely without reserve.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from W. Lee, Esq., of Downside, Leatherhead (who has sold the Estate and is relinquishing the cultivation of Orchids), to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, May 28 and 29 (instead of June 4 and 5 as previously announced), the remaining portion of the above renowned COLLECTION of ESTABLISHED ORCHIDS, the whole for Sale absolutely without the least reserve.

Detailed advertisement will appear next week.

FOR DISPOSAL, a Small NURSERY. Suit beginner. Well stocked with the best sorts of Plants for London Shop Cut Flower Business. Plants at low valuation. Houses small rental.

Apply, B., 1, Ravensfield Villas, Church Lane, Hendon, N.W.

PLOT of FREEHOLD LAND (1 to 6 acres), partly fenced in; rich deep soil; suit rose grower or nurseryman; close to main-line station; 25 miles out; excellent train service. £10 per acre. Plan and particulars of J. F. HODGSON, 90, Leadenhall Street, London, E.C.

FIRST-CLASS WEST-END PREMISES, one door from Piccadilly, of the net annual value of £610, and held direct from the Freeholder for a long unexpired term, together with or without the Goodwill of the Old-established Seed Business of Thomas Gibbs & Co., or Offers for the Trade and Use of the Name, apart from the Lease, might be entertained.

Apply, on the Premises, 26, Down Street, Piccadilly, W.; or to Messrs. EDWIN FOX AND BOUSFIELD, 99, Gresham Street, Bank, E.C.

To Fruit and Market Growers.

TO BE LET, on LEASE, about 1 acre of LAND and numerous GREENHOUSES, well stocked with Fruit Trees and Vines, attached to a Private Residence. Most satisfactory terms for renting will be made to a substantial tenant.

Full particulars on application to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

Rodmersham, near Sittingbourne, Kent.

TO BE LET (with immediate possession), a comfortable HOUSE, with about 3 Acres of first-class Fruit Plantation, 6 Glass House, and Premises, all in good working order, held (with other Premises let off and producing £55 12s. per annum) under Lease which can be renewed.

Apply to Messrs. JACKSON AND SONS, Valuers, &c., Sittingbourne.

To Florists only.

TO LET, from May 1 till middle of August, FRONT of SHOP, and good Space before it, and other conveniences for a Florist. In a commanding thoroughfare, near to Covent Garden.

Apply to J., 64, Goodge Street, W.

Parkstone, near Bournemouth.

TO BE LET, FLORIST'S and GREENGROCER'S BUSINESS; very good Shop, Greenhouse, and large Garden. A Devon Poultry and Butter Business connected with same.

Apply, ALFRED BALL, Parkstone, Dorset.

NURSERYMEN and FLORISTS.—Large piece of GROUND, with 2 GREENHOUSES, in North London Suburb. Good living for industrious man. Rent moderate.

Apply to Mr. ALFRED RICHARDS, Estate Agent, Lower Tottenham. (727—2.)

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received fine importations of the following, and many other ORCHIDS:—

DENDROBIUM JAMESIANUM.
,, INFUNDIBULUM.
,, FORMOSUM GIGANTEUM.
,, DENSIFLORUM.
,, CYPRIPEDIUM BELLATULUM.
SACCOLABIUM BLUMEI MAJUS.
AERIDES CRASSIFOLIUM, and many others.

Full particulars, Post-free, on application to

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

A BIG SALE.

UNDER NOTICE TO QUIT

FROM ST. JOHN'S COLLEGE, CAMBRIDGE,

AFTER TWENTY-FOUR YEARS' TENANCY.

RENTS REGULARLY PAID.

THE ABOVE ACTION HAVING BEEN TAKEN BY ST. JOHN'S COLLEGE,

CHARLES NOBLE

Has no alternative but to clear at any price, magnificent RHODODENDRONS, 5 to 7 feet high, unequalled in the Trade.

Buyers must book to Sunningdale Station, S.W.R.

CHARLES NOBLE, BAGSHOT.

MERCURY, GOOD KING HENRY, or ALL GOOD.—This excellent vegetable, so extensively grown in Lincolnshire, but so little known elsewhere, deserves a foremost place in the garden. Superior to Asparagus, delicious, grows well on any soil, cuts from April to November. Once planted will last a lifetime. Plant now to cut in April and all summer. Extra strong roots, 2s., 2s.; 50, 3s. 6d. Seed, 1s. packet, free.

ANDERSON AND SONS, Gardeners, Long Sutton, Lincolnshire.

A WELL-STOCKED GREENHOUSE.—ABUTILONS, all the best and newest; 12 fine sorts, 3s. 6d.

BEGONIAS (evergreen class), fine for summer or winter; 6 fine sorts, 1s. 9d.

HELIOTROPES (Cherry Pie), fragrant and free bloomers, best new and old sorts; 12 for 2s. 6d.

LANTANAS, fine for greenhouse decoration, pretty and free; 12 sorts, 2s. 6d.

SALVIAS, distinct and pretty; 6 fine sorts, 1s. 6d. Half number at same rates. New CATALOGUE of these and everything else you want for Greenhouses of Gardens, free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

H. V. RASPAEL.—This is still the best DOUBLE GERANIUM for Cut Bloom or Decoration. 20,000 strong Market Plants now ready, 8s. per box of 2 dozen. Terms, Cash.

GEO. POULTON, Fountain Nursery, Angel Road, Edmonton.

Fruit Trees.

50,000 PLUMS and DAMSONS; Standard and Dwarf-trained Morello CHERRIES, all fine grown trees. For price apply to

FLETCHER BROS., Ottershaw Nursery, Chertsey, Surrey.

100 Herbaceous and Alpine Plants for 25s.

RICHARD SMITH AND CO.'S SELECTION, as above, contains a most interesting and valuable assortment of beautiful and Hardy Plants for the Border or Rockwork, which produce flowers and render the garden attractive all through the year. Descriptive CATALOGUE post-free for 6 stamps.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

STRAWBERRIES.—Strong Roots, 4s. per 100. Plants in small pots, 16s. per 100; ditto, in large pots, 25s. per 100. Descriptive LIST free.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

FUCHSIAS, in 40 best and new varieties. Strong and Well-rooted Cuttings, 8s. per 100 for Cash. S. MORTIMER, Swiss Nursery, Farnham, Surrey.

ORCHIDS.—Clean, well-grown plants, at low prices. Specimen Orchids a specialty. Price LIST free. JAMES CYPHER, Exotic Nurseries, Cheltenham.

KELLY AND WALSH (Limited), Exporters of ORCHIDS, Singapore, Straits Settlements. Orders executed from £5 upwards. CATALOGUES free on application.

PELARGONIUM ZONAL LILLIPUT—PRESIDENT AUG. VAN GEERT. Beautiful novelty, with large flowers, lovely double white, colouring towards the centre in strong carmine; golden foliage. Price: each 4s.; six plants, 16s. ED. PYNAERT, Ghent, Belgium.

GERANIUMS — PELARGONIUMS. — GERANIUMS.—All the finest sorts, from English and Continental raisers, for Pot Culture for Summer or Winter, bought in every spring, tried and inferior kinds discarded. 12 fine Single Zonals, 4s.; 12 fine Doubles, 4s.; 12 beautiful Ivy-leaf varieties, 4s.

PELARGONIUMS, the finest flowers, best habits, most robust growers, 12 fine varieties, 6s.; 12 large Plants, 9s. or 12s. All you want for a Garden may be selected from our new CATALOGUE, free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL,

at the "ALBION," Aldersgate Street, JUNE 13, 1889.

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Donations and Collections already promised or sent towards the Jubilee Collection of 1889:—

LEOPOLD DE ROTHSCHILD, Esq., Chairman	£105	0	0
The DUKE of WESTMINSTER, K.G., President	100	0	0
The DUKE of BEDFORD, K.G.	100	0	0
The EARL of DERBY, K.G.	21	0	0
Baron HENRY SCHRODER, Vice-President	105	0	0
Messrs. ROTHSCHILD AND SONS	105	0	0
Lord REVELSTOKE	52	10	0
J. S. MORGAN, Esq., Dover House, Roehampton	105	0	0
JAMES McINTOSH, Esq., Vice-President	52	10	0
N. N. SHERWOOD, Esq. (Hurst & Son), Trustee	52	10	0
H. B. MILDMAY, Esq., Berkeley Square	52	10	0
HERBERT J. ADAMS, Esq., Vice-President	26	5	0
HARRY J. VEITCH, Esq., Treasurer	26	5	0
C. CZARNIKOW, Esq., Effingham Hall, Dorking	21	0	0
A. A. SILLEM, Esq., Sydenham	10	10	0
J. F. TIARCK, Esq., Chislehurst	10	10	0
JOHN LEE, Esq., Kensington (Trustee)	10	10	0
THAMES BANK IRON CO., Upper Ground Street	10	10	0
J. H. VEITCH, Esq., Chelsea	10	10	0
ARTHUR J. VEITCH, Esq., Chelsea	10	10	0
THOMAS MANNING, Esq., Chelsea	10	10	0
Mrs. H. J. VEITCH, Redcliff Gardens, S.W.	10	10	0
B. S. WILLIAMS, Esq., Upper Holloway, N.	10	10	0
Mr. C. W. BUCK, Covent Garden	5	5	0
Mr. E. R. GUTLER, Secretary	10	10	0
Messrs. JOHN LAING AND SON, Forest Hill	5	5	0
Messrs. WEBBER AND CO., Covent Garden	5	5	0
Mr. A. PLUMMER, Seedsman, Staines	4	4	0
Mr. R. H. ROBINSON, The Gardens, Heversham	7	7	0
Mr. JOHN CROOK, Gardener, Farnborough	8	5	0
Mr. EDWARD MITCHELL, Gr., Bolton Lodge, Leeds	10	10	0
Mr. W. R. HODGES, Gardener, Copley Dene, Highgate	10	10	0
Mr. E. GILBERT, The Gardens, Old Charlton, Kent	1	15	0
Mrs. VINCENT NICHOLL, Red Hill	2	2	0
W. J. BROWN, Esq.	1	1	0
Miss CATTLEY, Clayden, Edenbridge, Kent	2	2	0
ROBERT HOGG, Esq., LL.D., Vice-President	10	10	0
RICHARD CHRIMES, Esq., Rotherham	21	0	0
Messrs. NUTTING AND SONS, Southwark Street	10	10	0
Mr. WM. COLLINS, Gr., Chios House, Clapham Park	10	10	0
Mr. WM. WILDSMITH, Heckfield Gardens	1	1	0
Messrs. WATKINS AND SIMPSON, Exeter Street	5	5	0
Mr. H. E. TILLMAN, Covent Garden	3	3	0
Mr. S. E. KAY, Finchley	2	2	0
Messrs. DICKSON, The Nurseries, Chester	10	10	0
Mr. GEORGE MONRO, Covent Garden	10	10	0
Messrs. BARR AND SON, King Street, Covent Garden	2	2	0
Mr. W. S. JOHNSON, St. Martin's Lane	5	5	0
Mr. J. C. STEVENS, King Street, Covent Garden	5	5	0
Messrs. CUTBUSH AND SON, Nurseries, Highgate	5	5	0
Mr. J. ROBERTS, The Gardens, Gunnersbury	10	10	0
Mr. B. WADDS, Birdsall Gardens, York	1	1	0
Mr. G. WYTHES, Syon Gardens, Brentford	1	1	0
Mr. W. DENNING, Nurseries, Hampton	1	1	0
Mr. J. WALKER, Whitton, Hounslow	2	2	0
Mr. PETER BLAIR, The Gardens, Trentham	£1	1	0
Messrs. H. AND A. TURNER, Royal Nurseries, Slough	10	10	0
Mr. W. C. LEECH, Albury Gardens, Guildford	1	1	0
Miss OSBORN, Streatham	3	3	0
Mr. W. BROWN, Merivale Gardens, Atherstone	2	2	0
Mr. THOS. S. WARE, Tottenham	2	2	0
Mr. PEARMAN, Salmon's Garden, Chislehurst	10	10	0
Messrs. JACOB WRENCH AND SONS, London Bridge	5	5	0
Messrs. HOWCROFT AND WATKINS, Hart Street, Covent Garden	5	5	0
Messrs. THOMSON AND SONS, Nurseries, Wimbledon	2	2	0
Mr. H. J. CLAYTON, Grimston Gardens, Tadcaster	1	1	0
Lord CALTHORPE	10	10	0
Messrs. SAYNOR, COOKE AND RIDAL, Sheffield	1	1	0
Sir JULIAN GOLDSMID, Bart., M.P.	10	10	0
Mr. W. CHAPMAN, Hawk's Yard Gardens, Rugeley	3	10	0
Mr. C. SHEPPARD, Great Glenham Gardens, Saxmundham	0	10	6
Mr. G. H. RICHARDS, Somerley Gardens, Ringwood	0	10	6
Mr. KENDALL, Templeton Gardens, Roehampton	10	10	0
Mr. WILES, Unsted Gardens, Godalming	10	10	0
Messrs. JOHN PERKINS AND SON, Northampton	5	5	0
CUTHBERT E. PEEK, Esq., Rousden	10	10	0
WILFRED PEEK, Esq., Rousden	10	10	0
Mr. A. J. LONG, Westwood Gardens, Droitwich	10	10	0
The Rev. W. WILKS, Shirley Vicarage, Croydon	1	1	0
Mr. LOUIS VAN HOUTTE, Ghent	2	2	0
Messrs. F. HORSMAN AND CO., Colchester (annual)	1	1	0
Sir TREVOR LAWRENCE, Bart., M.P., Vice-Pres.	21	0	0
Mr. GEORGE BUTT, Kensington	2	2	0
Mr. GEORGE TIFFEN, Cannon Street	2	2	0
Mr. WILLIAM GREEN, The Grange Gardens, Bishops Stortford	1	1	0
Mr. JNO. BIRD, Nurseries, Downham	2	2	0
Mr. HUGH AITON, Messrs. Hurst & Son, Houndsditch	5	5	0
The YOUNG MEN, Syon Gardens, Brentford	0	12	6
The Hon. EVELYN ELLIS, Datchet	10	10	0
Collected at Mote Park Gardens, Maidstone	2	13	3
Mr. G. WILLIS, The Gardens, Hollowmead, Bishopsteignton	5	0	0
Messrs. WIMSETT AND SON, Nurseries, Chelsea	2	2	0
Mr. W. RAYSON, Royal Exotic Nursery, Chelsea	0	5	0
Mr. H. DOWNING, Norbury Park Gardens	1	1	0
Mr. R. BULLEN, Botanic Gardens, Glasgow	1	1	0
Mr. J. PERKINS, Thornham Gardens, Eye	1	1	0
Mr. J. GOUGH, Harefield Gardens, Uxbridge	1	1	0
Mr. D. ROBERTS, Prestwold Gardens, Loughborough	1	1	0
Mr. J. H. PEARSON, Beeston, Notts	2	2	0
Mr. W. WARD, Little Aston Gardens, Sutton Coldfield	10	10	0
Mr. G. TURNER, Greenhill Gardens, Telford, Surrey	5	14	8
Mr. J. SMITH, Mentmore Gardens, Leighton Buzzard	1	1	0
Miss MARY DRAKE, Elm Park Gardens, S.W. (annual)	1	1	0
G. F. WILSON, Esq., Heatherbank, Weybridge, Vice-President	10	10	0

THE GARDENERS' ORPHAN FUND.

THE SECOND ELECTION FIVE CHILDREN

to be Elected to the benefits of this Fund,

consisting of an allowance of 5s. per week (subject to the conditions stated in Rule xiii.), will take place on

FRIDAY, July 19 next, at the

Cannon Street Hotel, London, E.C.

All applications must be made on a proper printed Form, copies of which may be had Gratis of the Hon. Secretary, or any of the Local Secretaries. Such Form must be correctly filled up, duly signed, and returned to the Secretary not later than SATURDAY, April 20, 1889.

A. F. BARRON, Hon. Sec.

Royal Horticultural Society's Gardens, Chiswick, W.

£300 in PRIZES, MEDALS, and CERTIFICATES for FLOWERS, FRUIT, VEGETABLES, and HONEY. Open to Members of all Co-Operative Societies in the Kingdom. (£200 for produce grown from "One and All" Seed of the Agricultural and Horticultural Association, Limited).

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20,000 DAHLIAS, Show, Fancy, Single, Bedding, Cactus, Bouquet. See CATALOGUE of the whole Family of these and everything else you want for a Garden, free for 3 stamps.

12 lovely kinds of any class, 3s.; 25 lovely kinds of various class, 6s.; 50 lovely kinds of various class, 11s.; 100 lovely kinds, of various class, 21s.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester,

To the Trade.

SEED POTATOS.

H. AND F. SHARPE'S Special Priced LIST of the above comprises all the finest varieties in cultivation raised expressly for Seed purposes. The prices are unusually low this season, and may be had on application.

Seed Growing Establishment, Wisbech.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2s. 6d. each; Beauty of Worcester, a magnificent purple, excellent for bedding, recently sent out by us, reduced price 2s. 6d. each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

CABBAGE PLANTS, Autumn Sown, Shilling's Queen, Early Rainham, Drumhead, Savoy, 2s. 6d. per 1000, 45s. per 20,000, packed; 100, free, 1s. 3d. King Cos, Bath Cos LETTUCE, Aigburth Brussells Sprouts, 4s. per 1000, packed; 100, free, 1s. 6d. Strong FLOWER PLANTS—Wall flowers, dark Red, Purple, Brown, Yellow; Sweet Williams, Papavers, Pyrethrums, Dianthus, 3s. per 100, 25s. per 1000, packed; 1s. per dozen, free.

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N.B. — Few hundred Early London CAULIFLOWER PLANTS, 3s. per 100, free. RED CABBAGE and TRIPOLI ONIONS, 1s. 6d. per 100, free.

ROSES—CLEMATIS—ROSES—all in pots, can be sent and planted any time; the finest named sorts. See Catalogue, with colours, descriptions, prices of these, and all you want for a Garden, free for 3 stamps. 12 fine TEA and NOISETTE ROSES, 15s.; 12 Hybrid Perpetual ROSES, 12s.; 12 Extra-sized Tea and Noisettes to force now, 30s.; for Arbours, Pillars, Walls, &c.

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CALADIUMS, GLOXINIAS. — Lovely CALADIUMS of the finest sorts, splendid varieties, handsome foliage, clean, easily grown; 12 sorts, 6s., 9s., 12s.
Gorgeous GLOXINIAS, rich colours, pretty foliage, lovely flowers; 12 for 6s., 9s., 12s. New CATALOGUE of these and all other plants, 130 large pages, free for 3 stamps.
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ANTHONY WATERER
INVITES AN INSPECTION FROM INTENDING PLANTERS TO
THE FOLLOWING TREES,
Having stout straight stems, fine heads, and splendid roots. All have been transplanted within two years:—
ACACIA BESSONIANA, 12 to 14 feet; A. SEMPERFLORENS, 12 to 14 feet; ACER DASYCARPUM, 12 to 16 feet; A. DASYCARPUM WIERII LACINIATA, 10 to 14 feet; A. NEGUNDO VARIEGATA, Standards, 8 to 10 feet; A. LEOPOLDII, 12 to 14 feet; A. REITENBACHII, 12 to 14 feet; A. SCHWEDLERII, 12 to 16 feet; A. WORLEYII, Standards, 12 to 14 feet. ASH, Mountain, 10 to 14 feet. BEECH, Common, 10 to 12 feet; Purple, Pyramids and Standards, 10 to 16 feet. BIRCH, Silver, 12 to 16 feet. CHESTNUT, Horse, 14 to 16 feet. Double White, 10 to 16 feet; Scarlet, 12 to 16 feet; Spanish, 12 feet. ELMS, English, 10 to 12 feet; Guernsey, 12 feet. LIMES, 12 to 16 and 20 feet; Silver-leaved, 10 to 14 feet. LIQUIDAMBAR, 6 to 10 feet. MAPLE, Norway, 14 to 16 feet. OAK, English, 10 to 14 feet; Scarlet American, 12 to 14 feet; PLANES, 12 to 16 feet. POPLAR BOLLEANA, 10 to 16 feet; P. CANADENSIS NOVA (the true variety), 12 to 16 feet; SYCAMORE, Common, 14 to 16 feet; Purple, 14 to 16 feet. THORNS, Double Scarlet, 8 to 10 feet; White, 8 to 10 feet. WALNUTS, Common, 10 to 12 feet.
Weeping Trees.
BEECH, Weeping, Pyramids and Standards, 8 to 12 feet; Weeping, Purple, Pyramids and Standards, 7 to 12 ft. BIRCH, Young's Weeping, Pyramids and Standards, 8 to 14 ft. ELMS, Weeping, Pyramids and Standards, 7 to 14 feet. LARCH, Weeping, Pyramids, 8 to 10 feet. OAK, Weeping, English, Standards, 10 to 12 feet. POPLAR, Weeping, Pyramids, and Standards, 10 to 12 feet. SOPHORA JAPONICA PENDULA, Standards, 8 to 9 feet.
KNAP HILL NURSERY,
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SPRING, 1889.
CHARLES TURNER'S
GENERAL and DESCRIPTIVE CATALOGUE of NEW FLORISTS' FLOWERS, &c.,
Is now ready, and will be sent free on application.
THE ROYAL NURSERIES, SLOUGH.

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The finest, most varied, choice, and interesting Collection in the Trade.
1400 species and varieties of Stove, Greenhouse, & Hardy Ferns.
Partially descriptive CATALOGUE free on application.
Illustrated CATALOGUE (No. 21), containing 120 Illustrations, and much valuable information on the Cultivation of Ferns, 1s. 6d. post-free.
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NEW CATALOGUE for 1889.—Near 130 large pages, with prices, descriptions, useful cultural and other hints, of near 7000 of the best species and varieties of plants for the Stove, the Greenhouse, or the Flower Garden, also list of all necessary Sundries; in short, everything wanted for a garden, free for 3 stamps.
SEED CATALOGUE of the finest new and the most reliable old varieties of Vegetables or Flowers, free for 1 stamp.
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and with which Everyone will be Satisfied.
PANSIES.—Very fine fancy varieties, true to name, from our famous collection, 4s. per dozen, carriage paid.
VIOLAS.—The best varieties in existence, either for Bedding or Cut Flowers, guaranteed all standard good sorts, 2s. 6d. per dozen (in 12 varieties), carriage paid; 16s. 6d. per 100 (in 25 varieties), carriage paid.
PYRETHRUMS.—Specially strong plants, which will bloom well this summer. Fine named varieties, 5s. per dozen, carriage paid.
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DAHLIAS.—Show, Fancy, Single, Pompon, and Cactus. Only the best varieties grown. These always give unqualified satisfaction. Cuttings, 2s. per dozen, carriage paid; strong plants, in May, 5s. per dozen, carriage paid.
NOTE.—One dozen of each of the foregoing (five dozen in all), correctly named, and well packed, will be sent, carriage paid, for 20s. Descriptive CATALOGUE on application.
DOBBIE & CO.,
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LIST OF
CHOICE FLORISTS' FLOWERS
Our collection of these includes all the newest and most beautiful varieties in cultivation, and Customers ordering from the following list may rely on only the finest sorts being sent. The plants are strong and healthy, and in nearly all instances from single pots:—
Post or Carriage Free at Prices quoted.

	Per dozen.—s.	d.
ABUTILONS, in beautiful variety, to name, 6 for 2/6	4	6
ANTHEMIS PALLIDA, the beautiful hardy Marguerite, 3 for 1s. 3d.	4	6
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SUCCULENT PLANTS.—Handsome, singular, fine for dot plants in carpet beds or for contrast with other Greenhouse Plants, 12 varieties, all named, 6s., 9s., 12s., 18s. CATALOGUE of sorts of these and all other plants free for 3 stamps.
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THE PENNY PACKET SEED COMPANY'S
SEEDS AND PLANTS,
And you will pronounce them the Best in the Market, as none but genuine, good, new season's seeds are supplied.
THE PENNY PACKET SYSTEM
Has been pronounced the most complete and economical system of supplying seeds.
3000 VARIETIES CATALOGUED
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FERN SPORES (SEEDS),
More than 100 named varieties. Also collections of same in 12, 18, and 24 sorts. List of Names free by post, on application.
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The Stock is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.
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The Glass covers an area of upwards of 300,000 super. feet.
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STOVE PLANTS, GREENHOUSE PLANTS, such as ALLAMANDAS, STEPHANOTIS, BOUGAINVILLEAS, CLERODENDRONS, and other fine CLIMBERS.
CROTONS, DRACÆNAS, and other fine foliage varieties; IXORAS, HIBISCUS, POINSETTIAS, and other flowering bush-habited plants, in finest varieties, clean, healthy, all named; 12 distinct kinds, 12s., 18s., 30s. per dozen.
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GREENHOUSE PLANTS, equally well selected, good and healthy; 12 sorts, 9s., 12s., 18s., half at half-price. New CATALOGUE of these and all you want for a garden free for 3 stamps.
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HOLLIES, for Fencing, 1, 2, to 3 feet.
RHODODENDRON PONTICUM,
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LAUREL—rotundifolia, caucasicum, &c.
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FUCHSIAS, in 12 good named varieties, 8*s.* per 100.

PELARGONIUMS, Show and Decorative, from single pots, 3*s.* per dozen, 20*s.* per 100.

NOTE.—Not fewer than twenty-five of any one sort supplied at above rate. Packing included. Terms cash.

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Terms, Cash with order to

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Grand New Japanese Chrysanthemum.

"THOMAS STEPHENSON."

A beautiful bronzy-crimson sport from "Criterion," indispensable for exhibition. A grand, full show flower; broad petals, slightly incurved at the tips, a lovely yellow shade on the reverse of the petals.

FIVE FIRST-CLASS CERTIFICATES. Orders booked from all the principal Chrysanthemum Growers. (See E. Molyneux's opinion, *The Garden*, 890, &c.)

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FUCHSIAS, TUBEROUS BEGONIAS.—10,000 FUCHSIAS, just the cream of all the Fuchsia family in flower, habit, and freedom; 12 lovely sorts, 3*s.* 6*d.*; 25 sorts, 6*s.* 6*d.*; 50 sorts, 12*s.* 6*d.*

TUBEROUS BEGONIAS.—We have so improved the quality of our seedlings that we discarded last season all the named singles, the seedlings being much finer; 12, all different shades, large flowers, dwarf habit, 4*s.*; 12 finer, 6*s.*; 12 lovely double varieties—all these are named sorts, 21*s.*

New CATALOGUE of these and all other plants for 3 stamps.

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Price, 10*s.* 6*d.* *each.*

TO BE DISTRIBUTED IN MAY, 1889.

Send for full particulars to

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Rarest and loveliest of LILIES, Auratum Rubro-vittatum, true, lovely white, intense band of carmine, no markings or spots or yellow; truly dazzling.

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These two Lilies will take the lead in any group and secure prizes. Usually sold at 21*s.* each—will take 5*s.* each, to clear, post-free.

JAPANESE MAPLES, Silver Banksian Medal.

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None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.

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EUCHARIS AMAZONICA, in 10 and 12-inch pots, full of fine flowering bulbs, with clean dark healthy foliage, 10*s.* and 12*s.* 6*d.* per pot.

GLOIRE DE NANCY CARNATION.—Rooted Layers of this grand White Clove-scented Carnation, 30*s.* per 100; 6*s.* per dozen.

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HELIANTHUS LÆTIFLORUS. *Certificated in* 1888 *by R. H. S. as Harpalium rigidum semi-plenum*, one of the most useful and ornamental autumn-flowering varieties of SUNFLOWERS. Now being a good time for planting, and having the largest stock of it in the trade, we offer at 9*s.* *per dozen*, 50*s.* *per hundred*. Special prices to the Trade, *per hundred* or *per thousand*, on application.

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PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.

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SHIRLEY POPPY.

NEW and very lovely; invaluable for Table Decoration. No garden should be without this charming flower. Sow at once. 1*s.* per packet.

THOS. BUTCHER, Seed Merchant, CROYDON.

ANEMONE CORONARIA—ST. BRIGID.

Grown from the True Newry Stock.

No better Strain existing.

¼ oz. Packets with Cultural Directions, for 2*s.* 6*d.* Postal Order.

THOS. KITLEY,

OLDFIELD NURSERY, BATH.

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SATURDAY, APRIL 20, 1889.

THE PAMPAS PLUME INDUSTRY.

THE Pampas Grass (Gynerium argenteum) is a native of the Pampas plains of South America, and was introduced into the United States about 1848. It is not sufficiently hardy to stand the rigour of Northern winters, but is in the cold parts of this country [United States] frequently planted on the lawn in summer, and upon the approach of cold weather is transplanted into a tub, and carried into the cellar. In California it is perfectly hardy, and a hill will sometimes attain a height of 20 feet, a diameter as great, and a weight of 2000 pounds. These would be quite inconvenient for our Northern friends to handle in the cellar. The plants are easily produced from seed, but as the sex and variety are very uncertain, they are usually multiplied by dividing the female plants, the plumes of which are much more beautiful than those of the male.

For many years the Pampas Grass was grown only for ornament, but in 1874 the difference in sex was discovered, and since that time the industry has gradually increased.

In 1872 I planted seed; in two years several hundred of the plants produced plumes. Many of these were sold when small plants to persons purchasing them purely for ornamental purposes, but the variations in shades and fineness were very marked.

In 1874 the discovery was made that by pulling the immature plumes from the sheaths, and exposing them to the hot sun, the male plumes would hang heavily, like Oats, while the female would fluff up and become light and airy.

We saved a quantity of the female plumes, some of which were sold in Santa Barbara, while others were sent to San Francisco in November, 1874. Samples were also sent to Peter Henderson & Co., of New York. Three hundred were ordered at once, and the following day instructions were received to double the order and send

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by express. This was the first lot of good plumes ever sent East from California, and was the beginning of the present Pampas industry.

My plantation has been extended to 5000 hills, and there are a number of other quite extensive plantings in the neighbourhood of Santa Barbara. The plumes shipped from Santa Barbara have the reputation of being, and are undoubtedly, the finest sent to market. The crop this year is estimated at 1,000,000 plumes. The demand for the last two years has been good, but the prices have never been so high as they were at the beginning of the industry—200 dols. per 1000 plumes. The decrease in price was gradual until 1886, when sales were slow at 30 dols. per 1000. Some of the growers did not harvest their crops that year, and destroyed their plants. In the fall of 1887 plumes were in demand at 40 dols. per 1000, and in 1888 they were scarce at 50 dols. and 60 dols. per 1000, so this winter there will be a large increase in acreage.

Pampas Grass plants should be put on the best valley land, at a distance of 10 by 16 feet apart. Some are planted closer, 8 by 10, and 10 by 10 feet; but if they are to be allowed to become old plants, it is better to give plenty of room. Before planting, the land should be ploughed deep and put into first-class order. In selecting stock, divide only female plants that produce the finest white plumes. Young hills produce the best plants. From old hills the best plants are obtained around the outside, those in the centre of the stool being mostly worthless unless planted in large clumps. They will produce some plumes the first year, not first size, but worth saving. The second year they ought to produce from 80 to 150 plumes to the hill, if well grown, though not all plantations will do this well. The third year the crop will be about the same. From that time onward the plumes decrease in number, but are larger and finer. At this stage the plants can be improved by trimming or burning away the dead portions. When the plumes commence to make their appearance it is a signal for great activity among those who have large fields, and everything is put into shape, so that there will be no hindrances.

The grass should be so trimmed early in September, before the plumes appear, that each hill may be easy of access. Young plants produce two to three weeks earlier than old ones, and some varieties are earlier than others. It requires exercise of judgment to pick the plumes at the proper time. They are generally ready when they they are exposed from the husk a few inches, and have a fluffy look. It is well to try a few at this stage, and if they cure well at the stem end when dry, they are all right, but if they do not fluff up at the stem end they have been picked too young. If the plume looks dark and seedy at the top when cured, it was too old when picked. Some varieties, especially those producing very long plumes, should be allowed to remain somewhat longer on the plant than the plumes of the short producing varieties. By trying a few of each variety that may be in your planting, the time of ripening can soon be ascertained. As the plumes are cut in the field they are taken to the husking-bench to have the husk or sheath removed. This is done in several ways; some pull them out, but if this is not cleverly done much injury results. The best way is to set a knife sufficiently high to split the husk, but not injure the plume; when the husk has been split, a quick jerk or strike on the table will extract the plume.

From here the plumes are carried to the drying-ground, and evenly spread in long rows. This ground should be made smooth and free from any trash liable to adhere to the drying crop. It takes three days and two nights for the plumes to cure, and they should be shaken and turned once each day while curing. They are next packed away as broad and smooth as possible, on wide shelves, in airy buildings.

They should lie there from ten days to two weeks, or until the stems are thoroughly dried, at which time they are ready for market.

In preparing for shipment, one, two, or three grades should be made, according to the market to which they go. If shipped by express, they should be packed in bales of say 2000 plumes. A covering of canvas or burlap, and some light strips of wood at the corners, will complete the package. If shipping is done by freight, it does not make much difference as to the size of the boxes used, provided they are not less than 4 feet long. A good-sized box is one 4 feet long, 2 feet 2 inches wide, and 3 feet 2 inches deep. A box of this size will hold about 3000 first-class plumes. If packed smooth and straight there is no danger from tight packing, and very heavy weights can be used. They can be easily restored to their original beauty by exposure to heat and a gentle shaking. The largest demand for the last few years has been from England and Germany.

The Pampas plume is used exclusively for decorative purposes, and when used on a large scale makes a grand display. Many are used in the making of dried grass bouquets, &c. Pretty dried grass holiday cards, in which the Pampas is the chief ingredient, are made in Germany, and sent to California to be sold as souvenirs. *Joseph Sexton, Santa Barbara, in "California Florist and Gardener."*

New or Noteworthy Plants.

DENDROBIUM CHLOROSTELE× XANTHOCENTRUM, *n. hyb.*

The parents of Dendrobium chlorostele ought to be very thankful to Sir Trevor Lawrence. They have produced a very distinct second mule. The plant has nearly the stem of Dendrobium Linawianum from a careful sketch well prepared by Mr. Bickerstaffe. The inferior stalk is very slender and abrupt. The upper part of the stem has very few joints, no doubt owing to its juvenile condition. The flower is not at all comparable to that of Dendrobium Linawianum. It is near that of Dendrobium Wardianum as to colour, but broader, shorter, and smaller, reminding one of Dendrobium crassinode. Sepals ligulate, acute, white at the base. The rose colour has here and there some darker purple stripes. Petals white, along the base rose, mid-vein rose coloured with some pallid arched purple veins on each side. Lip elliptical, wavy, acute. Stalk and lip acute. Disc orange, with dark Indian-purple radiating lines around the basilar cushion. Disc orange, surrounded by cream-white. Column white, with some purple lines under the fovea, apex of anther purple. This lovely plant of high biological interest first saw the light at Burford Lodge, whence Dendrobium chlorostele itself was first issued. The flower was kindly presented to me by Sir Trevor Lawrence. *H. G. Rchb. f.*

Odontoglossum crispum, *Stevens' var.*

A fine raceme of this very beautiful variety, kindly sent for preservation by Baron Schroder, of The Dell, Egham, Surrey, through Messrs. Veitch & Sons, well illustrates the improvement wrought by skilful cultivation in many Orchids. The raceme bears twenty flowers, which measure 4 inches from tip to tip of the petals, and 4½ inches from tip of dorsal sepal to the tip of either of the lateral ones. Such massive and well developed flowers reflect great credit on the skill of the gardener in whose charge the plant is. There is said to be a certain amount of variation in the number of spots from year to year. *R. A. Rolfe.*

Dendrobium Wardiano×aureum, *n. hyb.*

At the meeting of the Royal Horticultural Society on April 9, Messrs. James Veitch & Sons exhibited a new hybrid, Dendrobium, which promises to be an attractive member of the group of artificially raised hybrids yet obtained in this genus. As the plant exhibited is still, as it were, in its infancy and moreover the blossoms had expanded under adverse circumstances of weather, &c., they fell short of what might be reasonably expected in a progeny derived from two such fine species as Dendrobium Wardianum and D. aureum. As indicated by the name applied to this new acquisition, D. Wardianum is the pollen parent, and its influence decidedly preponderates in the flower, while the influence of the seed parent is seen chiefly in the vegetative organs.

The following is a description of the plant. Stems stoutish, at present about a foot high, erect and attenuated below as in D. aureum. Flowers with the general outline of D. Wardianum; sepals and petals spreading, similar and sub-equal, oblong acute, white with a light amethyst-purple blotch at the apex; lip nearer D. aureum than D. Wardianum, ovate-oblong, acute with recurved tip, convolute over the column at the base, rich golden-yellow with a large pubescent, maroon-purple disc, the apical area white with a purple spot at the tip. Column white with a purple spot above.

MARKET GARDEN NOTES.

Singularly stationary has almost everything been out in the market gardens since the end of January. During that month we had distinctly growing weather, which, had it continued for another month, would have pushed all kinds of things into growth to a dangerous extent. Happily the lower temperature of February intervened in time and in the middle of March almost everything hardy was still resting. On fruit trees, the Plum and Pear buds are whitening, but still very slowly, Apple buds are stouter now, and generally very plentiful, indeed the Apple promise is exceptionally good, and that promise is all the greater in relation to all hardy fruits that none are precociously advanced. It is very doubtful whether we shall see much bloom on Plum or Pear before the end of April. Generally all hardy fruit trees look remarkably well. They are clean and healthy, and seem to have benefited by the thorough watering the roots have had during the past twelvemonth, without making excessive growth on the whole, and in spite of the preceding cold wet summer fruit trees rarely start the year in better form than they do now. It is worthy of note that market growers have pruned during the past winter rather harder than usual. Probably the very open nature of the winter weather has tended to that good result, possibly the lessons enforced at the various fruit conferences during the past year in reference to the thinning and renovating of orchard trees have not been in vain. Then there is the instructive fact forced on growers' notice, that fine clean fruit sells better in the market than smaller uneven fruit does, and well thinning the trees, giving them ample light and air, and the fruit plenty of room, will without doubt conduce to that end. The open weather has also enabled the soil about the trees to be cleaned, manured, and forked over; so that fruit orchards are just now in an unusually tidy condition.

Bush fruits are full of promise, and none the less so that they are by no means forward in bud. Gooseberries, especially Crown Bob, one of the earliest, show the leaf-buds in a semi-green state, but not at all unduly advanced. The bushes made very good growth last summer, and in addition to giving plenty of fruiting wood, have also given an unusally large stock of cuttings. The Lancashire Lads, of which so many are grown, are still comparatively at rest. Red Currants are quite under bare poles, so hard as a rule are they pruned, but Blacks are wondrously full of stout buds, which seem as though they would burst into rich leafage the moment a really spring day comes. We ought, all being well, to have a heavy black Currant crop; not, however, unhappily, always an inestimable boon to the grower. Raspberry canes came up strong last summer, and have well ripened. Strawberry crowns are sturdy, and ready for a good start in bloom at the first

chance. On the whole the prospects of a general fruit bloom seem to be excellent, and beyond the mention of the bloom just now, it is not safe to go.

Turning to the ground crops, it is found that all the Cabbage, Kale, or Sprouts tribe, are being fast cleared off, and the ground is being cropped with Beauty of Hebron Potatos chiefly, but some Early Rose are going in. So far, the Beauty is the popular favourite, and in good seasons it both crops well, and comes out in excellent quality in our stiff Middlesex soil. The first sowings of early Peas are now through the ground, and two other successions have been got in. Some of our local growers sow from 100 to 150 acres annually with market Peas. It is the great area of ground to be planted that compels the early planting of Potatos. Very few Broad Beans are sown, as these are not greatly in request, especially when Peas become plentiful. Seeds of all kinds of winter Greens, with Cabbages, Coleworts, &c., for summer and autumn cuttings, have been got in, the soil having been in an exceptionally favourable condition for that work. Wallflower seed is very often sown in February, but this year it has generally been sown later, when plants are got out so very early to produce early winterbloom; there is great risk that they will suffer considerably from frost, and, unless kept hard cut, the flower-stems are killed, and the decay, permeates and destroys nearly all the plants; thus now some very early planted breadths are brown with killed plants, whilst later planted breadths are fresh and unimpaired. Violets have been giving but very few flowers for the past six weeks, but will bloom profusely very soon. These form a very important part of the market garden industry, but the price obtained in the market now too often proves to be the reverse of profitable to the grower. *A. D.*

LIST OF GARDEN ORCHIDS.

(Continued from n. ser., vol. xx., p. 634.)

[Some few years since Mr. W. B. Hemsley compiled for us a list of garden Orchids, with references and synonyms, based on the monograph of all the genera as established by the late Mr. Bentham in the *Genera Plantarum*. The vast number of the species, the exigencies of our space, and the other calls on Mr. Hemsley's time necessitated the publication of the list at irregular intervals. Nevertheless, the list was complete up to date, and included 80 of the 334 genera, comprising such large and important groups as Masdevallia, Dendrobium, and Epidendrum. Mr. Rolfe has now favoured us with a continuation of the list, taken up at the point where it was left by Mr. Hemsley. The same reasons which led to irregular publication heretofore are in existence now, in even increased force, and forbid the hope of carrying out the scheme, as a whole, in any reasonable time. Nevertheless, it may be possible to treat at least of some of the more important genera; and at any rate, Orchid-growers will be glad to have an authoritative list of the species of Cattleya, and of which we now print the first instalment, in the hope of speedily bringing it to a conclusion. In the meantime, growers will be doing good service by communicating specimens of any Orchid to Mr. Rolfe, Herbarium, Kew, by whom the plants will be preserved for future reference in the Herbarium. Ed.]

81. Broughtonia, R. Br., in Ait. *Hort. Kew.*, ed. 2, v., p. 217.—Pseudobulbs ovate, with one or two apical leaves. Racemes simple or sparingly branched. Side lobes of labellum embracing the footless column, but not adnate thereto. Spur adnate to ovary, long and slender, slightly swollen towards base. Pollinia four, as in Cattleya. A small genus of two known species, peculiar to the West Indies. *Læliopsis*, Lindl., in *Paxt., Fl. Gard.*, vol. iii., p. 156, a genus founded on *Cattleya domingensis* Lindl., *Gen. and Sp. Orch.*, p. 118, must be referred here. It has only four pollinia, as Lindley states, though I cannot agree with him as to the absence of the spur. On examining living specimens, I find this organ almost precisely as in *B. sanguinea*, Lindley's other three species of *Læliopsis*, however, must be excluded, as will be seen hereafter. Bentham and Hooker ascribe eight pollinia to the genus, a character evidently borrowed from *L. Lindenii*, Lindl., for which see Cattleyopsis Lindenii.

B. aurea, Lindl. = Epidendrum aurantiacum.

B. chinensis, Lindl. = Epidendrum non-chinense.

B. coccinea, Hook. = B. sanguinea.

(1.) B. domingensis; *Cattleya domingensis*, Lindl., *Gen. and Sp. Orch.*, p. 118; *Læliopsis domingensis*, Lindl., in *Paxt. Fl. Gard.*, iii., p. 156, t. 105; Warn. and Will., *Orch. Alb.*, t. 199; *Bletia domingensis*, Rchb. f., in Walp. *Ann. Bot.*, vi., p. 432; *Broughtonia lilacina*, Henfr., in *Gard. Mag. of Bot.*, iii., p. 201, with plate; Lemaire, *Jard. Fleur.*, t. 172; *B. violacea*, Hort., ex Henfr. in *Gard. Mag. of Bot.*, iii., p. 201.—San Domingo. According to Henfrey it was found by a friend of Mr. H. Cuming, and first flowered with S. Rucker, Esq., at Wandsworth, in 1851. The plant figured in Paxton's *Flower Garden*, some two years later, may have come from the same source. From an examination of living specimens I am able to confirm the statements of Lindley, and of Henfrey, that the pollinia are four only; a point on which later authors are not agreed.

(2.) B. sanguinea, R. Br., in Ait., *Hort. Kew.*, ed. 2, v., p, 217; *Epidendrum sanguineum*, Sw., *Prodr.*, p. 124; *Flore des Serres*, t. 2315; Lodd., *Bot. Cab.*, t. 793; *Bot. Mag.*, t. 3076; *B. coccinea*, Hook., *Bot. Mag*, t. 3536; Hook., *Cent. Orch. Pl.*, t. 36.—Jamaica and Cuba. Introduced in 1793, by Walter Ewer, Esq., to Kew, where it flowered. The Cuban locality is added on the authority of Grisebach.

B. violacea, Hort. = B. domingensis.

81a. Epicattleya ×.—Under this name may be distinguished the following interesting bigeneric hybrid:—

E. × guatemalensis; *Cattleya guatemalensis*, T. Moore, *Fl. Mag.*, 1861, t. 61.—A remarkable plant, sent to Messrs. James Veitch & Sons, from Guatemala by Mr. G. Ure Skinner, who found it growing with Cattleya Skinneri and Epidendrum auriatacum on the stem of the same tree, and hence supposed it to be a natural hybrid between the two. *C. guatemalensis* var. *Wischhuseana*, Rchb. f., in *Gard. Chron.*, ser. 3, iv., p. 378, originated with the gentleman whose name it bears, and is said to differ from the original in wanting the yellow disc on the lip. The plant is so precisely intermediate in character that there can be little doubt of its origin.

82. Cattleya, Lindl., *Collect. Bot.*, t. 33.—Pseudobulbs more or less elongated, rarely ovate, with one or two, rarely three, apical leaves. Racemes simple, short, occasionally reduced to a single flower. Side-lobes of labellum generally embracing the column, but not adnate thereto, rarely flat or quite absent. Pollinia four. A genus of about twenty species (excluding hybrids), ranging from South Mexico to Peru and Southern Brazil; but not at all continuous over this area, and generally occurring at a considerable elevation above sea-level. They are chiefly concentrated in three belts:—1, the maritime provinces of Southern Brazil; 2, the Andes, from Peru to Venezuela: and, 3, from Costa Rica to South Mexico. Mount Roraima, in British Guiana, and a few stations in Central Brazil, seem to complete the known localities. *Mælenia*, Dumort, in *Mem. Acad. R. Sc. Brux.*, ix., t. 10. is, according to Professor Reichenbach, a genus founded on an abnormal state of Cattleya Forbesii.

For hybrids between Cattleya and other genera see Epicattleya ×, Brassocattleya ×, Læliocattleya ×, and Sophrocattleya ×.

(1.) C. Acklandiæ, Lindl., *Bot. Reg.*, xxvi., t. 48; *Bot. Mag.*, t. 5039; Paxt., *Mag. of Bot.*, ix., p. 1, with plate, p. 2, with woodcut; *Flore des Serres*, t. 674; Batem., *2nd Cent. Orch. Pl.*, t. 119; *Ill. Hort.*, t. 565; Warn. and Will., *Orch. Alb.*, t. 69; *Orchidophile*, 1885, p. 366, with fig.; Veitch, *Man. Orch. Pl.*, pt. 2, p. 29, with fig.; *Gard. Chron.*, n. s., xxiii., p. 544, fig. 100 (fruit); *Epidendrum Acklandiæ*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 312.—Brazil; province of Bahia. Introduced by Lady Ackland in 1839. One of the smallest species of the genus. The side lobes of the lip do not enfold the column, as in the majority of the species. Var. Schilleriana, Jenn. = C. Schilleriana.

C. Acklandi-Loddigesii = C. hybrida ×.

C. amabilis, Hort. = C. intermedia.

C. amethystina, Morr. = C. intermedia.

C. amethystoglossa, Lind. and Rchb. f. = C. guttata var. Prinzii.

C. amethystoglossa var. sulphurea, Rchb. f. = C. porphyroglossa var. sulphurea.

C. Arembergii, Scheidw. = C. Loddigesii.

C. aurantiaca, P. N. Don, = Epidendrum aurantiacum.

C. aurea, Linden, = C. Dowiana var. aurea.

C. autumnalis, Hort. = C. Bowringiana.

C. Ballantiniana ×, Rchb. f. = C. labiata var. Ballantiniana.

C. Bassettii, Hort. = C. labiata var. Luddemanniana.

(2.) C. bicolor, Lindl., *Bot. Reg.*, sub t. 1919; Id., *Sert. Orch.*, t. 5, fig. 1; *Bot. Mag.*, t. 4909; Warn. and Will., *Orch. Alb.*, t. 318; *Epidendrum bicolor*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 311.—Brazil. Introduced by Messrs. Loddiges, of Hackney, in 1838, from the neighbourhood of Banaal, in the province of Minas Geraes. The entire absence of the side lobes of the lip is peculiar to this species. Var. Wrigleyana, Rchb. f., in *Gard. Chron.*, n. s., xxiii., p. 206.—Sepals and petals grey-green, lip dark purple.

C. Bluntii, Hort. = C. labiata var. Mendelii.

C. bogotensis, Linden = C. labiata var. Trianæ.

(3.) C. Bowringiana, Veitch; O'Brien in *Gard. Chron.*, n.s., xxiv., p. 683; Veitch, *Man. Orch. Pl.*, pt. 2, p. 31, 32, with figs.; Warn. and Will., *Orch. Alb.*, t. 323. *C. autumnalis*, Hort., O'Brien in *Gard. Chron.*, n.s., xxiv., p. 683.—British Honduras. Introduced by Messrs. James Veitch & Sons, in 1884. Very closely allied to C. Skinneri, but differing therefrom in its longer and more slender pseudobulbs, longer and narrower leaves, smaller flowers that appear at the opposite season of the year, and its somewhat differently shaped lip.

(4.) C. Brabantiæ ×, Veitch, *Floral Mag.*, 1867, t. 360.—A hybrid, raised by Mr. Dominy, for Messrs. Veitch, between C. Loddigesii ♀ and C. Acklandiæ ♂, and named in honour of the Duchess of Brabant, now Queen of the Belgians.

(5.) C. Brymeriana ×, Rchb., f., in *Gard. Chron.*, n.s., xx., p. 492; Warn. and Will, *Orch. Alb.*, t. 184.—Brazil. A supposed natural hybrid, between Cattleya superba and C. labiata Eldorado, introduced by Messrs. H. Low & Co., and dedicated to Mr. W. F. Brymer, of Islington House, near Dorchester.

C. Brysiana, Lem. = Lælia purpurata.

C. bulbosa, Lindl. = C. Walkeriana.

(6.) C. calummata ×, André, in *Revue Hort.*, 1883, p. 564, with plate; *Gartenflora*, 1887, p. 88, fig. 31; Warn. and Will., *Orch. Alb.*, t. 166; *Gard. Chron.*, n.s., xx., p. 786 (calumniata by error); Id., xxvi., p. 524, fig. 104.—A hybrid, raised by M. Bleu, of Paris, from C. intermedia ♀ and C. Acklandiæ ♂.

C. calumniata × = C. calummata ×.

C. candida, Williams = C. Loddigesii var candida.

C. Cassandra ×, Rolfe, = Læliocattleya × Cassandra.

C. Carrierei, Houllet = C. labiata var. Mossiæ.

(7.) C. Chamberlainiana ×, Rchb. f., in *Gard. Chron.*, n.s., xvi., p. 427.—A hybrid, raised by Mr. Seden, for Messrs. Veitch, between C. guttata Leopoldi ♀ and C. Dowiana ♂, and named in compliment to the Right Hon. Joseph Chamberlain.

C. chocoensis, André = C. labiata var. Trianæ.

—*R. A. Rolfe, Herbarium, Kew.*

(To be continued.)

Presentation.—On the occasion of Mr. Robert Bell leaving Morton Hall, Midlothian, for the more important position of gardener and manager to His Grace the Duke of Abercorn, at Baron's Court, Ireland, a few Horticulturists and other friends, as a mark of their esteem, presented him with a handsome timepiece, and Mrs. Bell with a gold brooch.

HARDY HERBACEOUS PLANTS.

Senecio pulcher.—There are few more useful hardy plants than this. As a free-flowering plant for the early autumn novelties, it is distinct from anything else, and needs but to be seen to be appreciated. Unlike many Senecios, this plant seldom perfects seeds, but it is freely increased by root cuttings, and the smallest pieces will grow. It is good for grouping in the borders, in beds, or in the spaces between shrubs. The present time is a good one for putting in the root cuttings, which grow quickly if put into a warm greenhouse or on slight bottom-heat. In planting Senecio pulcher on rockeries a good depth of moderately rich loamy soil should be afforded it.

Arnebia echioides (see figure in vol. xii., 1879, p. 689).—This is a handsome Boragewort of recent introduction. It is valuable, inasmuch as it is different in colour and distinct in every way, and it is interesting on account of the singular and continuous change going on with its flowers, in which respect it is, I believe, unique among hardy plants. Much has been written since its introduction of its perfect hardiness, its easiness of culture, and its almost incessant flowering habit, without bestowing one word of praise more than it deserves; and I can only urge those who have not seen it to procure it at once. It may be increased by division, and also by seeds, but the best way is by taking cuttings of the root in a similar way to those previously named but avoiding the use of bottom-heat unless it be very slight. It is worthy of note that root-cuttings of this plant break with freedom, and, according to the size of the pieces employed, one to four breaks spring from the apex. The cultivator should not attempt to make too much of these at once, but should allow the root-cuttings sufficient time to make plenty of roots, further dividing them, and then a fair amount of success may be looked for. *E. Jenkins.*

INDOOR AQUATIC PLANTS.

Considering the ease with which many of these can be grown, it is surprising that they are not more generally met with. It is, of course, true that from an utilitarian point of view they have not much to recommend them, although in some of the genera the flowers are large and showy, such as the Victoria regia, Nymphæas, Nelumbiums, yet they are not the class of plant from which the florists' drawers and cut-flower baskets are to be filled. Nevertheless, aquatic plants are fraught with much interest, morphologically and physiologically, their habits, manner of growth, &c., varying considerably from the general run of land plants. Possibly it is this variation which enables them to command the attention of even the most superficial observers.

Where there is a house devoted to aquatics, their cultivation becomes extremely easy and simple, it consisting chiefly of keeping up a constant supply of fresh aërated water, which is usually done by letting in a certain quantity daily, maintaining the same at an uniform temperature, varying the same according to whether aquatics are either stove or greenhouse species; and taking the Victoria regia as a type of the warm house plants, it may be said that the water need never exceed 80°, and 75° will be adequate in dull weather. For greenhouse species, if the temperature of the tank is that of the house, it will be sufficient.

All aquatics like abundance of light; in fact unless under very exceptional circumstances (such as if the water should by accident get too warm), they should never be shaded. Under these conditions there will be no difficulty in securing a buoyant atmosphere; of course, guarding against its becoming parched, but I have always found that the plants throve best when subjected to an imitation of the natural mid-day dryness. Close the house early in the afternoon, and while the sun is still on it, giving it at the time a thorough damping down. These remarks apply more particularly to the tropical Aquatic-house, in which the Victoria regia, Euryale, Nymphæas, Nelumbiums, &c., are grown. Early in March is a good time to start and otherwise put in order these plants. Of course Victoria regia and Euryale ferox are in most cases raised from seeds annually. They should have been sown about the end of December, so that they may be fit to plant out in their flowering quarters early in April. Our summers are so short that unless those plants are obtained of a good size early in the season they flower but a short time. June, July, and August are the months when they usually flower. In raising them it is necessary to keep the water at about 80°, and always to keep it sweet by fresh supplies. A position with clear light and near the glass should be chosen, and in the early stages it is well to keep the crown of the seedlings but just under the water. It is only those who have a large Aquatic-house who can accommodate the Victoria Lily, but the Euryale may be grown in a pot in a comparatively small tank, whereas the Victoria should not be attempted to be grown in a tank less than 20 feet across, and provision should be made for giving the plant several cartloads of rich loamy compost in which to grow.

Nelumbiums are much more easily accommodated. Large pots, either plunged in a tank or large tub, with space left for a few inches in depth of water over the soil, or they may be planted out in a bed of soil in a water-tank or one that can be kept in a boggy condition. During the growing period Nelumbiums are very distinct looking plants; their long-stalked, peltate leaves, which are convex at their union with the petiole, make a natural saucer-shaped depression, catching a good deal of water, which, owing to a waxy coating on the epidermis, runs off when the leaves are tilted, as if it were globules of mercury, running off clean, as water does from a duck's back. They will do with less heat than the Victoria, and are easily raised from seeds, but to facilitate germination the outer coats should be rubbed down very thin. This horny texture of the outer coating enables those seeds to retain their vitality for a very long period of time. Seeds do not ripen readily in this country, but they are imported, and at present mostly from Japan; but N. speciosum is widely distributed throughout tropical Asia. The Japanese seem to have selected and fixed several well-marked varieties, varying from red, rose, pink, to white, with several semi-double forms; these are usually designated under their N. nuciferum, but botanists tell us that they are but varieties of N. speciosum.

Large roots may also be imported with very little trouble, provided they have been prepared by being grown in small pans, and sent out when the leaves are down. We have had several consignments of them arrive in capital condition, the pans of roots being merely covered with moss, and packed in dry boxes. These when received in the early part of the year soon established themselves, and flowered the same season.

Nelumbium luteum, a native of America, is hardier, but succeeds when treated similarly to N. speciosum. *F. Ross, Pendell Court.*

(To be continued.)

PASSION-FLOWER: EYNSFORD GEM.

On June 11, 1885, we devoted an article to the description of a hybrid Passion-flower, then unnamed, raised by Mr. Geeson when at Haldon House, near Exeter, from Constance Elliot (a white form of Passiflora cœrulea), out of P. racemosa (better known as princeps). At the time mentioned we alluded to the botanical peculiarities of the hybrid, and indulged in the prediction that the cross would turn out important horticulturally. That prediction has been amply fulfilled, for under the name of Eynsford Gem it has been grown by Mr. Cannell at Swanley, and is now being sent out by him. As the principal botanical features were pointed out in our previous article, we need not repeat them here, further than to say that they present a curious combination of those of its parents. For the rest, the illustration we now give (fig. 86) tells its own tale, save in the matter of colour, the beauty of which would task even an expert colourist adequately to represent. The petals are of a lovely shade of rosy lilac, the threads of the corona being ivory-white tipped with violet. It is exceptionally beautiful even among a genus famed for good looks, and it has the advantage of being almost constantly in flower under greenhouse treatment, and would, we expect, be hardy in the warmer counties. We are indebted to Mr. Cannell for the specimen from which our figure was taken, and whilst we congratulate him on the possession of the plant, we advise our readers to avail themselves of his invitation to "come and see." *M. T. M.*

VEGETABLES.

TOMATOS IN THE OPEN.

We were all enthusiastic some years ago about growing and fruiting these plants in the open, and perhaps owing to our being at that time in one of the warm cycles which we enjoy at the most some four or five times in a century, Tomato fruits ripened well against walls, on warm borders, and, indeed, right away from any protection whatever, out in the vegetable quarters. I tried them then in many ways, and there was no doubt about it that for several seasons good luck beamed on us. But we were shortly to see the reverse of all this, and after planting out one year about 100 plants in a kind of modified Celery trench, at one side of which the soil was thrown out so as to form a long slope on which the plants were to be pegged down fan-fashion; the weather, which had so far been fairly warm for early June, turned in cold and wet; we had got to the end of the "warm cycle," and that, too, without any warning visible to human intelligence. Aided by the Celery trench arrangement of 6 inches of rich manure and the dripping weather, the Tomato plants grew amain; the slope was likely to prove far too short for the enormous growths, and there were serious thoughts of supplementing it with a rough trellis of rods, when all at once ominous black-brown spots appeared on the leaves, and spread rapidly over those and the green fruits. It was the dreaded Peronospora lycopersici, alike to the no less feared Potato fungus to unscientific eyes. There was nothing to be done to prevent the ravages of the enemy, though many remedies were tried, but I blamed myself for having been so liberal with the muck, which got quite as much of the blame as the abominable weather, and I resolved never again to risk the Tomato crop in the open. At that time there were no Early Gems, Perfections, Open-air Tomatos, and the rest, which the now more happily situated cultivator has had provided for him by the ever-obliging seedsman and raiser of novelties. There was nothing to be done now, but to retreat to a glasshouse, and file a confession of failure, a failure apparently the less merited, because the plants were grown not more than 9 miles from a sea-coast town in Sussex, a county which has a climate, bar wind, well suited to most out-of-doors production, and where Figs, Vines, Myrtles, and many greenhouse plants, so called, are successfully grown.

Sussex is warm, certainly, and it is, moreover, moist, and the latter characteristic of its climate would seem to tell against outdoor vegetation with greater force when the sun's power is a reduced quantity. In South Middlesex, with its light, dry soil on the top of deep gravel, Tomatos ripen well in almost every season; and on the stronger soil about Reading, in Berkshire, very fine crops are grown by Messrs. Sutton & Sons, away from all protection, so that the thing is practicable elsewhere in the South, but not always in the same way—different localities require various modifications.

I must say that I have still a kind of hankering after that Celery trench method—maugre the failure of 1872—but with this difference, I would make the slope rather more steep. I would discard the "well decayed manure" altogether, and would put my plants out on the crest of the ridge instead of in the trench as heretofore, and train them down the slope. By carrying out the work in this way, the soil about

the plants would be well drained by reason of the trench at the foot of the slope carrying off the water, thus ensuring a much warmer soil than a flat, less well-drained surface would possess; and then, when the plants appeared to need assistance, and not before, liquid-manure should be afforded them occasionally. In a general way, Tomatos, planted out-of-doors, get too much water, especially when they are on Peach walls. And to make the most of our short summer, the plants should be raised from seed sown in the early autumn, and kept gently growing in an intermediate-house or pit, close to the glass, shifting them as they may seem to require it, and gradually hardening them off, until, by the first week in June, they are fit to plant out.

We often hear of glass-houses being recommended, also warm walls; but as there are many persons who do not possess either the one or the other, but who yet have a partiality for the Tomato, it is just as well to point out to them how their garden can be made to furnish ripe fruits in due season, and it is with this intent that I have here recorded my failure, and its probable remedy. *M.*

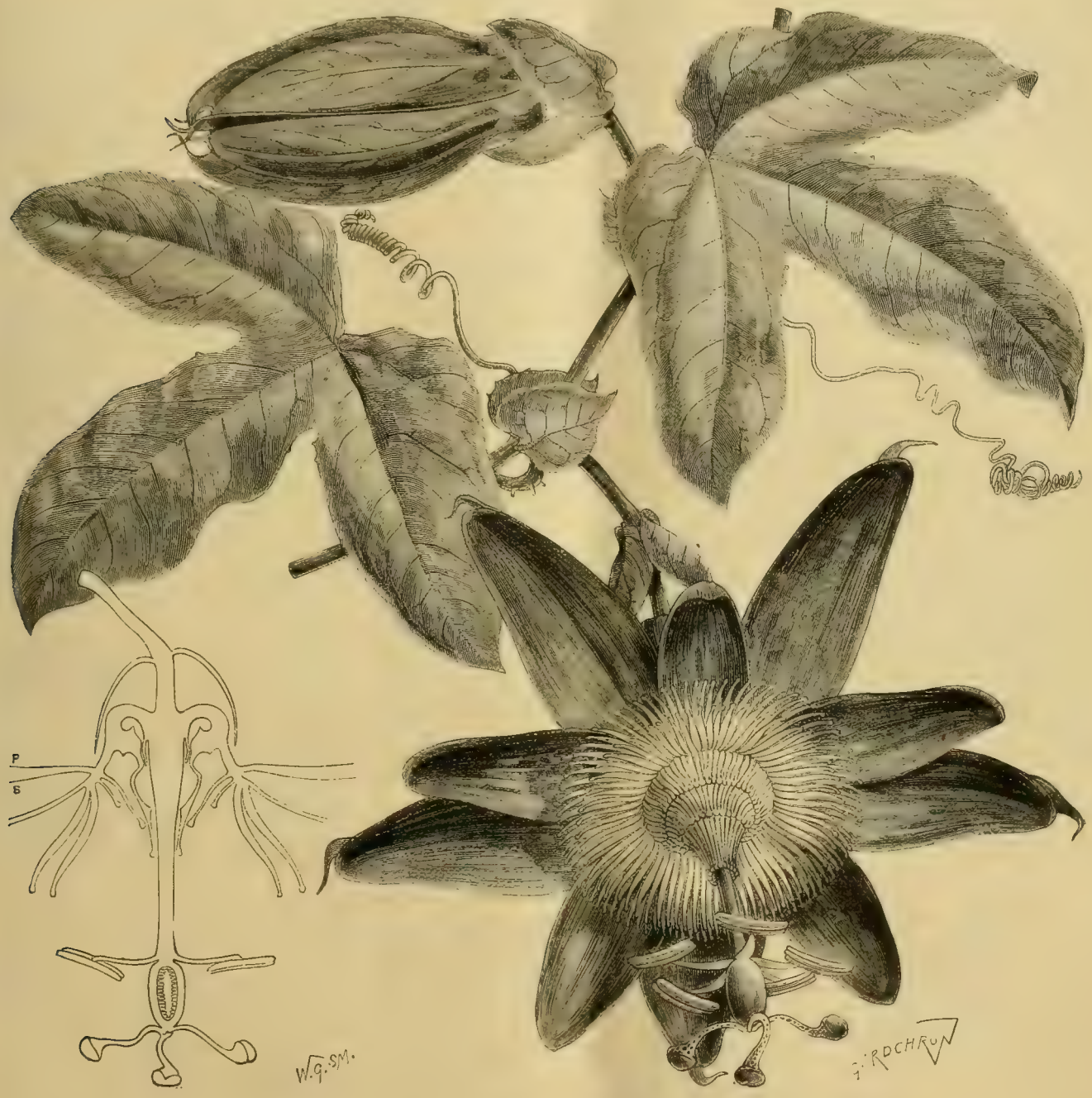


Fig. 86.—Passiflora Eynsford Gem: petals rosy-lilac, threads ivory-white, tipped with violet.

Beetroot.

This vegetable is of easy culture, and will do well in any light, deep, moderately rich soil, without traces of strong manure, inasmuch as a rank manure causes unshapely and coarse roots. The seed should therefore be sown in an open plot of ground which had been well manured previously for Celery, Cauliflowers, Peas, or such like crops requiring much manure; and the best results are secured from seed sown in a deep, light, loamy soil away from the shade of trees; the ground being deeply dug some time before sowing the seed. If the soil is of an adhesive nature, it should have some chalk or leaf-mould, coal-ashes, burnt earth, or sand added to it in autumn as soon as the ground has been cleared of the summer crops, and then be ridged up for the winter; and advantage should be taken of dry weather to level down the ridges, and dig over the whole just before sowing, then tread and rake the soil, making it level before putting the seed into it.

Pine-apple Short Top, Sutton's Blood Red, and

Pragnell's Exhibition are three good varieties to grow. A small sowing may be made the third week in March in a warm border with a view to securing an early crop. Sow thinly in drills from one to two inches deep, and from 12 to 15 inches apart, closing the drills with the feet, treading and raking it over afterwards. The third week in April will be soon enough to make the main sowing. When the plants are large enough thinning should be done, leaving the plants at from 6 to 9 inches in the row, and, if it is desired to extend the crop, the thinnings may be planted in ground prepared as advised for the sown crop; choosing a showery day for the work, and taking care that the roots of the plants are not bent in putting them in. The beds should be kept free from weeds by using the Dutch hoe occasionally during the summer months.

Taking up and Storing the Roots.—Towards the end of October the roots should be taken up, choosing a fine day for the work, when the ground and plants are dry. In order to preserve their freshness, the roots should be packed in damp material, which will not tend to absorb the moisture from them. In taking up the roots avoid wounding them in any way, and then let them be taken to a dry situation, such as a border under a south or west wall or wooden fence. An opening from 12 to 15 inches deep, and the same width, should then be taken out at the end of the border, and the digging of the ground be proceeded with. When the trench is filled and the ground has been levelled in the ordinary way, the soil should be cut straight down the whole width of the border, and two or three rows of Beetroot placed perpendicularly in the opening thus formed, and the digging be again proceeded with until the roots are all covered, burying the crowns about 1 inch under the surface of the soil. The operation is thus continued somewhat after the mode of transplanting young forest trees from the seed beds in nurseries. The leaves, which should not be removed from the crown, will afford an efficient protection from several degrees of frost; but in the event of severe weather, dry litter or fern thrown over them will be necessary. Before the roots show signs of growth in the spring they should be taken up, the leaves with a portion of the crown should be cut clean away, and the roots laid in again. Thus treated they will keep fresh and of good colour. Any roots saved for seed, and which must not be trimmed, may be planted at the foot of a south wall or fence about the middle of April, and be watered to settle the soil about them, the flower-spikes being secured to the wall in due time. When the seed is ripe the stalks must be cut off and suspended in a dry shed for a month or two, to be rubbed out and cleaned subsequently. Seed should be saved from one variety only at one time. *H. W. W.*

Orchid Notes and Gleanings.

CYPRIPEDIUM ROTHSCHILDIANUM.

According to the statement in the last number of the *Reichenbachia*, this species grows on rocks in a hot and moist district, and should therefore be grown in a moist and shaded part of the East Indian-house.

Kefersteinia graminea.

Although now included by Bentham under Zygopetalum, this plant is so distinct in habit and flower from the true Zygopetalums that it is more convenient to retain the name Reichenbach has given it, and under which it is figured in the *Gardeners' Chronicle* for May 16, 1885. Like Pescatorea, Bollea, and one or two other genera now reduced to Zygopetalum, it differs in the absence of pseudo-bulbs and in its one-flowered scapes. It is a very remarkable Orchid, as the figure above quoted shows. This drawing was made from a plant shown by Sir Trevor Lawrence at the Orchid Conference, and judging by a plant now flowering at Kew, appears to have been a singularly deep-coloured form. Normally the sepals and petals are of a dull greenish-yellow thickly spotted with reddish-brown, the broad lip being almost covered with black spots and irregularly toothed at the edges; there is a black two-lobed crest at the base. The flower is 1½ inches in diameter, and is borne on a slender peduncle three or four inches long. The species was discovered by the famous collector Hartweg in Popayan, on the western slope of the Andes, and was introduced to this country in 1857. *W. H.*

Vanda Sanderiana

succeeds well, says Mr. Sander in the last number of the *Reichenbachia*, with other Vandas, in a temperature ranging from 60° to 80°, but it is scarcely possible to submit this plant to too much heat during its season of active growth—April and October—when it also requires much moisture. In winter the temperature may be reduced to 60° to 70°, and the amount of moisture reduced. It flowers in September.

Dendrobium crassinode albiflorum, *Rchb. f.*

A stout plant of this chaste variety has been in flower for a long time in Messrs. J. Laing & Sons' Nurseries at Forest Hill, where many other good and showy Orchids are to be found in fine health. The flowers of D. crassinode albiflorum are equal to the largest of the coloured variety, but the sepals, petals, and lip are pure white, a bright yellow blotch on the base of the lip being the only colour in the flower. It appears to be a good grower, which is not always the case with rare varieties.

Oncidium macranthum.

Failure in the culture of this Oncidium is generally attributable to its being grown in too high a temperature. It is a mountain Orchid, and must have a cool and moist treatment. It should be grown with such Orchids as Odontoglossum crispum and Masdevallias, with a temperature ranging from 50° to 60° Fahr. It delights in a spot overshadowed by a wall and near a water-tank. At all seasons it must have plenty of water, and in hot weather frequent overhead syringings. It does not need a distinct period of rest, but in winter should be kept drier than at other seasons. It blooms in May and June, and the best time for repotting is after the flowers are past. The compost should consist of fibrous peat with a good sprinkling of river sand, charcoal and potsherds. *Reichenbachia*, t. 64.

Dendrobium nobile Schroderianum.

This—now in flower at The Dell, Egham—is not only one of the finest of the varieties of D. nobile, but also one of the most attractive of Orchids, and will probably find more admirers than the richly-coloured D. n. nobilius. Schroder's variety has tall pseudo-bulbs, profusely furnished with large wax-like flowers, the sepals and petals pearly-white, and the base of the labellum rich maroon, which makes a pleasing contrast. The flowers are also on unusually long stalks, and should the cut-flower trade ever get a supply, it will doubtless be much sought after.

Dendrobium aureum

is an easily managed plant, and may be successfully cultivated even in gardens where no special Orchid-house exists. It requires a warm and moist atmosphere, such as that of an ordinary stove-house or East Indian Orchid-house, during the greater part of the year. Active growth commences in January, about the time that the flowers are on the wane. It must then have an abundance of heat, moisture, and light . . . temperature may range from 70° to 80° Fahr., and will of course increase as the season advances. The young shoots will continue to grow and swell until the end of summer . . . when the plant should be removed to a cool and airy house, such as an early vinery. They should be hung in a very light place, and only sufficient water given to prevent the bulbs shrivelling . . . About November the plants should be returned to the stove or East Indian house and a moist treatment pursued until at flowering time, which usually begins about the end of December, and continues through January; the plants will have the fullest amount of heat possible. *Reichenbachia*, t. 63.

Oncidium concolor.

With its drooping sprays of pure yellow flowers, this is an attractive spring flowering plant when properly grown in baskets in the cool house, instead of being allowed to dwindle out its existence in heat, as too often is the case with it and its allies. A splendid variety is now in bloom in McArthur's Nursery, Maida Vale, W. The plant was imported with O. Marshallianum, and the lobes of the labellum, which is large and flat and measures 1½ inches across, are peculiar, although it appears to be a true O. concolor.

Plants and Their Culture.

Seasonable Hints on Stove Plants. — The plants now growing freely should be encouraged by closing early, and paying careful attention to the ventilation, and a high day temperature may be safely maintained if there be a sufficiency of atmospheric moisture in the house. Most of the plants may now be syringed overhead twice a day, and the floors, &c., damped down frequently. The day temperature may be allowed to reach 85° or 90°, and that for the night 65° to 70° in mild weather. If, unfortunately, mealy-bug is present, it will increase fast with the higher temperature now maintained, and no opportunity should be lost of destroying it, as well as scale and thrips. All plants bought in at this season should be given a corner in a small house or pit for a time, and cleaned thoroughly before placing them with the general stock. The early potted Allamandas, Clerodendrons, and Bougainvilleas will soon have filled their pots with roots, and as soon as the flower-buds appear the plants may receive occasionally liquid manure. Any shoots unduly taking the lead should have the points cut off, and to avoid drawing keep the plants close to the glass.

Palms, Tree Ferns, &c.—These and other large plants which do not often get repotted will now take copious supplies of water at the root, and the Palms will be benefited by the application of some good fertiliser once a week. Amaryllis as they go out of bloom may have a slight shift if it be necessary, employing good yellow loam, a portion of decayed manure, and a small quantity of leaf-mould and coarse river or silver-sand. After shifting, put the bulbs in a warm house near the light, so as to encourage the growth of leaves. The Gardenias should now be at their best, and to lengthen the supply of flowers, it is a good plan to place a few plants in a cooler house. Cuttings should now or soon be taken, selecting only perfectly healthy shoots.

Ixoras making free growth should be supplied with plenty of moisture, taking care to stop the shoots as required, and to give shade in bright weather. The plants for late flowering may be started into growth. Vincas should be stopped frequently to make bushy plants, as also shrubby Clerodendrons. The summer flowering varieties of Gesneras may now be started, putting them on a shelf in a warm house. These plants will produce a long succession of flowers if well treated and afforded plenty of weak liquid manure when the pots become filled with roots. In repotting, large pots should not be chosen, as it is better to feed the plants with manure. Gloxinias should now get as much light as possible, and as the flowers appear some kind of fertiliser may be made use of to give substance to them. The Caladiums started in small pots recently may now be repotted, before the roots become pot-bound. Coleus cuttings may again be taken, and the old and dirty plants discarded. Creeping and climbing plants should be regulated often, so that the shoots may not get entangled, and it is well to keep a plant or two of Stephanotis in a cooler house, so as to form a succession to those in the stove.

The Fernery.—Any plants that were shifted into fresh soil should now be progressing, and the air of the house should be kept moist, ventilation being afforded in favourable weather. Syringing the plants overhead

should not be done, or the young fronds will decay; but the walls and stages should be maintained in a moist state, and the plants liberally supplied with water at the roots when it is required. Shading will be needed in sunny weather; movable blinds are preferable to anything that is fixed, even for Ferns under glass. If the old fronds are infested with scale insects, their early removal should be seen to before the insects spread to the young ones. A few of the more advanced plants of Adiantum cuneatum may be removed to a cooler house as soon as their growth is finished, so as to harden the fronds, which will then be found better for cutting purposes than non-prepared ones.

Filmy Ferns should at this period be copiously syringed, and kept shaded by permanent heavy shading.

The Greenhouse.—Small plants of Camellias which have done flowering may now be repotted, keeping them closer for a fortnight. The older plants will now be growing generally, and may be shifted if this be needed, and the same treatment given afterwards as that afforded the smaller plants. The syringe should be freely employed, plenty of water is required by the plants, and sometimes a little soot-water once in a month. If the plants are in beds, a top-dressing of soot may be distributed over it previous to watering the beds. The seed-pods of Azaleas should be picked off, and the plants encouraged to make a growth, keeping them in a house with a night temperature of 58°, and 10° —15° higher with sunlight, well syringing them. Repotting may now be done, or it may be deferred till August. Clay's Fertiliser is found serviceable for old plants not re-potted in causing rapid growth. Calceolarias as the pots fill with roots may have liquid manure three or four times a week, and give due attention to the plants in the matter of clearing them of aphides before the flowers open. A few neat sticks should be placed to large plants to support the flower stems. Pelargoniums should receive similar treatment, and should now be tied out. Fuchsias may get a shift into larger pots as required, and be grown on freely. Early-struck plants should have filled their pots with roots, and may now have weak liquid manure given them at short intervals. Plants not required for early blooming should have the shoots stopped, and all blooms picked off. Another lot of Fuchsia cuttings for late summer use may be struck; these will be found serviceable if grown on, and finally shifted into 7-inch pots. Mignonette in bloom must be abundantly supplied with water, and should have a few twigs or sticks put into the pots to support the plants. Some small plants of the common and Harrison's Musk should be potted in 48's. Mimulus sown early last month will be ready to transfer to small pots, and will be found of use in furnishing the stages in the cool conservatory. A sowing of Cineraria seed may be made if early blooms are required; cuttings also of choice named varieties may now be propagated. The Liliums should be making free growth, and should be afforded all the light possible. Late potted bulbs should be examined, and taken out of the plunging material if advanced in growth sufficiently, but water must be given them sparingly for some time to come.

Conservatory.—The house should now be at its best. Many of the Rhododendrons will be in full beauty; and Azaleas will be gay with their brilliant colours. The house must be carefully shaded in bright weather. Plants of Azalea mollis as they go out of bloom should be given a place indoors for a time, to assist them in the formation of new growth. Cytisus racemosus, and Acacias will be at their best, and will take liberal supplies of water. Young stock should be propagated by seed or cuttings. Plants required for late flowering should be placed in a house facing north, or behind a north wall, so as to retard them. Deutzias as they go out of bloom should be cut back into the old wood, and given a warm house to assist them to break freely. *George Wythes, Sion House.*

The Flower Garden.

Antirrhinums are supposed to be perfectly hardy, but that is only supposition, as I know to my cost, for even in the comparatively mild winter just ended, we have lost some scores of plants, more especially in exposed and wet positions. Those sown in May last on a west border—and after being thinned out left there to winter, in order to have a reserve of plants to fill up gaps in herbaceous borders—have stood without a single loss, as also have sundry self-sown seedlings on the open borders. I allude to the latter because for years I have noticed that self-sown plants always survive the winter, and if we could but rely on good sorts reproducing themselves, then indeed would Antirrhinum culture be an easy matter; but seeds of the best strains do not, as a rule, produce more than one-half good kinds, and therefore this is a strong reason for raising plants from cuttings, taken off in early autumn, placed to root in dung frames, and wintered in the cutting pots in cold frames. Plants thus raised we have just now planted on the open border, and also part of the seedlings that were sown early in May last on a sheltered border. Such plants come in well to replace vacancies which the winter may have caused in mixed flower borders, and, if not required for that purpose, they can be planted on any bit of spare ground for the production of cut flowers in autumn.

Pentstemons.—In their cultivation there is virtually no difference from that of Antirrhinums. They are slightly less hardy, and therefore require warmer and sheltered positions if it be desired to winter them successfully. This is always an hazardous undertaking, so that I prefer rather to take cuttings during September, grow them on in pots or boxes through the winter, and plant out now. In the case of raising plants from seed, it is best to sow in heat, in February, prick out as soon as the size of the plants will allow, and finally plant them out in May. Such plants will flower very well all through the autumn. With the planting out of the foregoing, together with a few clumps of Aquilegias, Canterbury Bells, seedling Carnations and Pinks, is completed the planting of our mixed flower borders other than the spaces that are left for Dahlias, Marguerites, a few tall foliage plants, and Pelargoniums.

General Work.—Plant out permanently all hardy bedding plants, also Sedums, Cerastium tomentosum, Herniaria glabra, Veronica rupestris, Pansies and Violas, and in favoured climates, Verbenas, Calceolarias, Gnaphalium lanatum, and Leucophyton Brownii; and, in places less favourably situate as to climate, such plants should be taken out of the pits and frames, and hardened off under the shade of trees, hedges, or walls. Other less hardy bedding plants, such as Ageratums, Lobelias, and Petunias, may be planted out in turf-pits or other temporary shelter, capable of being covered up at night, and the spaces in the houses obtained by their removal will be available for growing on tender bedders and seedling subtropical plants, such as Cannas, Ricinus, Solanums, Wigandias, Eucalyptus, Tobaccos, and Variegated Maize. *W. Wildsmith, Heckfield Place, Winchfield, Hants.*

The Hardy Fruit Garden.

Disbudding Peaches and Nectarines.—As soon as the young growths are about a couple of inches long, disbudding should be commenced. The trees being gone over some 3 or 4 times, care should be taken not to remove a bud which is at all likely to be required to fill up a space. The quantity to be removed on the first occasion depends greatly on the weather. If mild and likely to continue so, disbudding may be vigorously proceeded with. If cold, night and day, with keen north or east winds, the removal of the buds should be more sparingly done. Only a few here and there of those which are likely to grow strong and form ill-place shoots should be rubbed off. The foreright buds and those at the back of the shoot are, as a rule, the first to receive attention, after which gradually remove any other superfluous buds, till only those required for next year remain. It is always better to disbud by degrees not too severely, but keeping a balance with the flower buds or tiny fruits, otherwise the latter may drop when about the size of peas. The first time the buds are easily rubbed off, but on the last occasion it is necessary to use the knife; some people always use a knife from the first. Generally the young shoots of Peach and Nectarine trees are allowed to be too crowded to permit proper ripening. One moderately strong shoot should be left at the base of each bearing branch and on the upper side where possible, and another at the top as a leader. The leaders should not be stopped till they reach their proper length. As soon as the fruits have been gathered, the branch which bore them may be removed, to be replaced by the shoot growing from its base. In the case of young trees commence at the top, as this to a certain extent checks the growth in the centre, and the lower side branches are thereby assisted. Every care should be taken with young trees, and the disbudding only done by a very skilled hand, this being the secret of the formation of handsome trees. Maidens which push forth a very strong growth should be stopped when it is about 8 to 10 inches long; this induces strong lateral growths, which not infrequently form fine young specimen tree during the first season. Those with three or five shoots resulting from a maiden cut back last spring should have the odd shoot, which as a rule would take the centre place, shortened back to 6 or 8 inches or entirely removed, otherwise a few of the buds at the top will break, and, taking the lead of the lower buds, and the result will be that a gap is left at the place where branches should strike out on both sides to form a good evenly balanced tree. When there is an even number of young shoots there is little difficulty in forming the head, as the two middle shoots may be brought down and secured for a time in a horizontal position, and, when the lower buds have broken, put back to the original position.

During disbudding look out for aphides, and where any have appeared no time should be lost in eradicating them, otherwise the young shoots will quickly get crippled. Dusting the affected parts with tobacco powder is the only safe and effectual remedy of which I know at present, and until the fruits are swelling, when some liquid insecticide, such as tobacco water, may be applied with the syringe. *H. Markham, Mereworth Castle, Maidstone, Kent.*

The Kitchen Garden.

Treatment of Pot and Sweet Herbs (*continued*): *Lavender* requires a light loamy soil and an open situation; it is propagated by cuttings in spring or autumn, put into sandy soil under a hand-light.

Rosemary likes a dry and poor soil and a sheltered situation; the plant if grown on rich soil looses much of its aromatic perfume. It does well as a wall plant in some districts, and in others it must be grown in pots during the winter. It may be propagated by cuttings, layers, and seed, the latter method securing the best plants.

Sorrel is in much request as a culinary dish and as a salad. The broad-leaved kind is the best. A sandy free soil suits it best, although it will flourish in any soil or situation. It is propagated by division, the plants being set out in lines at 18 inches apart. The flower-stems must be kept cut off in order to secure a constant supply of succulent leaves.

Skirret.—Sow in April, 12 inches apart, thinning to the same distance in the row. The roots will be fit to use in autumn like Parsnips. It requires a deeply trenched soil of moderate richness.

Rampion.—This requires a moist light soil, and to keep up a supply during the season it requires to be frequently sown, as the earlier sowings soon run to seed Sow the seeds in drills on a border with an eastern exposure, at a distance of 6 inches apart, and thin out the plants to 3 inches. In dry weather it must be copiously watered. The root available as a dish cooked like Asparagus; eaten like Radishes; or sliced in salads, the leaves being also used.

Angelica.—The stems of the plant are used in May for candying. The seed should be sown as soon as ripe—which is about September—in a moist situation in drills, about 2 feet to 2 feet 6 inches apart, dropping the seeds at the same distance apart in the drills. In June of the following year the plants will show flower, but they must not be allowed to seed or they are liable to perish; but the stems should be removed, when they will sprout afresh; a close attention to this matter will ensure a continuance of the plants for some years.

Anise.—This is a half-hardy annual, and is used for garnishing and for seasoning. It is necessary to sow seeds in pots on a hotbed, and when there is no danger from frost should be planted out on a warm border, at a distance of 6 inches apart. It will not transplant.

Fennel is largely used as a fish sauce, and strewn over young Potatos when cooked. It is increased by division of the root, by offsets, and by seeds. The seed should be sown as soon as ripe, and the offsets may be planted in the spring or the autumn. Seed should be sown in drills one foot apart, and the plants thinned out to the same distance. The plant should be frequently cut down during the season, as the production of seed greatly weakens it. *W. M. Baillie, Luton Hoo.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

TUESDAY, April 23 — Royal Horticultural Society: Fruit, Floral, and Scientific Committees meet.

SHOWS.

TUESDAY, April 23 — National Auricula Society (Southern Section), in conjunction with the Royal Horticultural Society.
WEDNESDAY, April 24—Ancient Society of York Florists.
THURSDAY, April 25—Royal Horticultural of Ireland.

SALES.

WEDNESDAY, April 24 — Roses, Shrubs, Border Plants, Bulbs, Lilium auratum, &c., at Stevens' Rooms.
THURSDAY, April 25 — Established and Imported Orchids, at Stevens' Rooms. Greenhouse and Bedding Plants, Roses, &c., at the Auction Rooms, Gracechurch Street, City, by Protheroe & Morris.
FRIDAY, April 26 — 12,000 Odontoglossum crispum and other Orchids, at the Central Auction Rooms, Cheapside, by Protheroe & Morris.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—49°4.

Railway Rates. This matter is of such paramount interest to a large class of our readers—we may indeed say to all, whether engaged in commerce or not—that we gladly avail ourselves of the opportunity of laying before our readers an elaborate statement prepared by Mr. F. C. Goodchild, the Secretary of the Nursery and Seed Trade Association. A few words only of explanation are needed to convince our readers of the great importance of the matter, and of the necessity that exists for taking concerted means to protect their own interests.

In consequence of the confused state into which the railway rates had got (mainly owing to the great number of preferential rates now in force) the Railway and Canal Traffic Act, 1888, was passed. Under that Act each railway company is required to publish a revised classification of merchandise traffic, and a revised schedule, showing the maximum rates and charges applicable thereto. The Act came into operation on January 1, 1889, and the publication of the revised schedules was directed by the Act to be made within six months. Objections were to be lodged within eight weeks from the date of the first advertisement of the submission to the Board of Trade of the revised schedules. The Companies appear to have taken concerted action in the matter, and to have issued their schedules at a very early date after the Act came into operation. The trading community was consequently taken by surprise, but ultimately the time for lodging objections has been extended to June 1, being one month less than the limit of time fixed by the Act for the publication of the schedules.

It will be seen from the table given as a supplement that the classification of articles by the Companies is the same in each case, but the distances differ in the case of different railways. The proposed rates of the lines supplying the same district are nearly the same, the result, no doubt, of the combined action of the Companies. The object of the publication of the table is to enable the reader to see at a glance the proposed rates on the various lines used by them, and its utility will be considerably enhanced if the trade will give information to the Association as to the present rates now paid by them, in order that some data may be obtained for formulating objections. This is necessary in consequence of the inability to obtain from the Companies a full list of their existing rates. This difficulty arises mainly from the huge mass of figures consequent on the many preferential rates at present existing. The table is useful also as showing the classification of the various articles used in the horticultural trade. Many of these are curiously grouped, and require rearrangement.

The questions of "terminal charges" and "service charges" are very important, and will have to be carefully considered, especially as regards the service charges. It is doubtful whether the Act contemplated these payments as distinct from the station terminal charges, which are only mentioned as such in the Act. In the definition clause the term "terminal charges" includes charges in respect of stations, sidings, wharves, *depôts*, warehouses, cranes, and other similar matters, and of any services rendered in connection with them. It will no doubt be contended by the Trade that service terminal charges are, or ought to be, included in station terminal charges.

It is desirable that the objections to be lodged should be as much in detail as possible, and not framed in general terms only, as it is believed they will then receive more consideration by the Board of Trade.

It was the complicated state in which the schedules were published that suggested the preparation of the table, in order that members of the trade may at a glance see how the proposed rates affect their districts.

The subjoined letter, to which we willingly give publicity, shows the steps which the Nursery and Seed Trade Association propose to take in the matter, and we can only urge on those concerned the imperative duty of strengthening the hands of the Association in the manner indicated.

"Sir,—At the annual meeting of my Association it was decided to take up the question of railway rates, as affecting the horticultural trade. I have therefore prepared a statement (see supplementary sheet), showing the classification of all articles used in the trade (and which have been scheduled by the London trunk lines) together with the proposed rates. May I ask your readers to communicate with me as soon as possible any suggestions they have to make respecting the classification, or re-classification of the various articles, and the rates proposed to be charged. If they will also favour me with the present rates per ton per mile paid by them, I shall be in a position to prepare a comparative statement showing whether the proposed rates are excessive, and if so to what extent. The time for lodging objections at the Board of Trade has been extended till the 1st June next. A meeting of the committee appointed to consider the question has been called for the 29th inst., and I wish to be in a position to lay before that committee all the information I can obtain, with a view to the preparation of objections which I think should deal with details, instead of being general in their terms.

"A public meeting of the trade will be called in May, due notice of which will be given, and at which the objections prepared by the committee will be submitted for adoption or otherwise.—Yours truly,

"F. C. Goodchild,
"Secretary, The Nursery and Seed Trade Association, Limited, 25, Old Jewry, London, E.C.
"To the Editor of the *Gardeners' Chronicle*."

Castello di Poggio-Gherardo.—The fig. 87, p. 497, represents the residence of Mr. H. J. Ross, a gentleman who is well known to our readers as an enthusiastic cultivator of Orchids, and whose collection contains many that are both rare and beautiful, one of the latest additions being Peristeria Rossiana, figured in our pages on January 5 last. He has recently purchased the Castello, and has transferred thither his Orchids from Castagnolo, Lastra à Signa. The collection contains nearly 1000 species, and is the finest ever got together in Italy, not excepting the celebrated one at San Donato, near Florence which belonged to Prince Demidoff, and which was dispersed in 1878. Poggio-Gherardo lies about two miles to the east of Florence, and stands on a projecting spur of the lower ranges of the Fiesole hills. From the Via Settignanese a winding avenue ascends through Olive groves and vineyards to the dense shrubberies which screen the castle on three sides, leaving the fourth open to the south, where the hillside sinks abruptly from the high terrace-wall of the garden. Till 1341 the castle was the property of the Magaldi, who then sold it to the Baroncelli for 3100 golden florins. In 1354 it belonged to the Baldesi family, from whom it fell to the Zati, who sold it to Gherardo-Gherardi, in whose family it has been till this day. But the chief interest of Poggio-Gherardo is the tradition that it is the spot to which the joyous company, headed by Boccaccio, went on that Wednesday morning when they fled from the plague-stricken city of Florence. They stayed till Sunday at the "beautiful villa surrounded by green lawns and splendid gardens," and then proceeded to the villa "de 'tre visi," now Palmieri, which belongs to the Dowager Countess of Crawford and Balcarres. Boccaccio is said to have written several of his incomparable tales at Poggio-Gherardo. Mrs. Ross, who is also an ardent admirer of Orchids, has made water-colour drawings of the most interesting plants which have flowered at Castagnolo. She is known in the literary world as the authoress of *Three Generations of English Women*, and other works.

Paris Exhibition — Horticulture. — The *Journal de la Société Nationale d'Horticulture de France* publishes a schedule of the forthcoming horticultural shows, to be held during the continuance of the exhibition at Paris. Each of the eleven sections will include ornamental plants and flowers, cut flowers, bouquets and decorations, kitchen-garden plants, fruits from the South, new fruits, stove plants, and fresh fruit. The 1st and 2nd sections include fruit trees, and fresh and preserved fruits; the 1st, 2nd, 3rd, and 4th, forced fruit and Grapes; the 2nd, new plants; the 2nd, 4th, 5th, 7th, and 10th, seeds and seedlings of forest plants; the 8th, 9th, 10th, and 11th, early cider fruits; the 10th, designs for forests and parks. The dates on which the exhibitions are to take place are as follows:—For specimens of the 1st section, May 6 to 11; 2nd, May 24 to 29; 3rd, June 7 to 12; 4th, June 21 to 27; 5th, July 12 to 17; 6th, August 2 to 7; 7th, August 16 to 21; 8th, September 6 to 11; 9th, September 20 to 25; 10th, October 4 to 9; and 11th, October 18 to 23. We read also that in every case the exhibits of amateurs and of those in trade will be arranged separately. Amateurs and horticulturists desirous of obtaining further information are requested to apply to the General Director of the Exhibition

PLE[illegible] "[illegible] CHRONICLE," APRIL 20, 1889.

TABLE SHOWING THE CLASSIFICATIONS OF ARTICLES USED IN THE HORTICULTURAL TRADE, WITH PROPOSED RAILWAY RATES.

CLASS	GOODS	WEIGHT	L&N.W.R'Y 1846¾ MILES			M.R'Y 1831½ MILES			G.W.R'Y 2460 MILES			G.E.R'Y 1056¾ MILES			G.N.R'Y 961 MILES			L.B.&S.C.R'Y 463 MILES			S.E.R'Y 423¾ MILES			L.C.&D.R'Y 180½ MILES			L.&S.W.R'Y 85¼ MILES		
			Proposed Rates	Station Terminals at each end	Service Terminals at each end	Proposed Rates	Station Terminals at each end	Service Terminals at each end	Proposed Rates	Station Terminals at each end	Service Terminals at each end	Proposed Rates	Station Terminals at each end	Service Terminals at each end	Proposed Rates	Station Terminals at each end	Service Terminals at each end	Proposed Rates	Station Terminals at each end	Service Terminals at each end	Proposed Rates	Station Terminals at each end	Service Terminals at each end	Proposed Rates	Station Terminals at each end	Service Terminals at each end	Proposed Rates	Station Terminals at each end	Service Terminals at each end
B	Gravel Loam Manure street stable or farmyard (in bulk) Peat Pipes Agricultural Sand (Trucks extra) Turf	4 Tons or upwards	1st 10 miles Per Ton per mile: 2d; Next 10 miles Per Ton per mile: 1½d; Next 20 miles Per Ton per mile: 1d; Next 20 main miles Per Ton per mile: ¾d; Rest Per Ton per mile: ½d	London Liverpool Manchester Birmingham: Per Ton per mile: 1s; Other towns: Per Ton per mile: 9d	London Liverpool Manchester Birmingham: Per Ton: —; Other towns: Per Ton: —	1st 10 miles Per Ton per mile: 2d; Next 10 miles Per Ton per mile: 1½d; Next 20 miles Per Ton per mile: 1d; Next 20 main miles Per Ton per mile: ¾d; Rest Per Ton per mile: ½d	London Liverpool Manchester Birmingham: Per Ton: 1s; Other towns: Per Ton: 9d	London Liverpool Manchester Birmingham: Per Ton: —; Other towns: Per Ton: —	1st 10 miles Per Ton per mile: 2d; Next 10 miles Per Ton per mile: 1½d; Next 20 miles Per Ton per mile: 1d; Next 20 main miles Per Ton per mile: ¾d; Rest Per Ton per mile: ½d	London Liverpool Manchester Birmingham: Per Ton: 1s; Other towns: Per Ton: 9d	London Liverpool Manchester Birmingham: Per Ton: —; Other towns: Per Ton: —	1st 10 miles Per Ton per mile: 2d; Next 10 miles Per Ton per mile: 1½d; Next 20 miles Per Ton per mile: 1d; Next 20 main miles Per Ton per mile: ¾d; Rest Per Ton per mile: ½d	London Liverpool Manchester Birmingham: Per Ton: 1s; Other towns: Per Ton: 9d	London Liverpool Manchester Birmingham: Per Ton: —; Other towns: Per Ton: —	1st 10 miles Per Ton per mile: 2d; Next 10 miles Per Ton per mile: 1½d; Next 20 miles Per Ton per mile: 1d; Next 20 main miles Per Ton per mile: ¾d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: —	1st 10 miles Per Ton per mile: 2d; Next 10 miles Per Ton per mile: 1½d; Next 20 miles Per Ton per mile: 1d; Next 20 main miles Per Ton per mile: ¾d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: —	1st 10 miles Per Ton per mile: 2d; Next 10 miles Per Ton per mile: 1½d; Next 20 miles Per Ton per mile: 1d; Next 20 main miles Per Ton per mile: ¾d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: —	1st 10 miles Per Ton per mile: 2d; Next 10 miles Per Ton per mile: 1½d; Next 20 miles Per Ton per mile: 1d; Next 20 main miles Per Ton per mile: ¾d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: —	1st 10 miles Per Ton per mile: 2d; Next 10 miles Per Ton per mile: 1½d; Next 20 miles Per Ton per mile: 1d; Next 20 main miles Per Ton per mile: ¾d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: —	1st 10 miles Per Ton per mile: 2d; Next 10 miles Per Ton per mile: 1½d; Next 20 miles Per Ton per mile: 1d; Next 20 main miles Per Ton per mile: ¾d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: —
C	Bone Ash Bones, for manure Grain Mangel Wurzel Manure (other than street stable or farmyard in bulk) Seeds for crushing (viz) Sticks, Peas or Beans Soot Nuts (garden) Nurseries All articles in class B	2 Tons and under 4 Tons	1st 10 miles Per Ton per mile: 2½d; Next 10 miles Per Ton per mile: 2d; Next 20 miles Per Ton per mile: 1½d; Next 20 main miles Per Ton per mile: 1d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: 6d	1st 10 miles Per Ton per mile: 2½d; Next 10 miles Per Ton per mile: 2d; Next 20 miles Per Ton per mile: 1½d; Next 20 main miles Per Ton per mile: 1d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: 6d	1st 10 miles Per Ton per mile: 2½d; Next 10 miles Per Ton per mile: 2d; Next 20 miles Per Ton per mile: 1½d; Next 20 main miles Per Ton per mile: 1d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: 6d	1st 10 miles Per Ton per mile: 2½d; Next 10 miles Per Ton per mile: 2d; Next 20 miles Per Ton per mile: 1½d; Next 20 main miles Per Ton per mile: 1d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: 6d	1st 10 miles Per Ton per mile: 2½d; Next 10 miles Per Ton per mile: 2d; Next 20 miles Per Ton per mile: 1½d; Next 20 main miles Per Ton per mile: 1d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: 6d	1st 10 miles Per Ton per mile: 2½d; Next 10 miles Per Ton per mile: 2d; Next 20 miles Per Ton per mile: 1½d; Next 20 main miles Per Ton per mile: 1d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: 6d	1st 10 miles Per Ton per mile: 2½d; Next 10 miles Per Ton per mile: 2d; Next 20 miles Per Ton per mile: 1½d; Next 20 main miles Per Ton per mile: 1d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: 6d	1st 10 miles Per Ton per mile: 2½d; Next 10 miles Per Ton per mile: 2d; Next 20 miles Per Ton per mile: 1½d; Next 20 main miles Per Ton per mile: 1d; Rest Per Ton per mile: ½d	London: Per Ton: 1s; Other towns: Per Ton: 9d	London: Per Ton: —; Other towns: Per Ton: 6d
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2	Agricultural machines and implements in cases Agricultural Seeds Apples Canary Seed Handles (broom, rake, spade, fork, shovel, pick) Hoes (hand) Pears Pickaxes Sacks Spades and Shovels (iron or steel) Vegetables (except where otherwise provided)	any weight @	1st 10 miles Per Ton per mile: 3¼d; Next 10 miles Per Ton per mile: 2¾d; Next 20 miles Per Ton per mile: 2½d; Next 20 main miles Per Ton per mile: 2d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 1/9; Other towns: Per Ton: 1/3	1st 10 miles Per Ton per mile: 3¼d; Next 10 miles Per Ton per mile: 2¾d; Next 20 miles Per Ton per mile: 2d; Next 20 main miles Per Ton per mile: 1½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 1/9; Other towns: Per Ton: 1/3	1st 10 miles Per Ton per mile: 3½d; Next 10 miles Per Ton per mile: 3d; Next 20 miles Per Ton per mile: 2½d; Next 20 main miles Per Ton per mile: 2d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 1/9; Other towns: Per Ton: 1/3	1st 10 miles Per Ton per mile: 3¼d; Next 10 miles Per Ton per mile: 2¾d; Next 20 miles Per Ton per mile: 2d; Next 20 main miles Per Ton per mile: 1½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 1/9; Other towns: Per Ton: 1/3	1st 10 miles Per Ton per mile: 3¼d; Next 10 miles Per Ton per mile: 2¾d; Next 20 miles Per Ton per mile: 2d; Next 20 main miles Per Ton per mile: 1½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 1/9; Other towns: Per Ton: 1/3	1st 10 miles Per Ton per mile: 3½d; Next 10 miles Per Ton per mile: 3d; Next 20 miles Per Ton per mile: 2½d; Next 20 main miles Per Ton per mile: 2d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 1/9; Other towns: Per Ton: 1/3	1st 10 miles Per Ton per mile: 3¼d; Next 10 miles Per Ton per mile: 2¾d; Next 20 miles Per Ton per mile: 2d; Next 20 main miles Per Ton per mile: 1½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 1/9; Other towns: Per Ton: 1/3	1st 10 miles Per Ton per mile: 3½d; Next 10 miles Per Ton per mile: 3d; Next 20 miles Per Ton per mile: 2¾d; Next 20 main miles Per Ton per mile: 2d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 1/9; Other towns: Per Ton: 1/3
3	Carraway Seed Cocoa-nut fibre Common Seed Coriander Seed Flax (for sowing) Forks (digging) Herbs (dried) Lawn Mowers (packed) Mats & Matting (except where otherwise provided) Moss (packed) Netting (cotton or twine) Plants not in pots (except where otherwise provided) Scythes (or parts)	any weight (a)	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 3d; Next 20 main miles Per Ton per mile: 2½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/; Other towns: Per Ton: 1/6	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 2¾d; Next 20 main miles Per Ton per mile: 2¼d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/; Other towns: Per Ton: 1/6	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 3d; Next 20 main miles Per Ton per mile: 2½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/; Other towns: Per Ton: 1/6	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 3d; Next 20 main miles Per Ton per mile: 2¼d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/; Other towns: Per Ton: 1/6	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 3d; Next 20 main miles Per Ton per mile: 2¼d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/; Other towns: Per Ton: 1/6	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 3d; Next 20 main miles Per Ton per mile: 2¼d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/; Other towns: Per Ton: 1/6	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 3d; Next 20 main miles Per Ton per mile: 2¼d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/; Other towns: Per Ton: 1/6
4	Agricultural machines or implements except where otherwise provided Asparagus Flower Pots Fruit except where otherwise provided Glasshouse pots Lawn Mowers (not packed) Seeds except where otherwise provided Shrubs & Trees (except where otherwise provided) Spades & Shovels (wooden) Tomatoes	any weight (a)	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3¾d; Next 20 miles Per Ton per mile: 3½d; Next 20 main miles Per Ton per mile: 3d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/9; Other towns: Per Ton: 2/	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 3d; Next 20 main miles Per Ton per mile: 2½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/9; Other towns: Per Ton: 2/	1st 10 miles Per Ton per mile: 4½d; Next 10 miles Per Ton per mile: 4d; Next 20 miles Per Ton per mile: 3½d; Next 20 main miles Per Ton per mile: 3d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/9; Other towns: Per Ton: 2/	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 3d; Next 20 main miles Per Ton per mile: 2½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/9; Other towns: Per Ton: 2/	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 3d; Next 20 main miles Per Ton per mile: 2½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/9; Other towns: Per Ton: 2/	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 3d; Next 20 main miles Per Ton per mile: 2½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/9; Other towns: Per Ton: 2/	1st 10 miles Per Ton per mile: 4d; Next 10 miles Per Ton per mile: 3½d; Next 20 miles Per Ton per mile: 3d; Next 20 main miles Per Ton per mile: 2½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 2/9; Other towns: Per Ton: 2/
5	Apricots Bark not for tanning Empties (except where otherwise provided) Flowers (cut) Fruit (Hothouse) Grapes Moss except when otherwise provided Nurseries Pears Plants & Shrubs in baskets mats pots or tubs All articles not classified and not of a dangerous character	any weight (a)	1st 10 miles Per Ton per mile: 5d; Next 10 miles Per Ton per mile: 4½d; Next 20 miles Per Ton per mile: 4d; Next 20 main miles Per Ton per mile: 3½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 3/6; Other towns: Per Ton: 2/6	1st 10 miles Per Ton per mile: 5d; Next 10 miles Per Ton per mile: 4d; Next 20 miles Per Ton per mile: 3½d; Next 20 main miles Per Ton per mile: 3d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 3/6; Other towns: Per Ton: 2/6	1st 10 miles Per Ton per mile: 5d; Next 10 miles Per Ton per mile: 4¼d; Next 20 miles Per Ton per mile: 4d; Next 20 main miles Per Ton per mile: 3½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 3/6; Other towns: Per Ton: 2/6	1st 10 miles Per Ton per mile: 6d; Next 10 miles Per Ton per mile: 4d; Next 20 miles Per Ton per mile: 3½d; Next 20 main miles Per Ton per mile: 3d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 3/6; Other towns: Per Ton: 2/6	1st 10 miles Per Ton per mile: 5d; Next 10 miles Per Ton per mile: 4d; Next 20 miles Per Ton per mile: 3½d; Next 20 main miles Per Ton per mile: 3d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 3/6; Other towns: Per Ton: 2/6	1st 10 miles Per Ton per mile: 5d; Next 10 miles Per Ton per mile: 5d; Next 20 miles Per Ton per mile: 4d; Next 20 main miles Per Ton per mile: 3½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 3/6; Other towns: Per Ton: 2/6	1st 10 miles Per Ton per mile: 5d; Next 10 miles Per Ton per mile: 5d; Next 20 miles Per Ton per mile: 4d; Next 20 main miles Per Ton per mile: 3½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 3/6; Other towns: Per Ton: 2/6	1st 10 miles Per Ton per mile: 5d; Next 10 miles Per Ton per mile: 5d; Next 20 miles Per Ton per mile: 4d; Next 20 main miles Per Ton per mile: 3½d; Rest Per Ton per mile: ½d	London: Per Ton: 2/; Other towns: Per Ton: 1/6	London: Per Ton: 3/6; Other towns: Per Ton: 2/6
	Small parcels by Goods train	not over 560 lbs	Double rates & charges on class 5 minimum charge for 28 lbs			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit		
	Small parcels by Passenger train	not over 560 lbs	2d per lb Minimum charge 9d per parcel						Not exceeding 2d per lb Minimum charge 9d per packet						Reasonable charges to be agreed upon between Company and Trader														
	Parcels (such as the Company may agree to carry by passenger train)	over 560 lbs	Double rates & charges by goods train			at rates exceeding those authorized by Schedule			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit			Such reasonable sum as the Company may think fit		

F. C. Goodchild. Secretary
Nursery & Seed Trade Assoc[n] L[d]

(at Paris) at least six weeks before they wish to exhibit. Exhibitors will be informed of their admission at least three weeks before the exhibition. All wishing to compete should mention their name and address, the number, species or varieties of the products they mean to exhibit, and the space which they will require. Applicants should also mention the section or sections in which they intend to compete, and the space they will require on each occasion. For fuller particulars, and for a programme of the proceedings, inquirers should apply to the Office of Group IX., Horticultural Department, Trocadéro, Paris.

The Royal Society.—We learn that Mr. W. B. Hemsley, of the Kew herbarium, and by whom these columns have often been enriched by valuable articles on the botany of garden-plants, has been selected as one of the fifteen to be proposed for election at the next meeting of the Society. As this limited selection is made annually from representatives of all branches of science, Mr. Hemsley may well be congratulated on the prospect of a distinguished honour well won by years of conscientious labour.

Michigan Forestry Commission.—A very interesting report has been issued by the State Forestry Commission, of which Dr. W. J. Beal and Mr. C. W. Garfield, of the Agricultural College, Lansing, Michigan, are Directors. The contents are very varied, but among the most interesting are remarks upon the destruction of forests, the influence of shade in retarding, and of fire in destroying growth. The excellent illustrations convey some notion of the extent to which the "lumbermen" are killing the goose that lays the golden egg; but it is satisfactory to read of the measures which are being taken to stay this havoc, and duly regulate the felling of timber trees.

Cineraria cruenta: A Hint.—A very pretty group of this plant is now to be seen at one end of No. 4 House, at Kew. This is known to be the origin of the garden Cinerarias; and we may suggest to the Kew authorities that for educational purposes it would be well to place alongside the group one or more garden Cinerarias, with a label indicating the historical fact just alluded to. We gave an illustration of the plant at p. 657 of our issue for May 26, 1888. As Kew is, or should be, before all things an educational establishment, such information as we suggest should be given in all suitable cases. Botanical information is provided for in the museums, why should not horticultural instruction also be given where possible in a manner that he who gazes may read and learn?

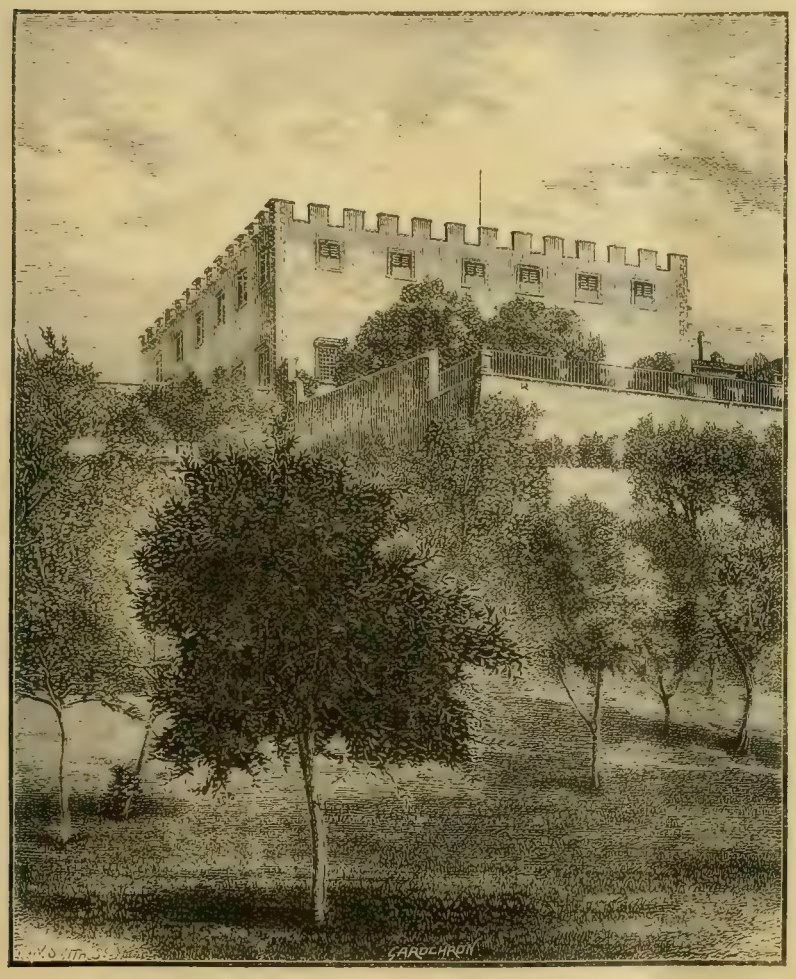


Fig. 87.—A mediæval castellated residence near Florence. (See p. 496.)

Chambre Syndicale of Ghent.—At a meeting held on the 8th inst., the following awards were made:—

First-class Certificates.—To Anthurium Scherzerianum Marquise Henri de Wavrin and Odontoglossum Harryanum nigrum superbum, from Mr. Jules de Cock; to Clivia miniata Rubens, from Mr. Moentjens; to Odontoglossum Albertianum, O. Wilckeanum var., and O. triumphans var., unanimously, from Mr. J. Hye-Leysen; to Odontoglossum vexillarium var. and to O. Masereelianum, from Messrs. Vervaet & Co.; to Aciphilla squarrosa, from Mr. Spae-Vandermeulen; and to Vriesia fulgida, from Messrs. F. Desbois & Co.

Mr. Goldring.—This gentleman was selected to superintend the formation of new gardens by the Gaekwar of Baroda in Western Hindostan, north of Bombay, has returned from his first visit, in improved health. Mr. Goldring speaks in glowing terms of the magnitude and importance of his work, and proposes to return to India in the autumn.

Daffodils.—Mr. Hartland, of Cork, sends us fine specimens of Horsfieldii, James Walker, Michael Foster, Emperor, Empress, Vase of Beaten Gold, and others, which show what good culture and a mild climate will do. The bulbs and foliage leave nothing to be desired. If all Mr. Hartland's bulbs be of similar quality it is evident that he does not know the meaning of "rot."

Course of Horticulture.—Professor Cornu's lectures this session at the *Jardin des Plantes* are devoted to the modification of plants by cultivation, the variations obtained by selection, cross-breeding, and hybridisation, &c.

Entomology in British Columbia.—Rev. G. W. Taylor, of Victoria, Vancouver Island, has been appointed honorary entomologist of the colony.

Hybrid Miltonia.—M. A. Bleu lately showed before the Central Horticultural Society of France, a hybrid between Miltonia vexillaria and M. Roezlii.

Strawberries.—Dr. Sturtevant contributes to the *Transactions of the Massachusetts Horticultural Society* a most elaborate paper on the history of the Strawberry. Dr. Sturtevant's papers evince so much learning and research that it is to be hoped he will issue them in book form. Dr. Sturtevant does not confine himself to the records of the past, he makes some sensible remarks as to the observations to be made in the present.

Forcing Flower-buds.—M. Cornu showed, at the meeting of the Central Horticultural Society of France, on February 28, some flowers of various spring-flowering shrubs fully developed. The method of procedure adopted by M. Henri, the Curator of the Jardin des Plantes, was to remove some branches of flowering shrubs set with flower-buds, insert the cut ends of the branches in moist sand, and place them in a greenhouse where the temperature was kept at from 60°—70° F.

Entomology in Canada.—Mr. James Fletcher has been appointed Entomologist and Botanist to the Dominion Experimental Farms. Mr. Fletcher purposes exhibiting in the Museum a series showing the insects injurious to the several crops, illustrating their modes of life, and indicating, as far as may be, means of prevention or palliation. In the Botanic Garden, native and other plants of economic value will be grown and comparisons made. Professor Saunders has been appointed Director of the Experimental Farms of the Dominion. The propriety of these appointments will be heartily acknowledged in this country.

Spurgeon on Rose Growing.—We have heard so much about Sappho and the Rose that it comes as a delightful contrast to hear that Mr. Spurgeon is a Rose grower, and that this is the way in which he overcomes the difficulty arising from the intrusion of the roots of adjoining trees into his Rose beds. Mr. Harkness is our authority, and in his recently published book on practical Rose growing he cites Mr. Spurgeon as follows:—"This is what I do: 4 feet from the hedge, where several trees are growing, I make a trench 4 or 5 feet deep, severing every root

with which I come in contact; this done I fill in the trench with the worst compost I can find, so as to discourage trespassing, and repeat the operation once in four or five years." Considering that cut Roses can be bought of a quality better than can be raised in a town garden, we should be inclined to prefer the tree, but that is a matter of taste. Next we are not sure that Mr. Spurgeon's plan of root-pruning is altogether judicious. It might be better in place of putting the worst compost he can find in the trench to put the best there, and so give the tree-roots no temptation to wander into the Rose beds.

American Pomological Society.—The biennial meeting of this famous Society was held recently at Ocala, Florida, and we are indebted to the courtesy of the President for a report of the proceedings. The business was commenced with an address from Mr. P. J. Berckmans, the President, in which he alluded to the work and progress of the Society, the establishment of experiment stations, the utilisation of surplus fruits and other matters. Eight meetings were subsequently held. Great attention was naturally given to Orange culture, which has become so important in Florida during the last few years. Semi-tropical fruits came in for a share of attention.

Exhibition of Hyacinths and Tulips.—On the 21st inst. an exhibition, similar to those held from 1880 to 1884 by Messrs. E. H. Krelage & Son, will be opened at their Nurseries in Haarlem, and remain open till the middle of May. In May a show of Early Single Tulips is announced, which is, we believe, the first exhibition of this class of Tulip.

Forests of Central Africa.— . . . From about 3° N. to about 4° S., and between the Upper Congo on the west and the lakes on the east, we have, says *Nature*, in commenting upon Mr. Stanley's recent wonderful journey, virtually a great blank. It is the northern part of this blank which Mr. Stanley has enabled us to fill in. . . . One thing is clear, the expedition passed through the northern section of what is probably the greatest forest region in Africa, extending from about 3° N. to 4° S., and from about 23° to 30° E. . . . The route, he tells us, was covered with creepers varying from ⅛ inch to 15 inches in thickness, swinging across the path in bowlines or loops, sometimes matted and twisted together; also with a low, dense brush occupying the sites of old clearings which had to be carved through before a passage was possible. Where the clearings had been abandoned for some years was found a young forest, the spaces between the trees choked with climbing plants and vegetable creepers. This had to be tunnelled through before an inch of progress could be made. Mr. Stanley's description of the character and extent of this forest in his letter to Mr. Bruce is quite worth quoting:—"Take a thick Scottish copse, dripping with rain; imagine this copse to be a mere undergrowth, nourished under the impenetrable shade of ancient trees, ranging from 100 to 180 feet high; Briers and Thorns abundant; lazy creeks meandering through the depths of the jungle, and sometimes a deep affluent of a great river. Imagine this forest and jungle in all stages of decay and growth—old trees falling, leaning perilously over, fallen prostrate; ants and insects of all kinds, sizes, and colours murmuring around, monkeys and chimpanzees above, queer noises of birds and animals, crashes in the jungle as troops of elephants rush away; dwarfs with poisoned arrows securely hidden behind some buttress or in some dark recess; strong brown-bodied aborigines with terribly sharp spears, standing poised, still as dead stumps; rain pattering down on you every other day in the year; an impure atmosphere, with its dread consequences, fever and dysentery; gloom throughout the day, and darkness almost palpable throughout the night; and then if you will imagine such a forest extending the entire distance from Plymouth to Peterhead, you will have a fair idea of some of the inconveniences endured by us from June 28 to December 5, 1887, and from June 1, 1888, to the present date, to continue again from the present date till about December 10, 1888, when I hope then to say a last farewell to the Congo forest! . . . The mornings generally were stern and sombre, the sky covered with lowering and heavy clouds; at other times thick mist buried everything, clearing off about 9 A.M., sometimes not till 11 A.M. Nothing stirs then; insect life is still asleep, the forest is still as death, the dark river, darkened by lofty walls of thick forest and vegetation, is silent as a grave; our heart-throbs seem almost clamorous, and our inmost thoughts loud. If no rain follows this darkness, the sun appears from behind the cloudy masses, the mist disappears, life wakens up before its brilliancy. Butterflies skurry through the air, a solitary ibis croaks an alarm, a diver flies across the stream, the forest is full of a strange murmur, and somewhere up-river booms the alarum drum. The quick-sighted natives have seen us, voices vociferate challenges, there is a flash of spears, and hostile passions are aroused! . . . Another fact of great interest Mr. Stanley refers to—the existence of a snowy mountain which may rival Kilimanjaro (19,000 feet), in the neighbourhood of Mount Gambaragara, or Gordon Bennett, between Albert Nyanza and Muta Nzige. This may be Mount Gordon Bennett itself, but Mr. Stanley does not think so, and he is supported by the few data which he furnishes. . . . The abruptness with which the forest comes to an end and the rich grass lands begin, about eighty miles from Albert Nyanza, is another point deserving special attention, and can only be explained when we have accurate observations of the rainfall and other conditions that go to form climate. [We most earnestly hope that good collections of plants have been made by the expedition, for there must be much that is novel and interesting in the forests so graphically described by Mr. Stanley.]

Lathraea clandestina.—This lovely and very interesting plant finds no place in the *Dictionary of Gardening*; nevertheless it exists in cultivation at Kew, and those who are fortunate enough to see it there will, we suspect, be eager to secure so charming a plant for their own collections. As it is not very uncommon in some parts of Western France, Italy, and Spain, this ought not to be a matter of great difficulty. The patch at Kew is at present small, but evidently thriving. It has been placed on the roots of a Willow, where it grows in the same way that our British L. squamaria grows on Hazel roots. In the British species the flowers are borne on long, erect, one-sided racemes, but in the plant in question the racemes are short and scarcely project above the surface. The individual flowers, however, are much larger and deeper colored than in the British plant, each being about 1½ inches long, rich lilac in colour, and two-lipped, the upper lip helmet shaped. The whole flower emerges from an ivory coloured basin formed by the bract.

Patchouly Leaves and Massoy Bark Oil.—Our contemporary, the *Chemist and Druggist* states that the first consignment of Patchouly leaves grown in the West Indies arrived in the London market last week from Dominica. The consignment consisted of about fifty pounds. It is also stated in the same journal that several hundred kilos of Massoy Bark Oil have already been brought into consumption, and the New Guinea Company has been requested to procure large supplies of the Bark, as there is no doubt that the Oil will come into successful use for many purposes. Massoy Bark has been described as the produce of Massoia aromatica of Beccari, but our contemporary says, on this point, that Mr. Holmes, of the Pharmaceutical Society, does not believe the Massoy Bark now in commerce to be the genuine Massoy Bark.

Publications Received. — *Complete Press Directory for* 1889. Third edition. (London: Shelley & Co., 5, Leadenhall Street, E.C.)—*The Tomato, its Culture and Uses.* By W. Iggulden. (London: *Journal of Horticulture* Office, 171, Fleet Street.)—*A Treatise on Manures.* By A. B. Griffiths, Ph. D., &c. (London: Whittaker & Co.).

FLOWERS AT THE FUNERAL OF H.R.H. THE LATE DUCHESS OF CAMBRIDGE.

This simple yet imposing funeral, which took place on the quiet little Green at Kew on the 13th inst., was remarkable for the extraordinary number, variety, and beauty of the floral wreaths, crosses, and garlands, sent as marks of respect and sorrow for the loss of one who evidently held a place in the affections of the whole country, from the Queen to "A poor soldier's daughter." Many of these floral tributes were from unknown sources,—from people whose only wish evidently was to show respect for the departed lady whose kindness and warmth of heart had become so widely known. In the village of Kew "The Duchess" was genuinely loved, for she had watched over its poor, its children, its church and schools, for many years. Her love of flowers was abundantly shown by the great interest she had always taken in the famous gardens by the side of which her country house—"Cambridge Cottage" stands. And so it appeared peculiarly appropriate that her last resting-place should be in the little church on the Green at Kew, within a stone's throw of the Gardens she had chosen to live near in her early days.

As many of these flower tokens were such as one rarely sees, it may be of interest to some readers of the *Gardeners' Chronicle* if a few of the most striking arrangements are described.

Mr. Thiselton Dyer, Director of Kew, had been requested, in view of the exceptional requirements of the occasion, to make the necessary arrangements for the reception of the wreaths and crosses which had been received at St. James' Palace up to the 12th inst.

This was done by draping the inner hall of Cambridge Cottage with black cloth, and fixing hooks for the wreaths. Graceful-leaved palms, such as Cocos flexuosa, C. plumosa, Caryota, Phœnix rupicola, Rhapis humilis, &c., were arranged at intervals in groups round this improvised chapel, whilst from the corners, and stretching along the ceiling, were several of the plume-like leaves of Maximiliana regia. The marble pillars were decorated with Phœnix leaves, large fronds of which also formed a kind of arch over the entrance from the vestibule. After all the flowers had been hung, the effect of these graceful dark green leaves was singularly beautiful. Three large van-loads of wreaths, &c., arrived at Kew on Friday evening, some of them in enormous cases, nearly all being of large size. Altogether they numbered 168, this number being made up of 122 wreaths, thirty-four crosses, and twelve garlands. Under the superintendence of Lady Geraldine Somerset and Mr. Dyer the whole of these were arranged in such a way as showed them off to the best advantage. They presented a really wonderful display of all that is choice and beautiful among those flowers best adapted for such an occasion.

The largest and richest wreath was from the Duchess's tradesmen. It was 5 feet in diameter, the frame itself being 1½ feet across. The flowers were mostly in bunches, six or eight Roses, about twenty pips of Stephanotis, and so on. The flowers were arranged closely together—massed, one might say—and the effect was indescribably rich. The flowers it contained were as follows:—Stephanotis, white Roses, Eucharis, Odontoglossums, Lilium candidum and longiflorum, Gardenia, Freesia, Tuberose, Poet's Narcissus, Camellia, Hyacinth, Azalea, Rhododendron, Pelargonium (zonal), Lily of the Valley, and Lilac. Very little foliage was used,—a few sprays of Adiantum and Rose leaves simply.

A similar wreath, but a little smaller, came from the household of the Duke of Cambridge, and another like the last from the Duchess of Bedford. An anchor, 3 feet long, from the Baroness Burdett-Coutts, was one of the most beautiful and artistic in arrangement. The groundwork was of purple Violets, and from this sprung several irregular rows of beau-

tiful Rose-buds, mostly Maréchal Niel and a pale flesh-coloured kind, with a few Niphetos blooms. A few sprays of Lily of the Valley were scattered amongst the Roses, and brownish Ivy leaves were visible here and there in the groundwork. In the opinion of many this arrangement was the most effective and artistic of all.

A lyre, 3 feet in diameter, and composed of white Azalea, edged with Lily of the Valley, the base made up of Roses, Gardenia, Lily of the Valley, Eucharis, Arum, &c., was very effective. It came from Signor Tosti, who was a favourite singer with the Duchess. From Lord and Lady Londesborough came a rich and very artistically-arranged cross, in which the flowers of Pancratium and large silvery leaves of Caladium were very effective. The Band of the Coldstream Guards sent a massive wreath composed of the richest pure white flowers, across which a broad oblique band of Violets and scarlet Geranium was arranged with striking effect. The sergeants of the same regiment sent an oval shield, 2½ by 2 feet; the outer circle was of white Hyacinth; the inner circle of Violets, whilst the centre or "field" was of white Hyacinth pips with a cross formed of scarlet Geranium, the spikes round the margin were formed of white Gardenia and Lilac. A massive arrangement of Violets the lines and letters being of Primroses, was made to represent the Royal Coat-of-Arms. The crown was composed of several shades of Violets. This tribute was from the officers of the Grenadier Guards. It was 4 feet in diameter and weighed about 2 stones. There must have been hundreds of thousands of violet flowers "bedded out" in this arrangement. A cross formed of brown moss in imitation of a moss-grown stone, and with a large bunch of crimson Cloves and Lily of the Valley tastefully arranged in the middle was original and artistic. The edges of the cross were marked out by means of single pips of Lily of the Valley. This conception is French rather than English. It was easy to separate the two nations represented in these wreaths by means of the style adopted by each. Thus the English wreath is the usual circle, with either a mixed arrangement of flowers or flowers of one kind. The crosses, too, are simple and alike in arrangement. But the French are marked by more imagination and taste. Thus, in addition to the cross last described there were two others, also by a French artist, one, sent by Lady Geraldine Somerset, was a cross 3 feet high, with arms aslant, and a three-quarter circle arranged so as to appear as if hanging across one arm of the cross. Violets alone composed the cross, whilst the circle or wreath was of white Rose-buds, Gardenia, and Lily of the Valley. The other of French design was from Princess Mary of Teck. It was a large heart, made up of choice pure white flowers, and in the middle was a small cross made entirely of the flowers of Mignonette, and upon this hung a miniature wreath of Forget-me-not.

The Germans are fond of foliage for designs of this kind. The wreath from the Empress Augusta was formed of two leaves of Cycas revoluta, the base composed of light and graceful flowers, such as pink Begonia manicata, a few Gardenias, &c. A garland from the Duchess of Mecklenberg-Strelitz was composed of 3 Cycas leaves springing from a huge bunch of white Roses and Camellias. From Madame Josephine came a singularly artistic design in the shape of a harp, the frame formed of white Azalea, Eucharis, Allium, Arum, and Hyacinth, whilst the strings were represented by single lines of violets. A wreath formed entirely of the flowers of Beaumontia grandiflora set in Maidenhair and Davallia was one of the most effective of the smaller wreaths. It contained about thirty of these large tubular, pure white, Lily-like flowers. Growers of flowers for market ought to look after this plant. Probably the flowers which composed this wreath were grown at Panshanger, as it came from Countess Cowper. An enormous wreath, 3½ feet across, was sent by the officers of the Head-quarter Staff. The flowers in this were arranged, each kind in a group by itself. There were Orchids, Gardenia, Arum, Lilium longiflorum, Lilac, and Lily of the Valley. A huge cross, 4 feet high, and made up entirely of the flowers and foliage of a white Carnation, was very effective. Some of the flowers were tied close together in bunches, whilst others were put in singly. This really beautiful arrangement was sent by Mr. Hugo Wemys. A wreath of Lily of the Valley and a cross of the same flowers were both very pretty, as also was a cross formed of white Tulips with single flowers of violet standing out beyond them. A rich wreath of Lilac, with a knot of Gardenia flowers, was simple and very effective. This came from Lady Grosvenor.

The Marchioness of Abergavenny sent a heart composed of about eighty Gardenia flowers. A cross formed of Violets and tiny bronze Ivy leaves, studded all over with single flowers of Stephanotis, was exceedingly pretty. Another cross formed of white Roses on a groundwork of bronze Ivy leaves was pretty and effective.

There were many massive wreaths and crosses formed entirely of Violets, besides great numbers of the usual English style of wreath.

From the "Women of Kew" came a very fine wreath of the choicest white flowers.

There were also some grand wreaths, as for instance that from the Queen, and from the children of the Princess Mary, which were, however, taken to the church, and were not therefore on view. Altogether there would be between £700 and £800 worth of flowers at this funeral. The Duke of Cambridge, with his usual kindly consideration, gave orders that the chapel containing all the flowers here described should be shown to anyone who cared to see them.

Notices of Books.

Monographische Ubersicht uber die Arten der Gattung Primula. (The species of Primula, &c.) Von Dr. Pax, Privatdocent der Botanik a. d. Universität, Breslau.

Now that the Primula season has fairly commenced it will perhaps be of interest to lovers of these charming plants to know that a thorough and comprehensive monograph of the genus has just been published at Breslau, Germany. The persistent cry of the cultivators of Primulas moved the Council of the Royal Horticultural Society to hold a Conference at South Kensington, and while we are willing to admit that it did a very great amount of good at the time, and also that its influence may even be felt yet a little, we also feel that a mistake was made in allowing such an event to pass without drawing up a thoroughly reliable list of the corrected names to serve as a lasting guide to all interested in this popular class of plants. A great many names we know were corrected at the Conference, but as no record was kept the same mistakes are being again and again repeated—a state of matters that would certainly have been, to a large extent, avoided if such a list had been made and distributed to the Fellows and others interested in their culture. We do not, however, claim much in this direction from the book alluded to above, which, by-the-bye, has been launched on a harmless class of people with the above formidable title, and which to the average gardener has the additional disadvantage of having all the notes and historical matter in German; although the names, descriptions, references, &c., are in Latin. The thoroughly comprehensive manner in which the work has been accomplished will appeal to all lovers of these harbingers of spring, and, if it be studied as it ought, it should in time do away with much of the existing confusion. The introductory matter is chiefly historical, and begins with Dioscorides, and includes all the writers on the genus between his times and last year on all subjects relating to Primulas—physiological, systematic, &c., interspersed here and there with information that is extremely useful and interesting. This *resumé*, besides indicating what the books referred to contain, gives the title with a full reference to its publication, &c. The author, as may already be gleaned, has commenced at the beginning, and brought together in one handy volume, the gist of what is contained in probably not less than a hundred books and pamphlets.

Chapters then follow on roots, leaves, flowers, &c., their functions, &c.; the position of the genus in the system is also discussed, together with a table giving the sections under which Primulaceæ has been divided by Endlicher, Meissner, Duby, Bentham and Hooker and Pax. The chapters on geographical distribution are most interesting and well worthy of perusal, containing, as they do, many useful hints that could be turned to good account by the cultivator. The remaining portion of the book is taken up with a list of all the species, varieties, and hybrid Primulas known, with full references and notes. The key given with each section showing the relations of the species and varieties to each other is very simple, and readily understood until we arrive at p. 161, section xx., Auricula, where the key looks more like a map of the London railway system than of anything so harmless as a Primula. This section, made more difficult with the numerous hybrids it contains, has been very ably handled, and although not quite in accordance with the views of English botanists, Dr. Pax has a good claim to be considered, as he has given many years of hard work to the genus Primula, and studied most of them in a living state both in cultivation and in their natural habitats. One case in point may be given here, *i.e.*, P. Stuartii, purpurea, &c. Dr. Pax still keeps P. Stuartii as a species, but purpurea, Moorcroftiana linearifoba, &c., instead of being placed as varieties of that species, are placed under P. nivalis, Pall., which to us appears by far the most reasonable conclusion to arrive at. Altogether the book is well worth the attention of English growers. It is the most comprehensive work on the genus in any language, and would certainly be worth the attention of translators as a complete Primula book is a want that has been long felt in this country. *D.*

The Tomato: its Culture and Uses. By W. Iggulden. (171, Fleet Street, London, E.C.)

A very practical little book, containing much useful information on the cultivation and uses of this most popular "Fruit-vegetable," as the author quaintly terms it. As a successful cultivator of the Tomato, Mr. Iggulden is well qualified to speak, and so those who may follow his instructions and directions cannot very well fail. If anything, we would say there is too much repetition, the same thing being told several times over. In the matter of watering, we should be inclined to give much less than Mr. Iggulden recommends. By far the best crop of Tomatos we saw last year received no water from the time of planting in May until August, when the fruit was beginning to colour.

In speaking of open-air culture the author says:—"The plants ought never to be dry at the roots." Our experience is, that they never require any water at all. A little more might have been said on open-air culture, although, as the author very properly remarks, it is the most precarious outdoor crop that can be tried." It should have been stated that, as soon as two or three clusters of fruit are set the plants should be stopped, and not allowed to extend further, and gradually every leaf is cut off, so that the fruit may be induced to ripen. The recipes for cooking and using Tomatos are excellent.

Sacred Trees of the Assyrian Monuments.—Dr. Bonavia contributes to recent numbers of the *Babylonian Record* a series of illustrated articles on the highly conventionalised representations of trees on the Nineveh marbles and other similar monuments. Dr. Bonavia concludes that the great utility of certain trees caused them to be regarded with special honour, such as the Date Palm, which is frequently represented, and which is so serviceable not only for fruit, but for constructional purposes. The Vine, Pomegranate, are unmistakeable; the Fir (fig. 5) is more difficult of recognition.

Cultural Memoranda.

CLIVEIA MINIATA SPLENDENS.

We grow many of this gorgeous species, including the five varieties, Marie Reimers, Ambroise Verschaffelt, Scarlet Perfection, and Madame Van Houtte, but the above is as good as most when well grown. I have four plants in tubs, each plant is carrying about thirty spikes, two of which I send for your inspection. Some of the spikes have thirty-three blooms, and in the centre of some of them are three blooms on one stem, a peculiarity noticed for the first time this season. Cliveias may be had in bloom nearly the year through by retarding some, and placing others in heat as required. Relays of plants in 24's and 15's size pots are very effective when placed with other flowering plants.

I grow my plants in loam, leaf-mould, and old mushroom manure, and I pot firmly and place them in heat to get established, and afterwards grow them in a vinery, peach, or other house. When in full growth I afford the plants a good quantity of water, and syringe the foliage to keep it free from dust. There is one more point that should not be omitted, viz., that when flower spikes are showing on plants which are in cool houses the plants should at once be shifted to a warm one, as by so doing the spikes are thrown well up, and the colour of the bloom will be better. *A. E.*

Cinerarias in April and May.

A pinch of Cineraria seed should now be sown in a pan of light mould, made firm and level on the surface. Sow thinly and cover with fine soil or silver sand, and place in heat after gently watering the soil. It is usual to cover the pan with a piece of glass, over which moss is put, or with a piece of slate, not tile, as this draws the moisture from the soil. When the seedlings show, these coverings must be removed at once, and the pan placed near to the light to avoid blanching of the seedlings. Prick off when large enough into rich soil, but still keep in heat, and shade well from sunshine until re-established.

Tuberous-rooted Begonias.

Plants which have been recently potted and put into heat will now be making growth, and if increase is sought for, cuttings having a joint or two of growth may be taken off and put into pots or boxes of sandy soil, and treated as is usual with cuttings. When rooted, pot off the cuttings and grow in warm frames or in an intermediate house. Abundant ventilation must be afforded the plants as the season advances. *H. W. Ward.*

MUTISIA CLEMATIS.

Among the many beautiful and interesting plants exhibited from time to time at the Royal Horticultural Society by Mr. Ross from Sir George MacLeay's rich collection at Pendell Court, may be mentioned the beautiful climber above named see fig. 88. In spite of the length of time it has been known (it was first described by Linnæus the younger), it is still little known in gardens. This can hardly be attributed to any difficulty in its culture, nor to any deficiency in the production of its flowers, for Mr. Ross tells us it has been planted out in a peat bed in a cool greenhouse, and has been flowering freely all the winter. Having outgrown the space allotted to it, where, moreover, it shades the plants underneath it, it is proposed to remove it to the back wall of a three-quarter span house devoted to Himalayan Rhododendrons. It is also proposed to try it out-of-doors. The latter position may not be hot enough in summer to allow it to ripen its wood, but in warmer, more sunny counties than Surrey it would doubtless succeed. It forms one of a group of Composites inhabiting the higher ranges of the Andes in tropical South America, whence it was introduced into cultivation many years since by Mr. Linden, who found it growing near Bogota at a height of nearly 8,000 feet. It is a free growing climber, more or less covered in its herbaceous portions with a dense woolly felted coating of fawn-coloured hairs not well represented in the illustration. The leaves are pinnate or very deeply pinnately divided, the leaflets consisting of four or five pairs each oblong or lanceolate, with a long terminal much branched tendril. The flower heads are terminal, pendulous, each about 2½ inches in length, consisting of a number of overlapping, oblong, involucral scales, increasing in size from below upwards, and encircling a number of strap shaped spreading ray florets of a deep orange scarlet colour. The ray florets are structurally female only, with only traces of stamens. The disc florets are hermaphrodite and tubular, about 1½ inches long, 5-toothed at the top, the five segments separating above the base and forming slits, through which the filaments and style partially protrude. In some cases the 5 lobes at the top do not separate, but remain closed, so that these florets must be self-fertilised (cleistogamous), while the arrangements in the other flowers are such as to favour cross-fertilisation. Hence we have in this plant arrangements, some of which favour fixity of type, while others provide for variation, facts which account for the variability of the species, and increase the difficulty of defining them. Other botanical details are specially interesting, but need not be detailed here; suffice it to say that the plant is one which appeals strongly alike to the sympathies of the lovers of decorative plants and of those who delight in the study of the construction of flowers and their manners and customs.

Foreign Correspondence.

THE ROYAL DUTCH HORTICULTURAL AND BOTANIC SOCIETY.

This Society was founded in 1872 in Amsterdam. Its object is to promote the interests of horticulture and botany in the Netherlands and Dutch colonies. In 1888 it had 1750 members, which number has since been considerably increased. The members form local sections in twenty-two of the principal towns of the different provinces of the country. These sections have their special directors, meetings, shows, &c.; while a central committee, which meets at Amsterdam from time to time, has charge of the general direction of the Society. The members of the Central Committee are elected for a certain number of years. The former Presidents are honorary members of the Central Committee. The First President was Mr. J. H. Krelage, Haarlem; then Mr. W. A. Viruly, Verbrugge, member of the Second Chamber of Parliament, Rotterdam; then Mr. D. Visser van Hazerswoude, member of the Second Chamber of Parliament, Amsterdam; followed by Mr. E. A. Obreen, Leiden; after him Mr. Visser, of Hazerswoude, again took the presidential chair, and was lately succeeded as President by the Baron W. A. van Goltstein, formerly Minister of the Colonies (the Hague). The present Secretary of the Society is Mr. H. C. Zwart, at Watergraassmeer, near Amsterdam. The Society publishes a weekly journal (*Nederlandsch Tuinbouwblad*), which is distributed to all the members. From time to time exhibitions are held by the Society, one took place recently at Groningen, and one at Amsterdam. Every year one general meeting is held, which takes place in different parts of the country. Every summer the members have a friendly *réunion*, and visit the interesting establishments, gardens, country seats, &c. In winter usually a congress is held, at which interesting objects relating to horticulture are discussed. Sometimes prizes are given for the best essays on certain questions of horticulture. Recently Mr. K. Admiraal obtained the gold medal, and received 200 guilders for a treatise on canker in trees which is in course of publication.

This Society has lately taken a resolution from which good results are expected in practical horticultural as well as in scientific botany in the Netherlands and colonies. In a similar way as in the case of the Royal Horticultural Society of London and the Société Nationale d'Horticulture de France at Paris, there have been established committees to meet from time to time to treat of subjects concerning horticulture and the kindred sciences, to give certificates of merit to new or interesting plants, &c. There are three committees, viz., A, for flowers and plants; B, for fruit and vegetables; C, a scientific committee. The last number of the Society's *Journal* gives the names of the members of the committees previously elected; there are twenty-four for flowers and plants, twelve for fruits and vegetables, and sixteen for scientific matters. The members of the central committee of the Society are honorary members of the three committees, so also is the Director of the Zoological Gardens at Amsterdam, G. F. Westerman (Naturalistes Magister). This institution, with its usual liberality, has put at the disposal of the Society the necessary accommodation for the meetings, and for shows which accompany them. In the present year four meetings of the committees will be held in the months of June, September, October, and December. These meetings are experimental, and the regulations will be [modified or] enforced in the following year. It is proposed to publish the result of the local meetings in some other language than Dutch for circulation abroad. As regards the judging of plants, fruits, &c., it is proposed to establish small committees of three acting members, differing according to the branch of horticulture at which they work. The judging committees will submit their decisions to the large committees, which will have the casting vote.

Fruits Under Glass.

Pines.—The weather has lately been very bad for the early started fruit, and progress is very slow. Great care is necessary in the matters of firing, damping, and airing. Some of the Queens are very prolific in showing suckers, which should be reduced to two of the strongest, carefully avoiding injuring the leaves of the old plants. There is not so much danger of giving too much water at this time of the year as in the winter, especially to fruiting plants, but care should be exercised; examine each plant after severe firing; they should be kept nicely moist with weak manure water without being overdone; syringe the plants lightly on fine sunny afternoons at shutting-up time, running the temperature up to 85° or 90° for a time, and keep a night temperature of 65° to 70°.

The early fruit which is colouring should have a drier atmosphere, with a circulation of warm air. After cutting the fruit, stools of Smooth Cayenne, Rothschilds, or of any scarce sort, should (after having the leaves trimmed off) be plunged in a good bottom-heat to induce the growth of suckers, which may be potted off as they become strong enough. Plants which were put in their fruiting-pots last month should be looked over for watering, and in no case should they be allowed to become dry, or they may fruit too soon. Damp down the paths, walls, &c., two or three times daily, and also syringe the plants at shutting-up time. The troughs should be filled with manure-water, and a short sturdy growth encouraged by giving plenty of air on mild fine days, with a night temperature of 60° to 65°; bottom-heat, 85°. Shading is at times necessary during sunny weather.

Cucumbers in bearing will require plenty of manure-water, and a light top-dressing of loam and manure should be made. The air cannot well be too moist during sunny weather. Thin out the shoots, stop and tie in young growths, and any cankered or unhealthy old plants should be replaced by young ones, at the same time adding some fresh loam and manure. A few seeds can be sown for growing in frames, or cuttings of favourite sorts put in. Shut up early with sun heat, well syringing the plants at that time. Temperature 70° to 75° at night, and 80° to 85° by day, with air. *W. Bennett, Rangemore, Burton-on-Trent.*

Home Correspondence.

AN EXPERIMENT IN LIFTING VINES. What may be recorded as a triumph in Vine culture and a saving of time in fruit production is supplied by the following facts:—Mr. James Hussey, the gardener at Haine's Hill, Twyford, Berks, reading in Barron's *Vines and Vine Culture* on the lifting of some old Vines, determined to try an experiment himself. The Vines, which were planted more than twenty-five years ago, were lifted in July last, after the crop was gathered. They had been planted in an inside border of 1 foot in depth, resting on layers of bricks over a bed of clay. The whole of this was taken out to a depth of 4 feet, the bottom was filled in with chalk made firm by being rammed, and was drained into the stoke-hole. The Vines were re-planted on the 4th of August last—the house being kept shaded while the border was being made, and the roots tied up in mats and sacks; and the shading was kept on the house for a fortnight after the Vines were planted. All the ventilation possible was afforded the Vines in September and October, and the house was closed and the Vines were pruned in November, fire-heat being resorted to on December 8th, and now (April 10th) Black Hamburgh Grapes fit for consumption are being cut. Although the Vines have been hard driven, still a truly quick piece of work has been accomplished. *B.*



Fig. 88.—Mutisia clematis: greenhouse climber, flowers orange-scarlet. (see p. 500.)

SHORTIA GALACIFOLIA.—In your report of the Royal Horticultural Society's meeting of March 26, you have made a slight mistake in saying that this lovely plant was collected by me. I am indebted for it to the kindness of Profess or Sargent, of Brooklin, U.S.A., who gave it to me when visiting his charming residence last June. I may add that I grew it in a frame, but Sir Joseph Hooker, to whom I gave a piece of the plant, has succeeded in flowering it in the open air, where it has passed the winter without protection. To anyone who may be fortunate enough to obtain the plant, I would suggest the same open air culture which suits Epigæa repens, though I do not think Shortia will be nearly so difficult to grow. *H. J. Elwes, Preston, Cirencester.*

IRON TREE-STAKES.—Is it a suggestion acceptable to any of your readers who suffer from the nuisance of common wooden stakes so soon rotting and breaking off, when put to trees—that I have taken to using iron pipes for that purpose? common gas barrel. I first drive in the ground, as far as I can get it in, a length of 1½-inch (inside measure) pipe—it stands out of the ground about 6 inches. I screw on it a "diminishing socket," and in that I screw a piece of 1-inch (or ¾-inch) pipe, long enough to reach as high up the tree as I want it—the standard thus made is splendidly firm—and will last many years. To aid the pipe in piercing the ground, I had a lot of round cast iron points made—and I put a similar point rather smaller, in the top of the pipe—to make a tidy finish. These cast points cost from 2*d.* to 3*d.* apiece, according to size. The gas-barrel costs—in 1½-inch size (inside measure), 5*d.* per foot; in 1-inch size, not quite 2½*d.* per foot; and in ¾-inch, not quite 2*d.* per foot. The "diminishing sockets" are about 3*d.* or 3½*d.* each. *A Subscriber from the Commencement.*

HEPATICAS CHANGING COLOUR.—Mr. Ellacombe asks, What is the normal colour of Hepatica flowers? The prevailing and almost universal colour in the Pyrenees, where they abound everywhere, is white. I own that I am sceptical about plants changing the colour of their flowers on the same roots. I used to think that the common wild Primrose sometimes turned red when transferred to a garden; but on close observation I found that I had been misled by seedlings which grow close to and gradually supplant their parent. So with Hepaticas; I often notice here clumps with flowers of two colours, two neighbouring seedlings having amalgamated. But Hepatica seeds have a way of coming up all the better when they fall into the middle of the old plant. I can nearly always find seedlings growing in this way. As a rule, they follow the colour of their parent; but if they happen to be of a different colour, their flowering is more conspicuous. *C. Wolley Dod, Edge Hall, April* 13.

TENACITY OF LIFE IN SEEDS OF POINCIANA REGIA.—Seeds taken from a pod of this plant, brought from an Indian garden fully twenty years ago, germinated here vigorously, and produced strong plants. In many instances of other plants old seeds may germinate well enough, but the plants may prove subsequently to be of weak constitution, and perish after a while. *F. T. M., Melbourne.*

FROST AND FRUIT TREES.—In some places, fruit trees that have not been removed recently have suffered much from frost, especially Apricots. Have the shallow rooting-stocks, or rather stocks made shallow-rooted by intention, that is, by repeatedly raising them to a place just under the surface of the soil, anything to do with this? A plant with its roots near the surface must show more susceptibility to warmth than one whose roots lay deep, and if it be excited by sun-heat, it may also with corresponding readiness be severely checked by cold when once the sap is put in motion. I may remark that it is rare that old trees of any kind, fruit, forest, or what not, ever get hurt in this way, because many of the roots are beyond the influence of spring sunshine. In colder climes than ours, Apricots are worked on the Almond, which is a deep rooter, suffering neither from summer drought nor winter cold; 20° below zero will not hurt them, and, owing to their depth from the surface, the flashes of spring sunshine have no exciting effect whatever. It would seem that our endeavours to promote fertility in our outdoor fruits by shallow planting, and on stocks with numerous root-fibres, are not unaccompanied by evils, for if we dwarf or make our trees precocious we also shorten their lives, although the Chinese artists in that line will make a Fir tree 2 feet high live for 200 years; and again, if we plant fleet, we render the tree too susceptible to spring warmth, followed by loss of crop, from too early blooming, or the loss of the tree, and this kind of planting involves summer watering, if the soil be light or shallow. *M. W.*

A THRUSH'S NEST IN A BUSH OF OZOTHAMNUS ROSMARINIFOLIUS.—Is there any record of a perfectly formed bush of this beautiful Australian plant having been grown in England? Here there can be seen at the present time a thrush's nest fully hidden amongst its foliage, and to which the children have called my attention. Next month, and before the birds are fully fledged, they will have for a blanket the myriads of flowers of the plant, and which we all call here "snow in summer." *W. Baylor Hartland, Cork.*

EPIPHYLLUM TRUNCATUM.—There are now several varieties of these, and, when well grown they are among the finest of stove plants and the most useful, as they come in at a time when flowers are scarce, and last for a long time in bloom. To grow them satisfactorily it is necessary to graft them on some kind of suitable stock, as when on their own roots they are too prostrate to exhibit themselves well, unless on elevated baskets, for which purpose they are well adapted. One of the best stocks is Pereskia aculeata, cuttings of which strike readily, and may quickly be run up to any desired height. Grafting may be performed at almost any time, the best, however, being just before the plant starts into growth. In grafting make an inch long incision in the stock extending just through the bark into the woody tissues, and insert the grafts, making them secure by a few turns of worsted or bast. The grafts are made by breaking them away at the joint and then slicing each side of the ends, so as to make them wedge-shaped at the point, this part being that which is inserted in the stock. To hold, it is advantageous to tie some soft moss tightly round the point of junction, maintaining it in a damp state. To have symmetrical pyramidal plants the grafts must be inserted at regular intervals of six inches or so up the stock, but for standards it is enough to slit the top and put in a graft; and if the stems are of different heights, ranging from a foot upwards, the plants will come in most useful for table decoration while small. As soon as they go out of flower, and immediately after grafting, they should be stood in a brisk moist heat, and syringed to encourage free growth, but after this is made a drier atmosphere is needed to induce the formation of bloom buds. This process is also aided by giving the plants plenty of sun and light during the summer and autumn, and reducing the supply of water at the roots as the season advances. The best kind of soil for Epiphyllums is a loam, mixed with some sharp sand, and the pots should have plenty of crocks in the bottom, as good drainage is of importance. The right time for potting is immediately after the plants have ceased flowering, which is also the right time to prune. To have plants on their own roots shoots may be inserted as cuttings, and placed in any warm house to get rooted. As Epiphyllums require but little to feed on, the baskets to grow them in need not be more than from 6 to 9 inches or so across, and the same in depth, and plants in these hung in a house will produce a striking effect when they come into bloom. *J. S.*

THE NATIONAL AURICULA SOCIETY.—In the rules or conditions prescribed by this Society for the guidance of exhibitors at the annual shows there is one number, No. 17, the which, though it is too late now for amendment, yet merits attention at the earliest moment. The rule states that in class U exhibitors may show more than one collection, provided that in each at least six subjects be distinct (diverse). The class in question is one for twelve garden single Primroses, and if so disposed it would be easy enough to make two or several dozens, all distinct; but an odd addendum follows. It is—"Exhibitors in this class are invited to give the native country of the species." Of what species, when the plants shown are garden varieties of Primula vulgaris? Surely there must be some grave error here, possibly one of the printer, who has put U for W, which is the class for twelve Primula species; but such a blunder should not have been allowed to appear in print, if blunder it be. Then there is rule No. 11, which states that "No person shall be allowed to compete as an amateur who publishes a list of plants, &c.," but I cannot find in any previous rule, or attached to any class, any reference to the term "amateur." Neither is there any distinction made as to growers anywhere in the schedule previously. The rule is, therefore, evidently surplusage and misleading, and should not have been inserted. It seems to have been copied from the Carnation Society's rules, but in their case amateurs have classes specially set apart for them. *A. D.*

CAMELLIAS FOR COVERING BACK WALLS OF PEACH-HOUSES.—Owing to the construction of some Peach-houses, and in such as are narrow, and the trellises about 1 foot from the glass, from bottom to top, when the trellis becomes covered with the trees, the wall at the back of the house cannot be utilised for Peach trees owing to want of light there. In such a position Camellias flourish, making an excellent covering for the wall, and flowering well when they are properly treated during growth. Where the Peach trees are started into growth for ripe fruit in June, the heat and moisture necessary for the Peach suits the Camellias to a nicety, as does the shade afforded by the foliage of trees. With this kind of treatment the Camellia makes early growth, which is the means of producing an early crop of flowers. Good drainage of the border is a necessity for the Camellia, as it requires abundance of water at the roots when growing, and at no time is the plant the better for being allowed to become dry at the roots, and overdryness after the buds are formed will result in their loss. When the plants are growing freely a vigorous syringing twice daily should be afforded to clear the foliage of dust and insects, especially the black aphis, which is a troublesome pest, attacking the tender young leaves, and permanently disfiguring them. The best wall of Camellias in a Peach-house which I have seen is that in the gardens at Liscard Hall, Cheshire. *E. W.*

ORCHIDS FROM THE NORTH.—A very select lot of Orchids from Messrs. Wm. Thomson & Sons, Clovenfords, N.B., which were sold by Messrs. Protheroe & Morris, at their Central Auction Rooms, Cheapside, on Friday, April 12th, gave southern Orchidists an opportunity of seeing something of that excellence of culture which they have heard so much about in connection with the Clovenfords Orchids. There were over two hundred and fifty lots, and it may be said with justice that all were in the highest state of perfection, a fact which buyers failed not to recognise, although the average showed that only fair prices between seller and buyer were realised. The Vandas were grand, and furnished with leaves to the pot, and many rare species which have a reputation for being bad growers gave evidence to the contrary. It should be noted that examination of the specimens reveal an almost superabundance of root, most of it with active points, and hence the vigour of the stems and leaves. Fairly low temperature, and no starving for want of water or air, are the rule at Clovenfords, and an infusion of Quassia chips or tobacco water is used for dipping in order to keep off insects, fumigation being only a last resource; indeed, it may be said to have been discontinued. *J. O'B.*

CINERARIAS AT FARNHAM ROYAL.—Lovers of florists' flowers will just now find two singularly delightful treats offered to them if they will journey to the Royal Nursery, Slough, first, and there inspect the exceedingly large and varied collection of stage and alpine Auriculas which the Messrs. Turner have now in great beauty. The alpines especially are singularly attractive, and worth going a long journey to see, as they are without doubt by far the largest and most beautiful collection in the kingdom. The plants are arranged on either side of a long span house, and in that position admit readily of the closest inspection. Seedlings are numerous, and seem to be constantly developing new charms, especially in the shade of flowers, the which promise infinite variety as well as remarkable developments. The second treat will be found by travelling on some 4½ miles farther to Farnham Royal common, where Mr. James has the largest and doubtless the best collection of Cinerarias in bloom yet seen at any one place. It consists of some 3000 fine plants, two-thirds of which are seedlings, and all grouped into batches of colours, such as self, white, blue, purple, magenta, red, crimson, &c., and also of margined flowers, in their respective colours. The flowers, in addition to exhibiting great size, are all of the finest quality—many in fact seem to have reached the highest point of perfection possible in the Cineraria. In the long, light, dry span-houses at Woodside, the plants are stout and compact, and

wonderfully healthy and clean. Some material developments in colour or in markings occur every year, as this season a pretty cerise or carmine, self, and a margined blue, of exquisite colour, are specially beautiful. Englishmen have good reason to be proud that, as with Auriculas, so with Cinerarias, we have strains which excel those of all the rest of the world. *A. D.*

HARDY FLOWERS.—Many of these are exceedingly well adapted for indoor decorative and cut flower purposes during the early spring months, requiring little or no forcing, but merely protection in a frame or cool-house. At Great Doods, Reigate, where sweet-scented flowers are much appreciated, they are largely drawn from this class of plants. Here you may see large quantities of double German Wallflowers, several plants grouped together, mostly in 7-inch pots, robust specimens, throwing up immense spikes of flowers of many colours. Alongside of these is a fine batch of the large-flowered, dark, blood-red variety, which is more fragrant than the double, and on that account is more prized for cutting from. Violets are grown in large quantity, both in frames, planted out, and in pots, the favourite being Marie Louise; Comte de Brazza has been rather extensively tried this year, but the results have not been encouraging. Of Intermediate Stocks there are fine batches of the East Lothian strains. Several plants together are put into 7 and 8-inch pots—the result is fine potfulls, with many flower-spikes. The old variety, Mauve Queen, was in fine form, and so persistently double does it come that Mr. Brown tells me he has great difficulty in getting sufficient seeds to perpetuate the stock. It is a grand variety, and very dwarf. Of course, where sweet-scented flowers are in demand, Mignonette is sure to find favour. The seed, I was told, was sown last August, and now the plants are in 24-sized pots, nearly 2 feet high, and carrying fine spikes of flower. The varieties grown are the best types of grandiflora, having been constantly selected since the introduction of the type. All these plants are allowed as little artificial heat and as much light as possible. Mr. Brown also grows a double white Mignonette—it is interesting, but hardly so showy as the other. Primula vulgaris is also grown—in pots—many of the colours being pretty and varied. We noticed one good yellow form, in which the calyx was similar to the corolla, thus mimicking the hose-in-hose Polyanthus. *F. R.*

APONOGETON DISTACHYON.—Where this aquatic flourishes seedlings are freely produced, and during March or April they may be seen growing from seeds which have fallen to the bottom of the pond or basin in the previous autumn. In our pond, where we have this aquatic growing, we get lots of nice little seedling plants every spring, although the bottom is cemented. Over the bottom of the pond, which is 3 feet deep, some gravel is laid for appearance sake—the pond being overhung with trees, fallen leaves find their way to the bottom; and amongst these the seeds spring up around the parent plant, some at a distance of 10 feet away, the seed having been wafted so far away by the wind. In one year these seedlings grow into strong plants, and as the pond is cleared out each year the seedlings are then taken up. For the information of those who do not know the plant I may mention that seedlings of this interesting plant are produced freely, although "W., Harrow," in referring to it on p. 394, does not say how it is increased. *E.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

PRESENT: Dr. M. T. Masters, in the chair; Messrs. Morris, Dyer, Pascoe, Wilson; Professors Ward and Church, Dr. Scott, Sir C. Strickland, and Rev. G. Henslow, Hon. Sec.

Hybrid Ferns.—Mr. Morris exhibited three sets of seedling varieties of Scolopendrium vulgare, presented to Kew by Mr. E. J. Lowe, F.R.S., of Shirenewton Hall, Chepstow. Mr. Lowe has been investigating the effect of cross-fertilisation of different varieties of British Ferns in the prothallium stage. The results have been most interesting and suggestive. If spores from different varieties are sown together the archegonia on the same prothallium are often fertilised by antherozoids derived from other sources, and thus are produced numerous hybrid forms. For instance, the prothallium with the archegonia may be derived from a spore of the rugose variety, while the antherozoids may be obtained from a prothallium of the digitate variety, or from one derived from a marginate variety. In the former case there would be produced a rugose-digitate variety, and in the other a rugose-marginate variety. If after fertilisation the prothallium is divided—as was done in nearly 500 instances by Mr. Lowe—the plants derived from it and carefully cultivated have been found to vary considerably, and to partake more or less of the various characteristics of the spore-bearing plants. In the specimens placed before the committee the conclusions sought to be attained by Mr. Lowe's experiments were apparently fully borne out.

Mr. Dyer alluded to Mr. Lowe's specimens exhibited before the British Association as being very extraordinary in character. He observed that the prothallia of Ferns usually bear antheridia first and then archegonia, being thus analogous to protandrous flowers. If left to itself it rarely produces more than one seedling, the whole of the energy at the disposal of the prothallium being concentrated in one individual; but by cutting a prothallium in two, as Mr. Lowe has done, at least one, if not more, archegonia could be borne by each half, which then retained its own individuality, each having possibly been crossed, and thus producing a different form from the other. He also referred to the fact that it was only during the lifetime of Sir Joseph Banks that the existence of the prothallium of Ferns was known.

Oxalis sp.—Mr. Morris also exhibited some bulbs covered with remarkable scales of a rich brown colour, apparently of a new species of Oxalis collected in South Africa by Mr. Farini in 1885. The outer scales are an inch in length, entire, and of a linear pointed character. The inner scales are thread-like and wavy. *In situ* they are packed closely together, forming a matted cushion round the bulbs. Unfortunately, none of the latter reached this country in a living state. From the material available there can be little doubt the plant is a species of Oxalis, but different from anything represented under cultivation. It was suggested that the spiral character of the inner scales may assist the bulbs by their hygroscopic character to rise near the surface after rains, and to descend during dry weather.

Sclerotinia on Snowdrops.—Professor Marshall Ward exhibited one of his very successful cultures of this disease raised from the fungus which attacks Snowdrops. He has worked out a very complete life history, which will be hereafter published. With reference to Mr. Barr's experience of the dying out of Snowdrops in a rich soil, Mr. Wilson remarked that he inquired of Mr. Melville, of Dunrobin Gardens, Golspie, N.B., who raises large numbers. His reply is that they do very well with him, his land being a deep, free, black loam resting on an old sea-bottom of gravel and sand. He adds that he thinks Snowdrops and other bulbs are very impatient of an adhesive, clayey, or wet and cold, as well as ill-drained soil, good drainage being imperative. The question was raised as to the meaning of the common expression "predisposition to disease" in plants. Mr. Dyer remarked upon the ambiguous and misleading character of this term, and emphasised the necessity of ascertaining in each case the real cause of an attack by a fungus. Thus, if a hypha entered by the stoma, a varying degree in the size of this organ might make all the difference as to the immunity of a plant from a parasitic attack, which, therefore, would have had nothing to do with the constitution of the plant, and so might not be in the least degree enfeebled. Sir. C. Strickland remarked that certain varieties of Potatos had at first been liable to the disease, but resisted it afterwards. Hence in their case also it might have been due to some such mechanical cause as a thickened cuticle, and not necessarily to an altered constitutional character.

Blue Primroses.—Mr. Wilson exhibited a box containing three flowers of "Scott Wilson" Primrose and one flower each of its descendants. Most of them have a more or less blue colour; some having less of the blue-plum colour, and are apparently nearer to a true blue than has been hitherto obtained.

Daffodils and Rot.—Rev. C. Wolley Dod forwarded some Daffodils suffering from rot, with the following remarks:—"Owing, I believe, to the cold spring and summer of last year, rot has been unusually destructive, and I have lost nearly one-third of my crop. I have divided the Daffodils sent into two lots. Those in No. 1 are affected with a rot too well known to Daffodil growers. I attribute it to the presence of too much wet in the soil at the ripening stage of growth, assisted by coldness of soil. You will see that few or no new roots are made. The way in which whole clumps die off has led me sometimes to think the disease may be contagious. The bulbs in No. 2 are differently affected, and I think from a different cause. Last year I lost far more Daffodils from this affection than I have done this year. I attribute it simply to the mechanical effect of severe late frosts coming when the soil is wet, as the seat of the damage is on the surface line. The violent constriction in the heavy soil caused by the frost cuts the leaves nearly in two, and no further growth is made. These 'No. 2' Daffodils seem all to have made a healthy start." The general opinion of the committee seemed to coincide with Mr. Dod's, that both results were probably due to some defective conditions of the soil. In the first case, in which no roots were produced, most probably this was an insufficient drainage; and in the second the decay was due to the land being heavy and wet, and then probably roughly forked over, so that clods were partially resting upon the growing bulbs, which could not satisfactorily raise the foliage. It will be observed that Mr. Melville strongly advocates good drainage, whether it be naturally or artificially made, for all bulbous plants.

Warts on Vine Leaves.—Mr. J. Wright sent leaves thus affected from a Black Hamburgh Vine, a Royal Muscadine in the same house being unaffected. Last year the atmosphere of the house was kept rather moist, and this year much drier, but neither condition appeared to have any effect upon the state of the leaves. The cause was suggested by Professor Marshall Ward and others to be deficient ventilation, the effect of this being to increase the humidity of the air to too great an extent; this in turn produces turgidity of the cells, with a consequent hypertrophied condition, resulting in the so-called "warts."

Underground Temperature.—Mr. Henslow exhibited tables of curves, showing the variations in the maximum, minimum, air, and underground temperatures at a depth of 12 inches for the preceding three months, taken by him at Ealing. The features brought out by comparison were—1, The much slighter oscillations in the subterranean temperatures than in the other three. 2, That while the subterranean varies with the maxima and minima when their fluctuations are great, they often remain unaffected when the latter are slight; or (3) the curves may correspond with one or other only of them respectively. Taking the means for the three months they are as follows:—

	Mean Max.	Mean Min.	Mean Air.	Mean Subt.
	°	°	°	°
January	42	30	34	37
February ...	42	30	35	37
March	45	32	40	39

Hence the mean subterranean temperature was in each case 1° higher than the mean between the maximum and minimum of each month. Comparing the subterranean with the minima on January 6th the lowest minimum was 19°, but the subterranean temperature never fell below 32°. On February 13th the lowest minimum was 18°, the subterranean temperature being 33°, the lowest for the month. On March 18th the lowest minimum was also 18°, the subterranean being again 33°. Comparing subterranean with the maxima, on January 19th and 27th the highest maximum occurred—viz., 51°, the subterranean reaching 40° on both dates, while on the 31st it was 41°. In February there were two high maxima—viz., on the 1st 54°, the subterranean being 45°; and on 18th 56°, the subterranean being 44° on the 20th. In March a series of six maxima ranged from 50° on the 14th to 59° on the 28th and 30th; the subterranean had five corresponding maxima, reaching 46° on the 30th.

Injurious Effect of London Fog.—Mr. Dyer laid before the committee a short scheme to indicate the line suggested for inquiries into this matter:—1. The natural history of fog considered (1) in its meteorological conditions, and (2) as to its chemical and physical components; 2. The empirical effects of fog (1) as diminishing the amount of light, and (2) in its injurious effects arising from the action of its poisonous and obstructive components; 3. The microscopical study of lesions to tissues produced by fog; and 4. Experimental data likely to throw light on the subject. Various experts will

be invited to take part in the investigation, and a circular will be issued to cultivators asking for their experience. Professor Church furnished the remarkable fact that he had noticed how Convolvulus major growing in the Portland Road was bleached by rain-drops. This was due to the presence of sulphurous acid in addition to the usual sulphuric (in the form of sulphates) in London rain. He found also that when London fog was filtered the air was acid, but the soot was alkaline, in consequence of the presence of ammonia. Dr. Russell has even detected arsenious acid in rain-water collected in the City.

Narcissus Committee.

At a meeting of the Committee held at Westminster on Tuesday, April 9th, the following varieties were registered:—*Santa Maria*, a deep yellow ajax, collected by Mr. P. Barr, and grown for more than one season in this country. *Camoens* (Mr.Tait's Bicolor and Bicolor lusitanicus), with perianth segments shorter than the corona, which has been collected and distributed by Mr. Tait. Lady Annesley, John Bright (somewhat like obvallaris), and Roslyn, a form of Princess, were deferred for further trial or information. Little Princess, Stansfield, and Sir W. Harcourt, three new varieties from among the Backhouse seedlings, were shown, but no opinion expressed on them. Dolly Varden, Prince George, Countess of Desmond, Richard Boyle, and Silver Bar were not considered to possess any distinct merit or superiority over other better known sorts.

The following seedlings raised in this country were of interest:—From Mr. Wolley Dod a large number, varying considerably in colour, raised from J. Horsfield, but in most cases very greatly inferior to the parent. Also a number from obvallaris, which differed from any shown by Mr. Wilks or Mr. Engleheart raised by them from the same variety. Mr. Engleheart brought a number of seedlings from spurius, showing great variation both in trumpet and perianth. Seedling from a common Pseudo fertilised with pollen from Achilles, very like what is known as scoticus. Seedling from spurius, believed to have been crossed with poeticus ornatus, very like Sir Watkin. Seedling from Vicar of Lulworth, reverting to the common pseudo. Seedling from a bicolor, crossed with a white Ajax (Hampshire albino), reverting to a small pseudo. A double yellow seedling from Obvallaris, fertilised apparently with polyen from Telamonius plenus, which was growing near. *C. F. Scrase Dickins, Hon. Sec.*

EDINBURGH BOTANICAL.

April 11.—The society met at 5, St. Andrew Square, S. Craig, president, in the chair. Surgeon-Major Aitchison gave an exhaustive lecture on the Botanical Results of the Afghan Boundary Commission. Besides other minor communications, there were the usual weather and vegetation reports, as well as some interesting exhibits.

Mr. Lindsay reported on the temperature and growth of vegetation at the Royal Botanic Garden for March:—

"During March vegetation made only moderate progress; the weather during the month was exceedingly variable. Very severe frost occurred during the first week, but the total amount for the month was rather below the average. Rain, sleet, or snow fell more or less on 14 days, but the ground was in such a dry condition that little impression was made thereby. Spring flowering bulbs are fully up to the average in richness and quantity of blossom, but it is evident that many herbaceous and shrubby plants have suffered severely this winter, not so much from excess of cold as from the insufficient ripening they received during the past cold summer. The thermometer was at or below the freezing point on 16 mornings, indicating collectively 90 degrees of frost, as against 131 degrees for the corresponding month last year. The lowest readings occurred on the 2nd, 24°; 3rd, 22°; 4th, 16°; 14th, 29°; 27th, 28°. The lowest day temperature was 39° on the 1st, and the highest 59° on the 13th of the month. Of the 40 spring flowering plants, whose dates of flowering are annually recorded, the following 14 came into flower, viz:—

	March		March
Nordmannia cordifolia ...	4	Draba aizoides	22
Scilla bifolia	6	Corydalis solida	23
,, ,, alba	12	Narcissus pumilus ...	25
Mandragora officinalis ...	12	Orobus vernus	26
Scilla bifolia taurica ...	14	Hyoscyamus scopolia ...	29
Omphalodes verna ...	16	Ribes sanguineum ...	30
Arabis albida	18	Erythronium Dens-canis .	30

"On the rock garden sixty species came into flower, being four less than for last March. Amongst the most conspicuous were:—Chionodoxa Lucilliæ and sardensis, Coptis brachypetala, Dentaria pentaphylla, Draba Mawii and bruniæfolia, Daphne Blagayana, Hyacinthus azureus, Korolkowia Sewerzowi, Primula marginata and Cashmeriana, Pulmonaria arvernensis, Saxifraga imbricata, juniperina, S. oppositifolia, and sancta; Soldanella montana, Tecophyllea cyanocrocus, &c."

Mr. Bu'len submitted his similar report for the Glasgow Botanic Institute:

"The frosts which we experienced at the close of last month continued with more or less severity to and including the night of the 12th. After this date frost was recorded four times, 8° being registered during the night of the 26th; 12° were registered at the same time at various places within a few miles from the city. The lowest reading here was 22° during the night of the 3rd. The day temperature was also low during the first week of the month, with light snow showers and heavy rain on the 6th. On the 8th brighter weather set in, and more spring-like days have been experienced since. Various circumstances have combined to make the spring a backward one, but there is no doubt the frequent frosts, although not very severe—but combined with the dull weather experienced—have been the chief cause. The total frosts recorded for the month is 67°, being 16° more than the record for January. Many hardy plants to all appearance are as dormant now as then. Various Crocus, Narcissus, Helleborus, Dog's-tooth Violet, Daphne Mezereon, both red and white, Nordmannia cordifolia, Dondia Epipactis are now at their best in the open borders."

The following exhibits were on the table:—From the Garden, Trollius acaulis, and Trillium erectum, in flower. From Dalkeith Palace Garden, Mr. Dunn exhibited cut branches in flower of Lapageria rosea, Philesia buxifolia, and the hybrid Philageria Veitchii. G. H. Potts, Esq., Fettes Mount, Lasswade, exhibited a large number of seedling Saxifrages raised by himself, amongst which was a beautiful variegated variety of the hypnoides section.

BIRMINGHAM AND MIDLAND COUNTIES HORTICULTURAL.

April 10 and 11.—This Society held its annual spring show, which we mentioned in our previous issue. Much rivalry was found in the bulb classes, but it was noticed that the Hyacinths were not equal in quality to the usual standard. Mr. Sydenham had a fine group of sixty varieties not for competition; as also good collections of Tulips and Daffodils. The magnificently flowered Dendrobiums and other Orchids of Messrs. Pope & Sons, King's Norton Nurseries; of Mr. G. Barnes, Orchid grower to C. Winn, Esq, Selly Oak; and Mr. W. H. Powell, gr. to G. H. Kenrick, Edgbaston, were very noticeable.

In the class for eighteen Hyacinths, competitors amateurs and gardeners.—1st, Mr. Dyer, gr. to Mrs. Marigold; 2nd, Mr. F. Cooper, gr. to C. Showell, Esq.

Twelve Hyacinths (six varieties).—1st, Mr. F. Cooper; 2nd, N. Thwait, Esq.

Six varieties of Hyacinths.—1st, N. Thwait, Esq.; 2nd, T. H. Woolley, Esq.

Mr. J. Crook, gr. to W. Millward, Esq., was 1st for six single Tulips.

Three Polyanthus Narcissus.—1st, Mr. E. Cooper, gr. to the Right Hon. J. Chamberlain.

Six Azalea indica (distinct).—1st, Mr. J. Crook; 2nd, Mr. S. Gibbs, gr. to L. Brierley, Esq.

Three Azaleas (distinct).—1st, Mr. O. Brasière, gr. to Sir Thomas Martineau; 2nd, Mr. J. Crook.

Six stove or greenhouse plants in flower (distinct).—1st, Mr. W. Finch, with fine large specimens of Erica affinis, E. ventricosa minor, Boronia elatior, Dracophyllum gracile, Anthurium Scherzerianum, and an Azalea indica; 2nd, Mr. W. H. Powell.

Three stove or greenhouse plants in flower.—1st, Mr. W. H. Powell, with fine bloomed plants of Dendrobium Wardianum, D. devonianum, and D. thyrsiflorum.

Three foliage plants.—1st, Mr. W. Finch.

Three Ferns.—1st, Mr. G. Caldicot.

Open Classes.

Twelve Orchids (distinct).—1st, Mr. G. Barnes, with Cattleya Lawrenceana, C. Mendelli, C. Trianæ, C. T. formosa, Cypripedium Warneri, C. villosum, C. caudatum, C. Roezlii, Cymbidium eburneum, Odontoglossum crispum, Oncidium sarcodes, and Miltonia vexillaria; 2nd, Mr. W. H. Powell, who staged twelve, as follows:—Dendrobium devonianum, D. Wardianum, D. thyrsiflorum, D. crassinode, D. fimbriatum oculatum, D. Farmerii aureum, Cattleya Trianæ, C. T. delicata, C. intermedia, C. citrina, Trichopilia suavis, and Miltonia vexillaria; 3rd, Mr. W. Finch, who showed a fine specimen of Cattleya Trianæ, named delicata; also a good variety of Lycaste Skinneri alba.

For six Orchids, the 1st prize was awarded to Mr. W. H. Powell; and also for three Orchids.

The local nurserymen, Messrs. Hewitt & Co., Mr. Thomson, Mr. Sydenham, and Mr. R. H. Vertegans, assisted in making a good show, by sending good plants, tastefully arranged.

Messrs. Cutbush, Highgate, London; and M. Smith & Co., Worcester, sent miscellaneous groups.

NEWCASTLE-ON-TYNE BOTANICAL AND HORTICULTURAL.

The spring exhibition of this Society, "the oldest in England," was held on April 10 and 11 in the Town Hall, the lower part of which was filled by a display of spring-flowering plants of much excellence, and the concert-room with table decorations, bouquets, &c. There were, as usual, three divisions—one open to all, one from which nurserymen were excluded, and one open to amateurs only. There were seventy-nine classes, and the total amount of prize-money was £122 12*s*. The show was decidedly better than that held in the spring of last year, although the number of exhibits was scarcely so large; in almost every class there was an excellent display.

Open: Stove and Greenhouse Flowering Plants.—These exhibits were of such merit that they would have been prominent objects at any good summer show, and those of Mr. F. C. Ford, gr. to Mrs. H. Pease, of Darlington, were by far the best specimens. His Cliveia miniata superba had ten fine trusses, an immense specimen of Dendrobium Veitchianum had 300 fine blooms upon it, Cœlogyne cristata, a great massive plant, had quite as many; and of Erica Victoria Regina there was a densely flowered specimen. Mr. T. Methven, gr. to T. Lange, Esq., of Gateshead, also showed well in this class. He it was who first flowered Dendrobium nobile var. Cooksoni, and exhibited it at Newcastle under the name of Heathfieldianum two years before it was named Cooksoni by Dr. Reichenbach; a plant of this variety with seventy blooms on it was exhibibited by Mr. Methven.

Mr. McIntyre, gr. to Mrs. S. Pease, Darlington, exhibited some splendidly flowered specimen Azaleas, and won the 1st prize. Comtesse de Flandre, rose; Madame Iris Lefebre, a semi-double red flower; Madame Marie Lefebre, a large white; and Souvenir de Madame Rudolph Abel, blush, reddish centre, had dense heads of bloom four or five feet through.

Remarkably fine Chinese Primulas won the highest awards in two classes for Mr. F. C. Ford, most of the varieties being white flowered. Cinerarias were plentiful, and of medium quality; and the best came from Mr. H. J. Jackson, gr. to J. O. Scott, Esq., Benwell Cottage, Newcastle.

Deutzias were remarkably well flowered, and exhibited, as they always are here, without any sticks. Mr. W. R. Armstrong, 122, New Bridge Street, won with four plants, and Mr. Ford, Newcastle, with two, in another class.

Mr. John McIntyre exhibited remarkably fine Dielytra spectabilis, six and three plants, and was first in both competitions.

Bulbs.—Hyacinths were well shown, and in considerable numbers. The 1st prize for twenty-four was awarded to Mr. W. J. Watson, Fenham Nurseries, Newcastle; the plants having large spikes and blossoms, and were altogether of fine quality. The best were King of the Blues, Fabiola, Marie, Von Schiller, and Koh-i-noor. Mr. Watson was also awarded the 1st prize for twelve Hyacinths. Mr. Edward Laidlaw, of Sunderland, and Messrs. Dewar & Co., 97, Grey Street, Newcastle, were also prize winners in this class.

In the open class, nurserymen excepted, for twelve Hyacinths, Mr. James Wood, gr. to William Angus, Esq., Fenham Hall, Newcastle, was placed 1st, the plants having excellent spikes.

Tulips and Narcissus were shown in abundance, and of remarkably good culture. Mr. W. J. Watson, in the open class, had the best nine pots of single Tulips; and Mr. James Wood the best six pots of double (four varieties). Mr. Watson was also placed 1st for very fine Polyanthus Narcissus (three varieties).

Mr. Watson's six pots of Lily of the Valley were marvels of good culture, and deservedly were awarded the 1st prize.

Mr. A. Methven, gr. to T. Lange, Esq., Heathfield House, Gateshead, was the only exhibitor of three specimen Orchids, and was awarded the 1st prize; the lot included, as has been noted, Dendrobium nobile Heathfieldianum (syn. Cooksoni), a vigorous plant, which bore seventy flowers.

Auriculas and Polyanthus appeared in numerous classes in the open division, but most of the blooms showed traces of too rapid development, and there were few really good trusses; but it was very creditable to the northern growers to show so well as they did at so early a date. Mr. R. Patterson, Ashburne Gardens, Sunderland, was 1st for twelve plants, and amongst them were noted Dr. Horner (Read), Imperator (Litton), Prince of Greens (Trail), Anna (Trail), George Lightbody (Headley), and Pizarro (Campbell) were his best flowers.

J. Garret, Esq., Hindley House, Stocksfield, was awarded 1st prize for six, he having Ann Smith (Smith), Colonel Champneys (Turner), and others. Mr. W. L. Thompson, gr. to C. L. Bell, Esq., Newcastle, was placed 1st for four Auriculas. The premium Auricula at the show was Heroine (Horner), shown by Mr. E. Oliver, Benton.

Alpine Auriculas.—The best twelve, in not less than nine varieties, were exhibited by Mr. E. Adams, of Swalwell, and were of excellent quality, Mrs. Llewellyn, Unique, Slough Rival, Dolly Varden, Queen Victoria, and Napoleon III. being the finest blooms.

Polyanthuses.—The best laced flowers were shown by Mr. M. Stobbs, Winlaton, and which were very good indeed. The varieties shown were George IV., Cheshire Favourite, Nicholson's King, Queen of the Tyne, Formosa, and William IV.

Table decorations, bouquets, cut flowers, &c., were excellent and numerously exhibited. There were two classes for vases or epergnes for the drawing-room, and the competition was keen in both. Mrs. Adams, Swalwell, won the 1st prize in class B.; and Mr. F. Edmondson, florist, Newcastle, that in the other. Messrs. Perkins & Sons, of Coventry, were 1st both for a hand bouquet, and also for a bridal bouquet. Mr. J. R. Chard, of London, was a good 2nd in each of the classes.

Cut Pansies, from Messrs. A. Bailey & Sons, Sunderland, were very fine.

Camellias, from Mrs. Oliphant, Green Market, Newcastle, were excellent in variety and quality.

Excellent groups of Orchids, Daffodils, and Primulas were exhibited by Mr. Edmondson, florist, Green Market, Newcastle; choice stove and greenhouse plants by Messrs. Kent & Brydon, of Darlington; and stove and greenhouse plants by Messrs. Fell & Son, Hexham, and by Messrs. R. Armstrong & Sons. These collections were admirable additions to the competitive exhibits, and fell in for a large amount of admiration.

There were many more exhibitors and winners of prizes whose exhibits were worthy of notice, did space permit.

TORQUAY HORTICULTURAL.

The spring exhibition was held on the 11th inst. in the Bath Saloons. The show was a fairly good one, Orchids being the chief attraction. Mr. Morton Sparke (gr. Mr. Medland) was awarded 1st for the three best specimen Orchids, for fine specimens of Cœlogyne Massangeana, Odontoglossum Hallii, and Cymbidium eburneum. Mr. Lavers took the 2nd prize with specimens not far below. In the competition for groups of Orchids, the honours were shared by Mr. Morton Sparke, Mr. Lavers, and Captain Tucker.

Of Tulips, Hyacinths, and cut blooms, there was a good display, but here again the competition was by no means keen; indeed, in the whole show, prizes went to only seven exhibitors—Lady Macgregor, Miss Loch, Captain Fane Tucker, Mr. Morton Sparke, Mr. Lavers, Mr. Kimber, and Mr. A. Matthew.

Trade collections of good quality were sent by Messrs. R. Veitch & Son, and Lucombe, Pince & Co., Exeter; Curtis, Sanford & Co., C. Phillips, W. W. Smale, and Mitchell, Torquay; and W. R. Beachy, Kingskerswell.

The Rabbit-Plant.—In this country we understand what is meant by a plant for the million, or by a market plant. It appears from *Le Jardin* that the corresponding French term for a plant easily propagated is "*herbe à lapins.*"

Nursery Notes.

A NEW BLOCK OF GLASS STRUCTURES AT KING'S NORTON.

The revival in trade so long looked for is at last being experienced in our large industrial centres, and the hopes and expectations of the nursery and seed trades are rising with the prospect, and signs of increasing activity are manifesting themselves. Mr. John Pope, the proprietor of the King's Norton Nurseries, near Birmingham, has recently erected near to his private residence—a distance of about half a mile from the home nurseries—a large block of glass-houses, at a cost of about £1600, for the growth of plants and flowers, chiefly to supply the requirements of his stall in the Market-place. There are eleven houses, each about 95 feet long, built on sloping ground facing the south, the lowest of all being 24 feet wide, with a back wall of 18 feet, against which Maréchal Niel Roses are planted, and the beds with large plants of Camellias; a north house of the same size is fixed against the back wall, and is filled with Camellias and Azaleas. The others are low span-roofed houses. No. 1, a propagating-house, 18 feet wide, with centre and side beds; No. 2 has Tomatos planted out, and is also devoted to Maidenhair Ferns in pots, Cyperus, Richardias, Aspidistras, Palms, Dracænas, &c.; No. 3 to Bouvardias, Maidenhair and other Ferns, Heliotropes, double Pelargoniums, &c.; No. 4 to Roses, zonal Pelargoniums, Euonymus, Aralias, a fine lot of Maréchal Niel Roses in pots; but it is chiefly a Rose house. No. 5 is devoted to zonal Pelargoniums—a very fine lot. No. 6 is also a house of zonals. Henri Jacoby, Raspail, Le Bruante, and Gloire Lyonnaise were especially good. No. 7 is devoted to Primulas, and here can be seen the very fine varieties for which this firm is so famous, and as they were well in bloom they can be seen to the best advantage. No. 8 is occupied by young zonals and variegated varieties, tricolors being largely grown as the best among them, viz., Mrs. Henry Cox and the silver-edged Miss Kingsbury still a leading variety. There are also some good types of the bicolor section. No. 9 is filled with the white zonal Niphetos, and other fine varieties.

For the heating of this large block one of Messrs. Hartley & Sugden's top-feeding, single-flued saddle boilers is used, with a 6-inch main and 4-inch feeders to each house; and there are 4000 feet of 4-inch pipes employed. There is a spacious cistern in each house for water supply, which is under the floor level. Altogether it is a fine lot of glass for plant growing.

Among the new varieties of Primula sinensis might have been seen in bloom recently, Lady Randolph Churchill, an improved Princess Louise, the flowers of the finest quality; and Mr. Rose, the Primula grower here, has succeeded in obtaining a valuable cross between Webb's Purity, a pure white, but wanting in size, and Princess Louise. This new form, like Purity, is very floriferous, and retaining the pure white of Purity, but with the size, substance and excellent fringed character of Princess Louise. Mr. Rose is also making a good advance with the blue or mauve shades.

Mr. John Pope has lately added to the business that of horticultural auctioneer, and for the development of this department has taken extensive premises close to the Market Hall, and here cut flowers, plants, vegetables, &c., are sold by auction.

Plant Notes.

OPLISMENUS BURMANNI VARIEGATUS.

This is the correct name of what we have long been accustomed to call Panicum variegatum. The new name will be rather more difficult to master, but in consideration of a recent introduction of Messrs. J. Veitch & Sons it is perhaps as well that the change should be made. Their plant is merely a whiter and more compact variety, for which they obtained a First-class Certificate from the Royal Horticultural Society under the name of Oplismenus albidus, but Mr. Nicholson, in Dictionary of Gardening, gives the name as O. B. albidulum. This variety is exceedingly neat and much dwarfer than the other. Both are graceful trailing variegated grasses, and little potsful of them are useful as an edging to baskets or as a groundwork on which to arrange groups of plants. We have seen this and zebrina make a very pleasing line when mixed. They give the house a nice furnished appearance, and should be used freely. Periodical batches of it should be brought on, the pots being filled with a free loamy compost, dibble them full of cuttings, and stand them in a moist warm pit near the glass. Plant them so as to prevent flagging and in a short time they will be fit for use. They thrive best in a moderately high temperature (about 60°); where with a little shade, they take on a beautiful rosy-tint. If much shaded they are apt to turn green.

Scirpus riparius

is another old plant which we find rechristened and put among the sedges. As a subject for a basket it is not so good as the Opiismenus; but as a margin plant it is excellent. Its requirements are a porous soil, plenty of water, and a temperature of about 60°. The ordinary method of increase is by division. After the plant has been well grown and matured it will stand for a long time in an ordinary greenhouse; indeed, in summer, it will grow fairly well in the cool greenhouse; but by a little more heat finer specimens may be grown. Planted in full exposure round the edge of a water-tank it grows luxuriantly. *F. R.*

Disa lacera.

A batch of specimens of this plant, which were all gathered in the same locality, has recently been brought to Kew by Mr. J. O'Brien, and from an examination of them, I find that the opinion I expressed in these columns for 1888, vol. 5, p. 664, as to the variability of the lips, is most fully corroborated. Of four specimens selected from the batch, as being the principal variations shown, one has the oblong lip almost entire, with only slight crenate fimbriations towards the apex; another has the lip oblong and deeply fringed at the apex only; a third has a more ovate lip, and fringed all round from base to apex, with the exception of the short, broad, cuneate claw; the fourth specimen has a longer and narrower claw to the lip than number three, and the ovate blade is much more deeply and more finely fringed all round. All the specimens have the characteristic hooked petals. Although there is now no specimen of Disa lacera in Swartz's herbarium, or in that of Thunberg, there can, I think, be little doubt that this is the plant they described under that name, and the circumstance that it is an Eastern species does not invalidate this opinion, since Disa porrecta, Swartz, of which I have seen the type specimen! is also an Eastern plant, and comes from very nearly the same district as D. lacera, and may perhaps grow in the same neighbourhood. *N. E. Brown, Herbarium, Kew.*

Obituary.

Mr. J. A. McKenzie.—Many of those who were associated with the International Potato Exhibitions of a few years since will learn with deep regret of the sudden and untimely death of Mr. J. A. McKenzie, son of Mr. Alexander McKenzie, the well-known landscape gardener and surveyor of Epping Forest, and who was for several years the secretary of the exhibitions. Mr. John McKenzie went to America as a landscape gardener, where he had begun thus early to fashion for himself an active career. He seems to have been seized, early last week, with pneumonia, and died the following day, thus cutting short a bright young life, and a career full of promise. He was much liked

by all associated with him at the Potato Exhibitions, and by none more than those who had the active management of them. As a member of the Honourable Artillery Company of the City of London, Mr. McKenzie made a wide reputation, proving not only one of the best shots of that popular corps, but also of the metropolis.

MARKETS.

COVENT GARDEN, April 17.

Scarcely any business being done this week. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2 0	4 0	Lemons, per case	12 0	21 0
— Canada and Nova Scotia, per barrel	7 0	17 0	Pine-apples, Eng., lb.	1 6	2 0
Grapes, per lb.	2 6	6 0	— St. Michael, each	2 0	8 0
— new, per lb.	5 0	8 0	Strawberries, per lb.	2 0	4 0

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	12 0	...	Mustard and Cress, punnet	0	4 ...
— French, bundle	21 0	...	Onions, per bunch	0	5 ...
Beans, Jersey French, per lb.	3	6 ...	Parsley, per lb.	1	0 ...
Beet, red, per dozen	1 0	2 0	Peas, French, per lb.	1	0 ...
Carrots, per bunch	0	6 ...	Potatos, per cwt.	4	0 5 0
Cauliflowers, each	0	3 ...	— kidney, per cwt.	4	0 5 0
Celery, per bundle	1	6 2 0	— new French, lb.	0	6 ...
Cucumbers, each	1	0 ...	Rhubarb, bundle	0	6 ...
Endive, per dozen	3	0 ...	Seakale, punnet	2	6 ...
Green Mint, bunch	1	0 ...	Shallots, per lb.	0	6 ...
Herbs, per bunch	0	6 ...	Spinach, per bushel	5	0 ...
Leeks, per bunch	0	4 ...	Tomatos, per lb.	2	0 ...
Lettuce, per dozen	1	6 ...	Turnips, per bunch, new	0	5 ...
Mushrooms, punnet	1	6 ...			

Potatos.—Beauty of Hebron, 70*s.* to 80*s.*; Imperators, 60*s.* to 65*s.*; Dunbar Magnums, 130*s.*; Lincoln, do., 70*s.*; and Dunbar Regents, 110*s.* to 120*s.* per ton.

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Ficus elastica, each	1 6	7 0
Arum Lilies, p. doz.	9 0	15 0	Genista, dozen	8 0	12 0
Azaleas, dozen	24 0	42 0	Hyacinths, dozen	6 0	9 0
Cineraria, per dozen	8 0	12 0	Lily-of-Val., per doz. pots	10 0	18 0
Cyperus, per dozen	4 0	12 0	Marguerites, doz.	6 0	12 0
Dracæna terminalis, per dozen	30 0	60 0	Mignonette, doz.	6 0	12 0
— viridis, per doz.	12 0	24 0	Palms in var., each	2 6	21 0
Erica, various, doz.	12 0	30 0	Pelargoniums, dozen	12 0	18 0
Euonymus, in var., per dozen	6 0	18 0	— scarlet, doz.	4 0	6 0
Evergreens, in var., per dozen	6 0	24 0	Primulas, per dozen	4 0	6 0
Ferns, in var., doz.	4 0	18 0	Roses, H.P., doz.	12 0	24 0
Foliage plants, various, each	2 0	10 0	— Fairy, doz.	9 0	12 0
			Spiræa, doz.	9 0	15 0
			Tulips, dozen pots	6 0	9 0

Bedding Plants in variety from 1*s.* per doz.; per box, 1*s.* 6*d.* to 2*s.* 6*d.*

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutillons, 12 bun.	3 0	6 0	Mignonette, 12 bun.	3 0	6 0
Anemone, Fr., 12 bun.	1 0	3 0	Narcis., paper-white, (French), 12 bun.	2 0	6 0
Arum Lilies, 12 blooms	2 0	4 0	— double, 12 bun.	4 0	6 0
Azaleas, 12 sprays	0 6	1 0	Pelargoniums, 12 spr.	1 0	1 6
Bouvardias, per bun.	0 9	1 0	— scarlet, 12 spr.	0 4	0 6
Camellias, white, 12 blooms	2 0	4 0	Primroses, 12 bun.	0 6	1 0
— red, 12 blooms	0 9	2 0	Primulas, dbl., 12 sp.	1 0	1 6
Carnations, 12 blms.	2 0	3 0	Roses, Tea, per doz.	1 0	3 0
Daffodils, dbl. 12 bun.	2 0	4 0	— coloured, dozen.	2 0	4 0
— single, 12 bun.	1 6	3 0	— red, per dozen	3 0	6 0
— French, 12 bun.	2 6	4 0	— Safrano, dozen	1 6	2 0
— various, 12 bun.	4 0	9 0	— do., (Fr.), doz.	1 0	1 6
Eucharis, per dozen	3 0	6 0	Tuberoses, 12 blms.	2 0	4 0
Gardenias, 12 blooms	3 0	6 0	Tulips, 12 blooms	0 6	1 0
Heliotropes, 12 spr.	0 6	1 0	Violets, 12 bunches	0 6	1 0
Lilac, white Fr., bun.	4 0	6 0	— dark, Fr., bunch	1 0	2 0
— lilac-coloured, p. bunch	3 0	5 0	— Parme, Fr., bun.	2 6	3 6
Lily-of-Val., 12 spr.	0 6	1 0	Wallflowers, 12 bun.	4 0	6 0
Marguerites, 12 bun.	3 0	6 0	— French, 12 bun.	1 0	2 0

SEEDS.

London: *April 17.*—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that the present consumptive demand is small for the time of year, owing to the still saturated condition of the land. Quotations generally are without important alteration. Fine Trefoil is, as nearly as possible, used up. Good samples of Red Alsike and white Cloverseeds are now obtainable on exceedingly moderate terms. Perennial and Italian Ryegrasses move off freely at late rates. Sanfoin and Lucerne are steady. For Tares the trade is slow. There is more inquiry for Rapeseed. Mustard is without alteration. Large Blue Peas are wanted. Birdseeds keep slow.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended April 13:—Wheat, 29*s.* 11*d.*; Barley, 25*s.* 2*d.*; Oats, 17*s.* 8*d.* For the corresponding week in 1888:—Wheat, 30*s.* 5*d.*; Barley, 29*s.* 6*d.*; Oats, 15*s.* 11*d.*

FRUITS AND VEGETABLES.

Stratford: *April 16.*—There was a fair attendance of buyers and an average supply of vegetables, a quiet steady trade being transacted. The following were the prices:—Turnips, 25*s.* to 35*s.* per ton; Carrots, household, 24*s.* to 32*s.* do.; do., cattle feeding, 15*s.* to 18*s.* do.; Swedes, 14*s.* to 18*s.* do.; and Mangels, 14*s.* to 20*s.* do.; Onions, Valencia, 4*s.* to 8*s.* per case; do., English, 6*s.* to 7*s.* per bag; Savoys, 1*s.* 9*d.* to 3*s.* 6*d.* per tally; Brocoli, 1*s.* to 1*s.* 6*d.* do.; and Turnip tops, 9*d.* to 1*s.* 3*d.* per bag; Cauliflowers, 8*s.* to 10*s.* per crate; Beetroots, 6*d.* to 8*d.* per dozen; American Apples, 12*s.* to 18*s.* per barrel.

POTATOS.

Borough and Spitalfields: *April 16.* — Common qualities are cheaper to sell, and the trade generally is dull; best qualities are also less in demand, and prices are supported with difficulty. Scotch Regents, 80*s.* to 130*s.*; English, 60*s.* to 105; Hebrons, 60*s.* to 90*s.*; Magnum Bonums, 60*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.* per ton. Other varieties, 60*s.* to 80*s.* per ton.

Stratford: *April 16.* — Quotations: — English Magnums (light), 60*s.* to 80*s.*; do., dark, 55*s.* to 60*s.*; do. Regents, 60*s.* to 85*s.*; do. Hebrons, 55*s.* to 65*s.*; Imperators, 65*s.* to 80*s.*; Scotch Magnums, 70*s.* to 110*s.*; do. Champions, 60*s.* to 80*s.*; do. Regents, 80*s.* to 105*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, old, prime, 124*s.* to 128*s.*; do., best seconds, 80*s.* to 120*s.*; do., inferior, 36*s.* to 70*s.*; prime old Hay, 108*s.* to 126*s.*; new, 90*s.* to 105*s.*; inferior, 50*s.* to 70*s.*; hay, old, 42*s.* to 48*s.*; new, 24*s.* to 40*s.* per load.

NOTICES TO CORRESPONDENTS.

Intelligent Readers, *do* please Note *that letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the* Publisher, and not to the Editor, but that all communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Apple Stems Without Bark in Places: *An Old Subscriber from the Commencement.* So long as the trees bear well there is nothing to complain of beyond the unsightliness of the wounds, which may be disguised by cement being smeared over the surface of the wood, and when dry this cement may be coloured so as to resemble the bark. Zinc plates, cork, &c., are often used, but as these form hiding-places for insects it is better not to use them. Gas-tar is sometimes employed, and it is useful in keeping moisture from entering the wood, especially when large limbs are sawn off.

Azalea indica: *H. E. B.* There is an Azalea ind. in commerce named Souvenir du Prince Albert alba. The flowers are semi-double, and white. It flowers late. It is a white counterpart of Souvenir du Prince Albert.

Azalea mollis; Pride of Penshurst, and Gloire de Nancy Carnations: *Head Gardener.* If these are sent before they get too fully blown, carefully packed in clean, damp moss, and in time for the Covent Garden Market Sales on Tuesday, Thursday, and Saturday mornings; and to dealers in the chief towns in England, they would find a ready sale. Pride of Penshurst is not so well liked as other yellows which have the Carnation perfume.

Bass Brooms and Brushes: *A Weekly Reader.* See "Horticultural Sundries," in *Gardeners' Chronicle* for April 6, p. 429.

Calceolarias: *D. Tuley.* Good colours, and fairly large. The "double" flower is caused by two buds becoming joined together in a very young state.

Cucumbers and Tomatos: *Gardener.* When Telegraph is grown from seed true to name there is none better, and it sells for as much as any other good variety. There are various strains of it in the hands of the trade. Covent Garden Favourite is likewise excellent. Varieties of Tomatos are very numerous. Many market growers still grow the Old Red, because of its abundant bearing; Orangefield Red, Sutton's Perfection, Laxton's Open Air, Hathaway's Excelsior, Golden Queen, are all of them good and prolific varieties.

Cyclamens: *A. Streeter.* The flowers are large and brightly coloured, and the foliage betokens well-grown, vigorous plants. The packing was quite satisfactory.

Gardeners' Benefit Society: *J. G. W.* Apply to Mr. Collins, 5, Martinhoe Terrace, Martindale Road, Balham, S.W., who is Secretary to such a Society.

Gardening Appointments: *Mrs. P.* There is no charge made.

Grape Vines: *Dulwich.* In our "Answers to Correspondents" we stated last week that the abortive bunches were due to an unripe state of the shoots, and now we would add that this want of maturity may have arisen from the roots being in a deep, badly drained, and therefore chilled soil, a condition further aggravated by the cool summer of 1888, and by being covered probably by a thick dressing of manure, that would prevent what little warmth there was from entering the soil. Due attention to the management of the vinery is of no avail, but the Vines must be lifted in late September or October, a new border made of sweet sound materials, care being taken to put the water-drainage into good order, and the old Vines replanted or new ones obtained. On the cold clayey land of your district a Vine-border should in great part be made above the ground-level, and a floor of concrete, or a layer of chalk 6 inches thick, rammed hard, put at the bottom of it.

Insects: *F. S. M.* The tube in which you had placed some minute live insects contained only one living when it reached us, namely, the one like a centipede (Julus pulchellus), which had doubtless eaten all the rest except two very minute, shining, black, round-backed mites, which were probably too hard for the Julus. The jumper was doubtless a little Podura. These feed generally on decaying vegetable matter, as do the Acari. *I. O. W.*

Names of Plants: *Henry Horsfield.* 1, Adiantum cuneatum elegans; 2, A. cuneatum var.; 3, A. mundulum; 4, A. Pacotti. Dactylis glomerata variegata, Nephrolepis pectinata (probably) frond immature and barren.—*J. Bayliss.* 1, Lastrea glabella; 2, Lathræa squamaria, a parasitical British plant.—*E. E.* Undoubtedly Cœlogyne ochracea.—*W. R. A.* Rhododendron Veitchi, as far as can be told from a single flower.

Paint on Pipes: *Rugosus.* Judged by the smell, we think that the linseed-oil contains "driers" or turpentine. It is the fumes of this volatile fluid which, driven off by the heat in the hot-water pipes, has injured the Roses, &c. Turpentine can scarcely be called an adulteration, as it is added to ordinary sorts of paint; but for hot-water pipes, lamp-black and boiled linseed-oil simply are necessary. Dark blue lead paint is sometimes employed. If injury continues to be done to the plants, the paint must be burned off.

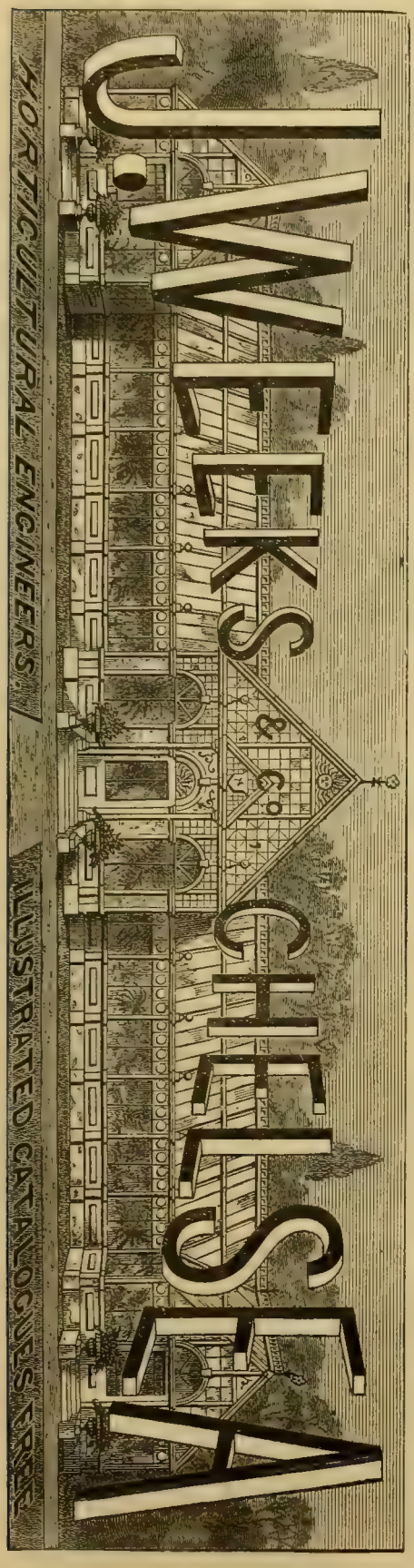
Plants Flagging and Dying: *G. Thomson.* Probably there is something wrong with the watering, as you suggest, but in the absence of fuller cultural details we are quite unable to assist you.

CATALOGUES RECEIVED.

Charles Turner, Royal Nurseries, Slough—Soft-wooded and Stove and Greenhouse Plants.

Wm. Paul & Son, Waltham Cross, Herts—New Roses and Florists' Flowers.

Communications Received.—W. Wall (next week).—F. Thompson (next week).—W. J. C.—Wild Rose.—W. K.—R. D.—W. B. H.—A. B.—J. D.—Professor Foster.—D. Roberts.—W. D.—R. S. should address the Editor on such matters, not the Publisher.—F. D. H.—E. M.—G. H.—H. R. H.—J. J. W. (next week).



GARDEN REQUISITES.

Two Prize Medals.

Quality, THE BEST in the Market. (All sacks included.)

PEAT, best brown fibrous ... 5*s.* per sack, 5 sacks for 22*s.* 6*d.*
PEAT, best black fibrous ... 4*s.* 6*d.* ,, 5 sacks for 20*s.*
PEAT, extra selected Orchid 8*s.* 6*d.* ,, 5 sacks for 40*s.*
LOAM, PREPARED COMPOST } 1*s.* per bush., 3*s.* per sack
LEAF, or PEAT MOULD ... } (sacks included).
SILVER SAND, coarse, 1*s.* 6*d.* per bush., 14*s.* half-ton, 24*s.* ton.
RAFFIA FIBRE, best only ... ... 1*s.* per lb.
TOBACCO CLOTH, or PAPER ... ... 1*s.* lb.; 28 lb., 27*s.*
SPHAGNUM MOSS, all selected, 3*s.* per bush., 8*s.* per sack.

CHUBB'S "PERFECT" FERTILIZER (the Best Food for all kinds of Plants, Flowers, Fruits, Vegetables, &c. ...)	In Bags. Tins. 7lb. 14lb. 28lb. 56lb. 1 cwt.
	1/6 3/- 5/- 8/- 14/- 22/-
CRUSHED BONES, or Bone Dust	1/2 2/- 3/6 6/- 12/-
VIRGIN CORK (Best Quality only)	— 3/- 5/6 10/6 17/-

RUSSIAN MATS, BAMBOO CANES, PERUVIAN GUANO, NITRATE of SODA, HORTICULTURAL CHARCOAL, &c.

PEAT MOSS LITTER, cheapest and best Bedding for Horses and Cattle, £2 per ton. Extra large Sample Bales, 6*s.* each. Also prepared for Poultry Pens, Rabbits, &c., in Sacks, 1*s.* 6*d.* each; 10 Sacks, 12*s.* 6*d.*; 20 Sacks, 23*s.*

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1*s.* 4*d.* each; 10 sacks, 12*s.* 6*d.*; 15 sacks, 17*s.* 6*d.*; 20 sacks, 20*s.*; 25 sacks, 24*s.*; 30 sacks, 27*s.*; 40 sacks, 35*s.*; 50 sacks, 40*s.*; Truck-load, loose, free on rail, 30*s.* Limited quantities of G., special quality granulated, in sacks only, 2*s.* 6*d.* each.

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CHUBB'S "**PRODUCTIVE**" MANURE, in bags, **£3 per ton** (bags included); sample 1 cwt. bag, 4*s.*, producing extraordinary results, and worth four or five times the actual cost. Try it against any other manure, no matter what price.

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Terms strictly Cash with order. Bankers, Union Bank of London.

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HEATH'S BULB MITE EXTERMINATOR.

After many and exhaustive experiments extending over a series of years, Mr. Heath the celebrated Gardener at Sedgwick (a frequent contributor to this Paper), has at length succeeded in producing a chemical compound, which proves fatal to this most destructive pest. His experiments have been watched with the utmost interest, by several Gardening Friends, at whose request he has placed it in my hands to manufacture. **In Tins**, sufficient for from 50 to 100 Bulbs, according to size, with full directions, **5s.**

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To be obtained of all Seedsmen.

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Harmless to the most tender foliage.
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Numerous Testimonials.

Prices:—Pint, 1*s.* 6*d.*; quart, 2*s.* 9*d.*: ½ gallon, 5*s.*; 1 gallon, 9*s.*; 4 gallons, 34*s.*

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A CURE AT LAST FOR THIS DREADFUL PEST.

This assertion will probably be doubted, but if living mites are examined under a powerful microscope, and a drop of solution is applied, it will be seen that death is instantaneous, and if the solution is let down according to the directions, it kills in from 5 to 10 minutes. It may be objected that when unhealthy Eucharis are watered with the solution, it cannot touch the mites between the scales. Practice, however, has proved that it does; and the most unhealthy Eucharis, treated according to the directions, and grown with ordinary cultural care, become healthy in a short time, as a trial will convince.

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4*d.* per bushel; 100 for 25*s.*; truck (loose, about 2 tons), 40*s.*; 4-bushel bags, 4*d.* each.

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BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks, 22*s.*; sacks, 4*d.* each.

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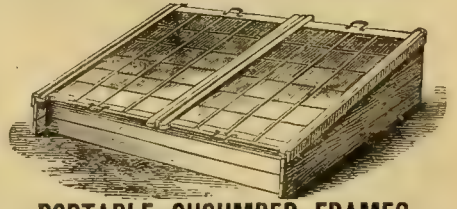
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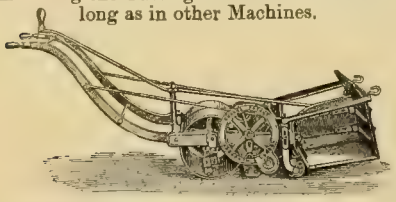
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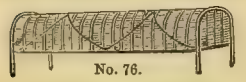
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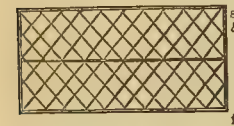
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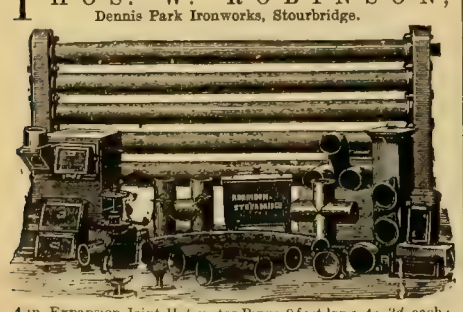
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CAUTION.—Every Cask bears the above Registered Trade Mark. Beware of cheap imitations.

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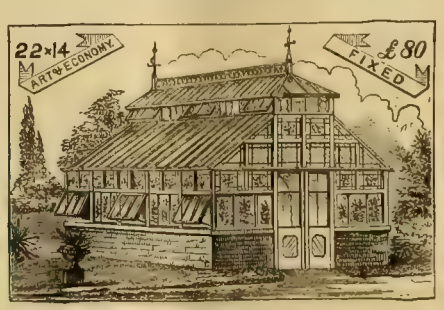
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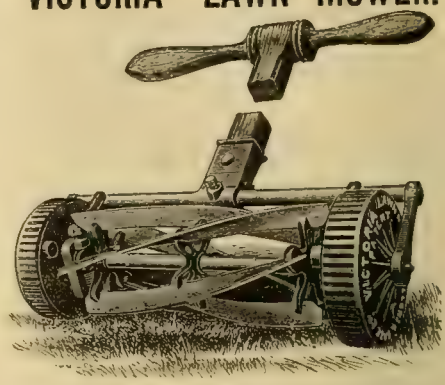
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9 inches.	11 inches.	13 inches.	15 inches.
28s.	32s. 6d.	38s.	46s.

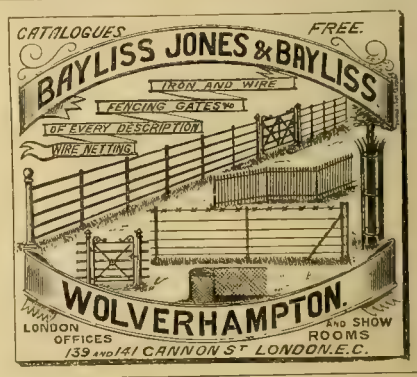
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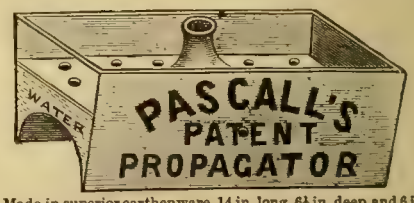
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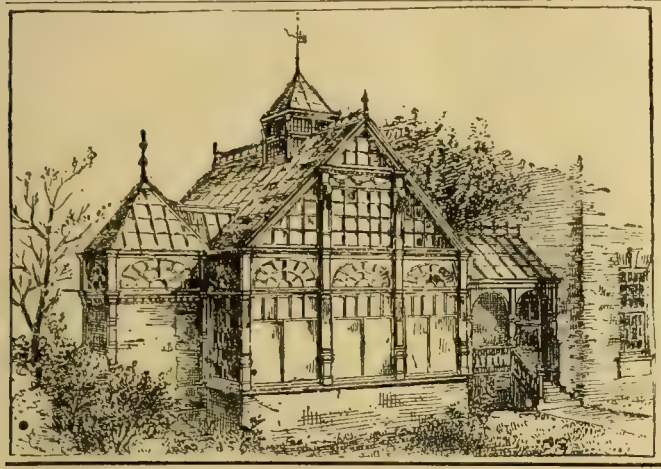
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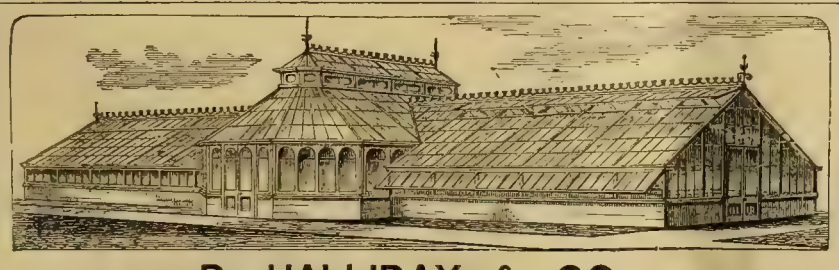
4 Gallons, sufficient for 100 gallons of water	...	£0	6	0	16 Gallons, sufficient for 400 gallons of water	...	£1	2	0
8 " " " 200	...	0	12	0	40 " " 1000 " "	...	2	7	6

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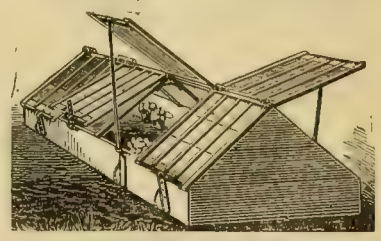
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2 " "	8 "	by 6 "		4 7 6
3 " "	12 "	by 6 "		5 17 6
4 " "	16 "	by 6 "		7 7 6
5 " "	20 "	by 6 "		8 17 6
6 " "	24 "	by 6 "		10 7 6

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1½ × 3 Rafters, 7*s.* per 100 feet.
1¾ × 2½ " 6*s.* per 100 feet.
All other materials at equally low prices.
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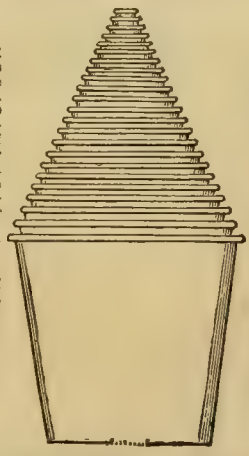
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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

CRYSTAL PALACE.
GREAT SUMMER EXHIBITION
of FLOWERS and PLANTS, SATURDAY, May 11, 1889.
Schedules and Entry Forms free by post on application to Mr. W. G. HEAD, Superintendent of Garden Department.
Entries Close on May 4.

ROYAL BOTANICAL SOCIETY OF MANCHESTER.
FLORAL and HORTICULTURAL MEETING at the Town Hall, Manchester, on TUESDAY, the 30th inst.
The NATIONAL AURICULA SOCIETY'S SHOW (Northern Section), will be held in connection.
Schedules for the Grand National Horticultural Exhibition of 1889 are now ready, and may be had from the undersigned.
BRUCE FINDLAY.
Botanic Gardens, Manchester.

SCOTTISH PRIMULA and AURICULA SOCIETY.
The THIRD EXHIBITION will be held on MAY 8, 1889, in Calton Convening Rooms, Waterloo Place, Edinburgh. Schedules from Hon. Secretary, WM. STRATON, Armfield, Broughty Ferry.

THE THIRTY-FIRST ANNUAL SHOW of the TUNBRIDGE WELLS HORTICULTURAL SOCIETY will be held in the Spa Grounds, Tunbridge Wells, on WEDNESDAY, July 10, 1889.
Prizes to the value of over ONE HUNDRED AND EIGHTY POUNDS. First Prize, for Eight Stove and Greenhouse Plants, £8; First Prize, for Eight Foliage Plants, £6. Also N. R. Society's Medals. Open to all England. Schedules, Entry-forms, and all particulars of the Secretary.
Mr. WILLIAM E. BRAMPTON.
21, Culverden Park Road, Tunbridge Wells.

PERMANENT and BEAUTIFUL LAWNS, with a velvet surface, can be formed in eight to twelve weeks by sowing.

CARTER'S INVICTA LAWN SEEDS.
Price 25s. per bushel.
Price 1s. and 1s. 6d., and 2s. 6d. per packet, post-free.
Price 1s. 3d. per pound, to sow 1 rod of ground.
Carters' Grass Seeds for Tennis and Cricket Grounds, price 20s. per bushel; 1s. per pound.
All parcels carriage free.

LAWNS and LAWN-TENNIS GROUNDS: How to Manage Them.—See CARTERS' PAMPHLET. Gratis and Post-free.

CARTERS, SEEDSMEN by Royal Warrant to H.M. The Queen and H.R.H. the Prince of Wales, 237 and 238, High Holborn, London.

STRAWBERRIES.—Strong Roots, 4s. per 100. Plants in small pots, 16s. per 100; ditto, in large pots, 25s. per 100. Descriptive LIST free.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

NOTICE. — SQUELCH AND BARNHAM having dissolved Partnership, the Business will be carried on as heretofore by Henry Squelch, on the Premises lately occupied by the Firm. All debts due and payable will be received and discharged by Henry Squelch; all outstanding Empties belong to Henry Squelch.

HENRY SQUELCH (late Squelch & Barnham) RECEIVES CONSIGNMENTS of good Black Grapes, Muscats, Cucumbers, Tomatos, and Beans; also all kinds of choice Hothouse Flowers. H. Squelch's trade being especially for First-class Hothouse Produce, and he having a connection amongst the best Houses in London and Country, is able to command highest Market Prices. Account Sales furnished daily, and accounts settled weekly, or as desired.
Empties and Labels Supplied. Bankers' and other references.
North Row, Covent Garden Market, W.C.

HOOPER AND CO. (Limited), are in a position to guarantee the highest Market Prices for EUCHARIS, LILY of the VALLEY, ROSES, ORCHIDS, ARUM LILIES, and every description of Cut Flowers. Communicate with Commission Department.
HOOPER AND CO. (Limited), Covent Garden, London, W.C.

MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, London, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied.
Telegraph Address—"COMMISSION, SIDCUP."

AUSTIN ROBERTS is prepared to RECEIVE CHOICE FLOWERS for Disposal at best Market Prices. Quick Sales, prompt returns, and Weekly Settlements. Good references. Boxes and Labels supplied.
26, Russell Court, Catherine Street, Strand, London, W.C.

J. W. BARNHAM (late of Squelch & Barnham) RECEIVES ON COMMISSION, GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found.
Long Market, Covent Garden, W.C.

WANTED, 6 COCOS WEDDELLIANA, perfect plants, 4 to 5 feet high. Would give ORCHIDS in EXCHANGE. Particulars to IRELAND AND THOMSON, Nurserymen, Edinburgh.

Orange Trees.
WANTED, 6 or 8 Large well-grown TREES, from 6 to 10 feet high, in good health and bearing.
Address, with particulars and price, to W. H. P., 151, Cannon Street, London, E.C.

WANTED, small quantities of ACANTHOLIMON SEEDS (any species).
Apply to JAMES WILSON, Greenside Nursery, St. Andrews, N.B.

WANTED, good strong EAST LOTHIAN STOCKS and DWARF ASTERS, for Bedding purposes. Price per 100.
ROBERT NELSON, Hewith House Gardens, Ravenstonedale, Kirkby Stephen.

SUTTONS' FLORISTS' FLOWER SEEDS.—Sutton's Perfection Calceolaria, 3s. 6d. and 5s. per packet; Sutton's Superb Cineraria, 2s. 6d. and 5s. per packet; Sutton's Prize Gloxinia, 2s. 6d. and 5s. per packet; Sutton's Prize Cyclamen, 2s. 6d. and 5s. per packet; Sutton's Prize Begonia, 2s. 6d. and 5s. per packet; Sutton's Superb Primula, 2s. 6d., 3s. 6d., and 5s. per packet. All Flower Seeds sent free by Post.
SUTTON'S SEEDS GENUINE ONLY DIRECT FROM SUTTON AND SONS, The Queen's Seedsmen, READING.

Barr's Spring Catalogue. Now Ready, of
THE BEST HERBACEOUS PLANTS, for Borders, Rockwork, and Cutting, contains a select List of HIGH-CLASS AND EASILY cultivated plants only.
Free on application.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

ORCHIDS, ORCHIDS. — Distinct kinds, selected not for botanical curiosities, but their beauty, either for cutting or house decoration and the best to grow; 6 for 15s., 21s., or 30s.; 12 for 30s., 42s., or 60s. CATALOGUE of these and all other plants free, for 3 stamps.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

IVIES.—Irish Ivy, very fine, in pots, neatly staked and tied, 5 feet, 6 feet, and 7 feet high.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey, and Flower Market, Covent Garden, W.C.

Barr's Descriptive List of
SEEDS for PRESENT SOWING for the Flower and Kitchen Garden. Free on application to BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

CUT FLOWERS, BULBS, PLANTS, &c.—Best class of customers in district for good flower. Sales, WEDNESDAY and FRIDAY Night all the year round. Daily, when required. Largest and most centrally situated Horticultural Sale Rooms in Birmingham.—POPE AND SONS, 6, Phillip's Street (close to Market Hall), Birmingham.

SPECIMEN HOLLIES.—Best Green and Variegated sorts, in fine Pyramids and Standards. An Immense Stock. Sizes and prices on application. Also Specimen CONIFERS in great variety. Now is the time to plant.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ENGLISH YEWS, 3, 4, 5, and 6 feet.
BOX, Green, 3, 4, 5, and 6 feet.
,, Variegated, 3, 4, 5, and 6 feet.
PINUS AUSTRIACA, 3, 4, 5, and 6 feet.
All well furnished, and finely rooted. Many thousands.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

CHOICE FLOWER SEEDS.—Saved from the most refined and beautiful strains in existence, Made up in suitable collections. *Priced Lists Free.*
DICKSONS (*Limited*), The Royal Seed Warehouse, CHESTER.

SEND FOR New Illustrated CATALOGUE of Conservatories, Greenhouses, Garden Frames, Propagators, and Hand-lights, post-free, for 6 stamps, to be deducted from first order.—CHARLES FRAZER, Palace Plain Works, Norwich. Great Reduction in Prices.

NICOTINE SOAP.—An effectual eradicator of all insect pests affecting plants, without injury to foliage. Jars, 1s. 6d., 3s., 5s. 6d.; Tins 15s. 6d., 25s., 95s.
All See Ismen and Florists.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

PASTUPLANTA, the best Artificial Manure. It enriches the soil with the fertilisers drawn from it by plants; no unpleasant smell; admirably adapted for all pot plants. In bags: 112 lb., 19s.; 56 lb., 11s. 3d.; 28 lb., 6s. 9d.; 14 lb., 4s.; 7 lb., 2s. 3d. In tins, 1s. each. Sole Manufacturers, PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

Fruit, Flowers, and Vegetables.
THOMAS, Covent Garden Market.
Telegraph Address, "THOMASES, London."
Telephone, No. 2822. See large Advertisement, p. 519.

SALES BY AUCTION.

Tuesday Next.

GREENHOUSE and BEDDING PLANTS, CARNATIONS, PICOTEES, CAMELLIAS, and AZALEAS in pots; EVERGREENS, &c.; also a few Standard and Dwarf ROSES.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, London, E.C., on TUESDAY NEXT, April 30, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Tuesday Next.

ORCHIDS in FLOWER.—SPECIAL SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, April 30, at half-past 12 o'Clock precisely, a large quantity of ORCHIDS in FLOWER from various collections, including Cypripediums, Odontoglossums, Phalænopsis, Dendrobiums, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.

GREENHOUSE PLANTS and FERNS in great variety; 30,000 Seeds of ARECA LUTESSENS, and 7000 COCOS WEDDELLIANA in capital condition; 1000 LILIUM AURATUM; 6000 GLADIOLUS BRENCHLEYENSIS, and a quantity of other Bulbs, together with 20 specimen PALMS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, May 1, at half-past 12 o'Clock.

On view morning ol Sale, and Catalogues had.

Highly Important Sale.

The Unrivalled Collection of SUCCULENT PLANTS, formed by the late J. T. Peacock, Esq., and enjoying a reputation probably unequalled in Europe.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executors to SELL by AUCTION, on the Premises, Sudbury House, Hammersmith, W., on WEDNESDAY and THURSDAY NEXT, May 1 and 2, at 11 for 12 o'Clock precisely each day, without reserve, the whole of the Valuable COLLECTION of SUCCULENT PLANTS, including many species that are unique, and others of extreme rarity, including the Entire Stock of the beautiful new Cereus, J. T. Peacock, Gasterias, Hawarthias, Agaves, Phyllocatus, Sempervivums, Mesembryanthemums, Opuntias, Yuccas, Echinocactus, &c.

Also 120 fine plants of Todea superba, several large Camellias, Lapageria alba and rosea, and other plants.

No plants will be sold privately prior to the Auction.

Catalogues may be obtained of Mr. VICKERY, Head Gardener, on the Premises; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

Friday Next, May 3.—First Portion.

The justly celebrated COLLECTION of ESTABLISHED ORCHIDS, formed by C. Dorman, Esq., The Firs, Laurie Park, Sydenham. The whole of the Plants will be Sold (with a very few exceptions) without reserve.

MESSRS. PROTHEROE AND MORRIS have received instructions to OFFER by PUBLIC AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, May 3, at half-past 12 o'Clock precisely, the First Portion of the above justly celebrated COLLECTION of ORCHIDS. The plants are in splendid form, and include many fine specimens, the following comprising some of the leading special species and varieties catalogued:—

- Odontoglossum Schroderianum
- Cymbidium Philbrickianum
- Anguloa eburnea, the true white Clowesi variety
- Lælia Perrinii nivea
- Cattleya Mendelii Morganæ
- ,, Trianæ Backhouseana
- ,, exoniensis
- ,, Trianæ magnifica
- ,, calumnata
- ,, Wagneri
- ,, Reineckiana
- ,, Wallisi
- ,, Skinneri alba
- Dendrobium nobile nobilius
- ,, ,, Cooksoni
- ,, Leechianum
- ,, Ainsworthii roseum
- ,, splendidissimum
- Vanda Sanderiana
- Cypripedium leucorrhodum, grand specimen with 6 growths
- ,, Morganæ, grand specimen with 6 growths
- ,, Thibautianum, most rare and beautiful
- ,, Selligerum majus
- ,, œnanthum superbum, grand specimen
- ,, euryandrum
- ,, insigne Wallacei
- ,, Harrisianum superbum
- ,, vexillarium
- Pleurothallis Roezli, magnicent specimen
- Odontoglossum aureum magnificum, awarded First-class Certificate
- Masdevallia cucullata
- Lycaste Skinneri alba

Cœlogyne cristata alba, several fine plants

The plants will be on view the morning of Sale. Catalogues forwarded, post-free, on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next, May 3.

MESSRS. PROTHEROE AND MORRIS will include in the above SALE, by order of Messrs. Seeger & Tropp, a splendid Specimen MAXILLARIA SANDERIANA, with 6 flower-spikes, which will no doubt be open on the day of sale; 1 CYPRIPEDIUM CASSIOPE, R. H. Rolfe; only 2 fine plants of this fine hybrid are in existence; 1 CYPRIPEDIUM PAGEANUM, Rchb. f., fine plant; 1 CYPRIPEDIUM SEEGERIANUM, fine plant.

On view morning of Sale.

Friday Next.

ODONTOGLOSSUM ALEXANDRÆ.

MESSRS. PROTHEROE AND MORRIS will include in their SALE, on FRIDAY NEXT, May 3, by order of Mr. J. Charlesworth, Heaton, Bradford, a splendid importation of ODONTOGLOSSUM ALEXANDRÆ, in capital condition.

On view morning of Sale, and Catalogues had.

Tuesday, May 7.

Second Portion of the Extensive Collection of ESTABLISHED ORCHIDS, formed by the late Mr. J. H. Bath, of Manor Farm, North Cray, For Sale, absolutely without reserve.

MESSRS. PROTHEROE AND MORRIS are instructed by the executors to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, May 7, at half-past 12 o'Clock precisely, the second portion of this extensive collection of Established Orchids.

On view morning of Sale, and Catalogues had.

Preliminary Notice.

The far-famed SUDBURY HOUSE COLLECTION of ESTABLISHED ORCHIDS, formed by the late J. T. Peacock, Esq.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Executors of the late J. T. Peacock, Esq., to SELL by AUCTION, without reserve, on the Premises, Sudbury House, Hammersmith, W., on MONDAY, May 13, and four following days, at half-past 12 o'Clock precisely each day, the ENTIRE COLLECTION of ESTABLISHED ORCHIDS, being the contents of twenty-three Greenhouses. For description of plants, see *Gardeners' Chronicle*, March 23 last.

No Plants will be sold privately prior to the Auction. The Collection may be inspected at any time by cards, to be obtained of the Auctioneers. Catalogues may be had when ready of Mr. VICKERY, the Head Gardener, on the Premises; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

The Downside Collection of Orchids.

Highly important TWO DAYS' SALE of the remaining portion of this renowned Collection of ESTABLISHED ORCHIDS, including many plants matchless in point of rarity; the whole being remarkable for culture and condition. By order of Wm. Lee, Esq., who has sold the Estate, and is relinquishing the cultivation of Orchids, Absolutely without reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, May 28 and 29, 1889, at half-past 12 o'Clock precisely each day, absolutely without the least reserve, by order of Wm. Lee, Esq., who has sold the Estate of Downside, and is relinquishing the cultivation of Orchids, the remaining portion of this extremely valuable and celebrated COLLECTION of ESTABLISHED ORCHIDS. It is difficult from such a collection to mention all plants of merit, but special attention is called to the following:—

- Cattleya Trianæ Leeana
- ,, ,, Archduchess
- ,, ,, Normani
- ,, ,, Emiliæ
- ,, ,, Emperor
- ,, ,, Empress
- ,, ,, alba
- ,, ,, Dodgsoni
- ,, ,, magnifica
- ,, Percivaliana alba
- ,, ,, rubra
- ,, Gaskelliana rubra
- ,, Mendelii Leeana
- ,, ,, Selbornensis
- ,, ,, elegans
- ,, ,, rosea odorata
- ,, Mossiæ Southgatei
- ,, ,, aurea grandiflora
- ,, labiata, autumn-flowering
- Lælia Amesiana
- ,, purpurata Williamsii
- ,, elegans Dayana
- ,, calistoglossa
- ,, anceps Schroderiana
- Cymbidium giganteum
- Odontoglossums, a large and choice selection of fine plants
- Oncidium prætextum Leeanum
- Dendrobium Kingianum album
- ,, crassinode album
- ,, micans
- Cypripedium œnanthum superbum
- ,, insigne albo-marginatum
- ,, microchilum
- ,, vernixium
- ,, albo-purpureum
- ,, Wallisii
- Vanda Sanderiana
- ,, tricolor Patersoni
- ,, ,, planilabris
- Trichopilia tortilis alba
- ,, suavis alba
- Epidendrum Wallisii
- Cœlogyne cristata alba
- Masdevallia, the original Bull's Blood

The Plants can be inspected by appointment at Downside prior to the Auction, and will be on View in the Sale Rooms on the morning of Sale. Catalogues may be had on application to Messrs. PROTHEROE AND MORRIS, Auctioneers, Estate Agents, and Valuers, 67 and 68, Cheapside, London, E.C.

Wednesday Next.—(Sale No. 7918.)

5000 splendid Bulbs of LILIUM AURATUM, L. A. MACRANTHUM, and other Bulbs from Japan; choice named Dwarf ROSES, from France; HARDY, ORNAMENTAL, and FLOWERING SHRUBS in variety; CARNATIONS, PICOTEES, PINKS, and other BORDER PLANTS; DAHLIAS, and other HARDY ROOTS.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, May 1, at half-past 12 o'Clock precisely,

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7919.)

Six cases of SACCOLABIUMS from Cambodge, just received direct, in very fine order.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 2.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7919.)

Several hundred lots of ESTABLISHED ORCHIDS, many in Flower and Bud, including many choice varieties.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 2.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7919.)

Consignment from Brazil. Received Direct.

200 CATTLEYA LABIATA, C. BICOLOR, 200 LÆLIA CINNABARINA and L. FLAVA, MILTONIA CLOWESII GRANDIFLORA, SOPHRONITES, &c.; also fine Imported Pieces of CATTLEYI MENDELII, CYMBIDIUM EBURNEUM, CYPRIPEDIUM INSIGNE, CŒLOGYNE ASSAMICA, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 2, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

The Concluding Portion of the Valuable Collection of ORCHIDS formed by H. J. Buchan, Esq.

MR. J. C. STEVENS has received instructions from H. J. Buchan, Esq., of Wilton House, Southampton (in consequence of the land having been bought for building), to offer for SALE, by AUCTION, without the least reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY, May 8 and 9, at half-past 12 o'Clock precisely each day, the concluding portion of his celebrated Collection of ORCHIDS, comprising amongst other fine things:—

- Cattleya labiata, autumn flowering
- ,, Mendelii
- ,, Sanderiana
- ,, gigas Buchaniana
- Oncidium macranthum
- Maxillaria Buchaniana
- Lælia elegans alba
- ,, ,, Schilleriana
- ,, anceps alba
- Odontoglossum liliflorum
- ,, nævium majus
- ,, polyxanthum
- Cœlogyne Massangeana
- Cœlogyne Sanderiana
- Vanda Parishii Marriottiana
- Anguloa uniflora
- ,, Ruckeri
- Cymbidium Lowii, 39 bulbs
- Dendrobium nobile nobilius
- Masdevallia Chimera, 32 leaves
- ,, Veitchii grandiflora
- Cypripedium Sanderianum
- ,, Sedeni, 38 growths
- ,, Harrisi, 42 growths, dark var.

Grand specimens of Odontoglossum Halli, radiatum, sceptrum, and Alexandræ in flower, &c., &c.

Choice Hybrid Seedling Cypripediums.

On view morning of Sales, and Catalogues had.

Wednesday, May 15.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his next SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 15, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of entering Plants for this Sale will send lists as soon as possible.

Preliminary Announcement.

THE CRAWFORD COLLECTION OF ORCHIDS.

MR. J. C. STEVENS has received instructions from W. H. S. Crawford, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY, June 12 and 13, at half-past 12 o'Clock precisely each day, without the least reserve, the COLLECTION of ORCHIDS formed by the late W. H. Crawford, Esq., of Lakelands, Cork, comprising about 700 specimens, some being fine exhibition plants, all in the best possible health, and many of great rarity and value.

Further particulars in future Advertisements.

FOR SALE, a FLORIST and SEED BUSINESS. To be disposed of, as a going concern, Freehold Premises, consisting of Dwelling House, 5 Glasshouses, Hot and Cold Pits, Frames, &c., (about 5500 feet of glass). A good opening for an energetic man. Part of the money could remain on MOrtgage.

Present owner giving up on account of age.

Apply to

A. H. MATTHEWS, Solicitor, Hereford.

FOR DISPOSAL, AGRICULTURAL SEED BUSINESS, Exeter. First-class connection throughout Devon and Cornwall, which with energy may be largely extended. Proprietor is retiring after 36 years' successful trading. Fixtures, Horse, and Manual Hoisting Gear, Trade Utensils, and all Fittings, with long Lease. Price £250; Stock optional. Returns about £3000; may be easily doubled. Profits average 15 per cent. Premises are extensive and convenient. Rent £30 a year, rates and taxes included. This is an exceptionally good investment, and one seldom met with.

Particulars of J. LETHBRIDGE, Business Broker, Fore Street, Exeter.

FIRST-CLASS WEST-END PREMISES, one door from Piccadilly, of the net annual value of £610, and held direct from the Freeholder for a long unexpired term, together with or without the Goodwill of the Old-established Seed Business of Thomas Gibbs & Co., or Offers for the Trade and Use of the Name, apart from the Lease, might be entertained.

Apply, on the Premises, 26, Down Street, Piccadilly, W.; or to Messrs. EDWIN FOX AND BOUSFIELD, 99, Gresham Street, Bank, E.C.

Wimbledon.

TO LET, a Semi-detached RESIDENCE, very large Garden, 2 Greenhouses, &c.—Well suited for a Florist or any person fond of horticulture.

Apply to McBRIDGE, 22, Chancery Lane, W.C.

Rodmersham, near Sittingbourne, Kent.

TO BE LET (with immediate possession), a comfortable HOUSE, with about 3 Acres of first-class Fruit Plantation, 6 Glass House, and Premises, all in good working order, held (with other Premises let off and producing £55 12s. per annum) under Lease which can be renewed.

Apply to Messrs. JACKSON AND SONS, Valuers, &c., Sittingbourne.

RENT FREE to Competent Man with small Capital, a nice HOUSE, and an acre or two of LAND. Glass erected on agreement.

OWNER, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

NEW PEDIGREE SEEDLING ROSES for 1889.

CLEOPATRA, Tea, First-class Certificate, R.H.S.

DULCE BELLA, Tea.

MAID OF THE MIST, H.T., a white sport from Lady Mary Fitzwilliam.

MINUTIFOLIA ALBA POLYANTHA, First-class Certificates, R.H.S. and R.B.S.

Grafted Plants ready in May.

NEW FRENCH ROSES for 1889. Forced Plants now ready.

Descriptive LISTS post-free on application.

H. BENNETT,

PEDIGREE ROSE NURSERY, SHEPPERTON, MIDDLESEX.

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By Order of the Commissioners, C. HENSHAW, Clerk.
Town Hall, Leek, 17th April, 1889.

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Will be glad to send, upon application, Special Offers of their Selected Stocks of

SWEDE, YELLOW, HYBRID, & WHITE-FLESH TURNIP SEEDS.

ALSO THEIR SUPERIOR STOCKS OF

MANGEL WURZEL SEEDS,

All of which usually give much satisfaction to their Constituents.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL,

at the "ALBION," Aldersgate Street, JUNE 13, 1889.

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Donations and Collections already promised or sent towards the Jubilee Collection of 1889:—

LEOPOLD DE ROTHSCHILD, Esq., Chairman	£105	0	0
The DUKE of WESTMINSTER, K.G., President	100	0	0
The DUKE of BEDFORD, K.G.	100	0	0
The EARL of DERBY, K.G.	21	0	0
Baron HENRY SCHRODER, Vice-President	105	0	0
Messrs. ROTHSCHILD AND SONS	105	0	0
Lord REVELSTOKE	52	10	0
J. S. MORGAN, Esq., Dover House, Roehampton	105	0	0
JAMES McINTOSH, Esq., Vice-President	52	10	0
N. N. SHERWOOD, Esq. (Hurst & Son), Trustee	52	10	0
H. B. MILDMAY, Esq., Berkeley Square	52	10	0
HERBERT J. ADAMS, Esq., Vice-President	26	5	0
HARRY J. VEITCH, Esq., Treasurer	26	5	0
C. CZARNIKOW, Esq., Effingham Hall, Dorking	21	0	0
A. A. SILLEM, Esq., Sydenham	10	10	0
J. F. TIARCK, Esq., Chislehurst	10	10	0
JOHN LEE, Esq., Kensington (Trustee)	10	10	0
THAMES BANK IRON CO., Upper Ground Street	10	10	0
J. H. VEITCH, Esq., Chelsea	10	10	0
ARTHUR J. VEITCH, Esq., Chelsea	10	10	0
THOMAS MANNING, Esq., Chelsea	10	10	0
Mrs. H. J. VEITCH, Redcliff Gardens, S.W.	10	10	0
B. S. WILLIAMS, Esq., Upper Holloway, N.	10	10	0
Mr. C. W. BUCK, Covent Garden	5	5	0
Mr. E. R. CUTLER, Secretary	10	10	0
Messrs. JOHN LAING AND SON, Forest Hill	5	5	0
Messrs. WEBBER AND CO., Covent Garden	5	5	0
Mr. A. PLUMMER, Seedsman, Staines	4	4	0
Mr. R. H. ROBINSON, The Gardens, Heversham	7	7	0
Mr. JOHN CROOK, Gardener, Farnborough	8	5	0
Mr. EDWARD MITCHELL, Gr., Bolton Lodge, Leeds	10	10	0
Mr. W. R. HODGES, Gardener, Copley Dene, Highgate	10	10	0
Mr. E. GILBERT, The Gardens, Old Charlton, Kent	1	15	0
Mrs. VINCENT NICHOLL, Red Hill	2	2	0
W. J. BROWN, Esq.	1	1	0
Miss CATTLEY, Clayden, Edenbridge, Kent	2	2	0
ROBERT HOGG, Esq., LL.D., Vice-President	10	10	0
RICHARD CHRIMES, Esq., Rotherham	21	0	0
Messrs. NUTTING AND SONS, Southwark Street	10	10	0
Mr. WM. COLLINS, Gr., Chios House, Clapham Park	10	10	0
Mr. WM. WILDSMITH, Heckfield Gardens	1	1	0
Messrs. WATKINS AND SIMPSON, Exeter Street	5	5	0
Mr. H. E. TILLMAN, Covent Garden	3	3	0
Mr. S. E. KAY, Finchley	2	2	0
Messrs. DICKSON, The Nurseries, Chester	10	10	0
Mr. GEORGE MONRO, Covent Garden	10	10	0
Messrs. BARR AND SON, King Street, Covent Garden	2	2	0
Mr. W. S. JOHNSON, St. Martin's Lane	5	5	0
Mr. J. C. STEVENS, King Street, Covent Garden	5	5	0
Messrs. CUTBUSH AND SON, Nurseries, Highgate	5	5	0
Mr. J. ROBERTS, The Gardens, Gunnersbury	10	10	0
Mr. B. WADDS, Birdsall Gardens, York	1	1	0
Mr. G. WYTHES, Syon Gardens, Brentford	1	1	0
Mr. W. DENNING, Nurseries, Hampton	1	1	0
Mr. J. WALKER, Whitton, Hounslow	2	2	0
Mr. PETER BLAIR, The Gardens, Trentham	1	1	0
Messrs. H. AND A. TURNER, Royal Nurseries, Slough	10	10	0
Mr. W. C. LEECH, Albury Gardens, Guildford	1	1	0
Miss OSBORN, Streatham	£3	3	0
Mr. W. BROWN, Merivale Gardens, Atherstone	2	2	0
Mr. THOS. S. WARE, Tottenham	2	2	0
Mr. PEARMAN, Salmon's Garden, Chislehurst	10	10	0
Messrs. JACOB WRENCH AND SONS, London Bridge	5	5	0
Messrs. HOWCROFT AND WATKINS, Hart Street, Covent Garden	5	5	0
Messrs. THOMSON AND SONS, Nurseries, Wimbledon	2	2	0
Mr. H. J. CLAYTON, Grimston Gardens, Tadcaster	1	1	0
Lord CALTHORPE	10	10	0
Messrs. SAYNOR, COOKE AND RIDAL, Sheffield	1	1	0
Sir JULIAN GOLDSMID, Bart., M.P.	10	10	0
Mr. W. CHAPMAN, Hawk's Yard Gardens, Rugeley	3	10	0
Mr. C. SHEPPARD, Great Glenham Gardens, Saxmundham	0	10	6
Mr. G. H. RICHARDS, Somerley Gardens, Ringwood	0	10	6
Mr. KENDALL, Templeton Gardens, Roehampton	10	10	0
Mr. WILES, Unsted Gardens, Godalming	10	10	0
Messrs. JOHN PERKINS AND SON, Northampton	5	5	0
CUTHBERT E. PEEK, Esq., Rousden	10	10	0
WILFRED PEEK, Esq., Rousden	10	10	0
Mr. A. J. LONG, Westwood Gardens, Droitwich	10	10	0
The Rev. W. WILKS, Shirley Vicarage, Croydon	1	1	0
Mr. LOUIS VAN HOUTTE, Ghent	2	2	0
Messrs. F. HORSMAN AND CO., Colchester (annual)	1	1	0
Sir TREVOR LAWRENCE, Bart., M.P., Vice-Pres.	21	0	0
Mr. GEORGE BUTT, Kensington	2	2	0
Mr. GEORGE TIFFEN, Cannon Street	2	2	0
Mr. WILLIAM GREEN, The Grange Gardens, Bishops Stortford	1	1	0
Mr. JNO. BIRD, Nurseries, Downham	2	2	0
Mr. HUGH AITON, Messrs. Hurst & Son, Houndsditch	5	5	0
The YOUNG MEN, Syon Gardens, Brentford	0	12	6
The Hon. EVELYN ELLIS, Datchet	10	10	0
Collected at Mote Park Gardens, Maidstone	2	13	3
Mr. G. WILLIS, The Gardens, Hollowmead, Bishopsteignton	5	0	0
Messrs. WIMSETT AND SON, Nurseries, Chelsea	2	2	0
Mr. W. RAYSON, Royal Exotic Nursery, Chelsea	0	5	0
Mr. H. DOWNING, Norbury Park Gardens	1	1	0
Mr. R. BULLEN, Botanic Gardens, Glasgow	1	1	0
Mr. J. PERKINS, Thornham Gardens, Eye	1	1	0
Mr. J. GOUGH, Harefield Gardens, Uxbridge	1	1	0
Mr. D. ROBERTS, Prestwold Gardens, Loughborough	1	1	0
Mr. J. H. PEARSON, Beeston, Notts	2	2	0
Mr. W. WARD, Little Aston Gardens, Sutton Coldfield	10	10	0
Mr. G. TURNER, Greenhill Gardens, Telford, Surrey	5	14	8
Mr. J. SMITH, Mentmore Gardens, Leighton Buzzard	1	1	0
Miss MARY DRAKE, Elm Park Gardens, S.W. (annual)	1	1	0
G. F. WILSON, Esq., Heatherbank, Weybridge, Vice-President	10	10	0
Received since last week:—			
R. JORDAN, Llanaway Gardens, Godalming	2	2	0
E. HARRISON, St. Michael's Gardens, Garstang	5	12	6
JOHN GUYATT, Streatham Nurseries, Streatham	10	10	0
WILLIAM PANG, Gardr., Woodford Bridge, Essex	0	2	6

PARAFFIN CREAM

As an Insecticide, Mildew Destroyer and Cleanser.

We invite a comparison of the above with other Emulsions or Mixtures of Paraffin, whether sold under fancy names or otherwise, as regards perfection of preparation, miscibility with water, stability after dilution, efficacy, safety and cheapness. It contains three-fourths of its volume of Paraffin, now acknowledged to be the best remedy for the destruction of all insects infesting plant life. One Gallon makes 160 Gallons of Insecticide. Prices, delivered free to any address:—1 Pint, 1*s.* 6*d.*; 1 Quart, 2*s.*; half Gallon, 3*s.*; 1 Gallon, 4*s.* 6*d.*, tins free; 4 Gallons for 7*s.* 6*d.*, tin to be returned. Larger quantities at reduced rates. Sole Proprietors—

DEIGHTON & CO., Operative Chemists, Bridgnorth.

ORCHID PEAT, best quality; BROWN FIBROUS PEAT for Stove and Greenhouse use. RHODODENDRON and AZALEA PEAT. Samples and Prices to WALKER AND CO., Farnborough, Hants.

SAVE HALF THE COST.

GARSIDE'S

BEDFORDSHIRE

SILVER SAND,

Coarse and Fine,

Is admitted by the leading Nurserymen to be **the Best Quality** obtainable in the Trade.

Consumers should **Buy Direct** from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Splendid Sand, and thus save half the ordinary cost. NO TRAVELLERS OR AGENTS.

Apply direct to the Proprietor for Samples and Price.

Free on Rail or Canal. *All Orders executed with the utmost promptness and under personal supervision.* Special Railway Rates in force to all parts.

GEO. GARSIDE, Jun., F.R.H.S., Leighton Buzzard, Beds.

CLAY'S FERTILISER OR "PLANT FOOD"

Sold in Packets, 6d. and 1s. each, and in

SEALED BAGS ONLY,

7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
2/6	4/6	7/6	12/6	20/-

CLAY & LEVESLEY,

TEMPLE MILL LANE,

STRATFORD, LONDON, E.

C. & L. also supply Crushed Bones, Bone Dust, Peruvian Guano, Sulphate of Ammonia, and Nitrate of Soda, in best qualities only.

For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale, Worms, Wood Lice, &c.

"PICRENA," THE UNIVERSAL INSECTICIDE.

SAFE—ECONOMICAL—EFFECTUAL.

15, PRINCES STREET, EDINBURGH, *July* 15, 1887.—"Dear Sirs, I have thoroughly tested a sample of a new Insecticide which you were so good to send me. At the rate of 1 oz. to a gallon of water at a temperature of 95° I find it kills Green Fly immediately. Double this strength, or 2 oz. to a gallon at 120°, seals the fate of Scale of all sorts in a few seconds; while 3 oz. to gallon at same temperature effectually dissolves Mealy Bug, and so far as I have yet observed, without the slightest injury to leaf or flower, and it is withal a most agreeable compound to work with. All our insect remedies are applied through common syringe, or garden engine, a much severer test of efficiency than when applied by hand-washing or spray.—I remain, dear sirs, yours truly. (Signed) A. MACKENZIE," of Messrs. Methven & Sons.

Victoria and Paradise Nurseries, Upper Holloway, London, *January* 7, 1888. "GENTLEMEN—I have given your Insecticide, 'Picrena,' a good trial in competition with many others. I am pleased to say that I have found it to be more effectual in destroying Mealy Bug and other insects than anything we have ever used. It ought to command a good sale. (Signed) B. S. WILLIAMS."

Sold by Chemists, Nurserymen, and Florists, in Bottles at 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* 6*d.*; in Tins (1 and 2 gallons), 10*s.* 6*d.* and 20*s.* each; in quantities of 5 gallons and upwards, 9*s.* per gallon.

Prepared only by

DUNCAN, FLOCKHART & CO., Chemists to the Queen, Edinburgh.

May be had from B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London; and from WILLIAM EDWARDS AND SON, 157, Queen Victoria Street, London.

TO LARGE BUYERS OF FORCING BULBS.

We are prepared to quote the following, and also all similar articles at extremely low prices, and would advise purchasers to write for our Special Offer before placing orders:—

TUBEROSES EXCELSIOR PEARL,
LILIUM HARRISII,
HYACINTHS, WHITE ROMAN,
,, EARLY ITALIAN,
LILIUM CANDIDUM,
NARCISSUS, PAPER WHITE,
,, DOUBLE ROMAN,
LILY OF THE VALLEY CROWNS,
&c , &c., &c.

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SEED WAREHOUSE,

152, HOUNDSDITCH, LONDON, E.

TEA-SCENTED ROSES

SPRING CATALOGUE NOW READY,

Containing New French and other varieties, with Descriptive List of

HARDY HERBACEOUS PLANTS,
CLEMATIS,
CHRYSANTHEMUMS, DAHLIAS,
BEDDING PLANTS, &c.,

Forwarded on application to

JOHN CRANSTON & CO.,

KING'S ACRE NURSERIES,

Near HEREFORD.

ANTHONY WATERER

INVITES AN INSPECTION FROM INTENDING PLANTERS TO

THE FOLLOWING TREES,

Having stout straight stems, fine heads, and splendid roots. All have been transplanted within two years:—

ACACIA BESSONIANA, 12 to 14 feet; A. SEMPERFLORENS, 12 to 14 feet; ACER DASYCARPUM, 12 to 16 feet; A. DASYCARPUM WIERII LACINIATA, 10 to 14 feet; A. NEGUNDO VARIEGATA, Standards, 8 to 10 feet; A. LEOPOLDII, 12 to 14 feet; A. REITENBACHII, 12 to 14 feet; A. SCHWEDLERII, 12 to 16 feet; A. WORLEYII, Standards, 12 to 14 feet. ASH, Mountain, 10 to 14 feet. BEECH, Common, 10 to 12 feet; Purple, Pyramids and Standards, 10 to 16 feet. BIRCH, Silver, 12 to 16 feet. CHESTNUT, Horse, 14 to 16 feet. Double White, 10 to 16 feet; Scarlet, 12 to 16 feet; Spanish, 12 feet. ELMS, English, 10 to 12 feet; Guernsey, 12 feet. LIMES, 12 to 16 and 20 feet; Silver-leaved, 10 to 14 feet. LIQUIDAMBAR, 6 to 10 feet. MAPLE, Norway, 14 to 16 feet. OAK, English, 10 to 14 feet; Scarlet American, 12 to 14 feet; PLANES, 12 to 16 feet. POPLAR BOLLEANA, 10 to 16 feet; P. CANADENSIS NOVA (the true variety), 12 to 16 feet; SYCAMORE, Common, 14 to 16 feet; Purple, 14 to 16 feet. THORNS, Double Scarlet, 8 to 10 feet; White, 8 to 10 feet. WALNUTS, Common, 10 to 12 feet.

Weeping Trees.

BEECH, Weeping, Pyramids and Standards, 8 to 12 feet; Weeping, Purple, Pyramids and Standards, 7 to 12 ft. BIRCH, Young's Weeping, Pyramids and Standards, 8 to 14 ft. ELMS, Weeping, Pyramids and Standards, 7 to 14 feet. LARCH, Weeping, Pyramids, 8 to 10 feet. OAK, Weeping, English, Standards, 10 to 12 feet. POPLAR, Weeping, Pyramids, and Standards, 10 to 12 feet. SOPHORA JAPONICA PENDULA, Standards, 8 to 9 feet.

KNAP HILL NURSERY,

WOKING, SURREY.

8 ACRES HERBACEOUS and HARDY PLANTS, true to name, not seedlings (which are generally inferior to the type). Send for a Catalogue of all you want for a garden, free for 3 stamps. It includes over 1000 varieties, selected during 15 years' careful study of this class of plant, and an annual buying in of all that seems good, and a weeding out of the poor kinds, with height, time of blooming, and other useful particulars.

12 Hardy HERBACEOUS PLANTS...	...	£0	4	0
50 ,, ,, ,, ...	...	0	14	0
100 ,, ,, ,, ...	...	1	5	0
500 ,, ,, ,, ...	...	5	5	0

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

DANIELS'

LIST OF

CHOICE FLORISTS' FLOWERS

Our collection of these includes all the newest and most beautiful varieties in cultivation, and Customers ordering from the following list may rely on only the finest sorts being sent. The plants are strong and healthy, and in nearly all instances from single pots:—

Post or Carriage Free at Prices quoted.

	Per dozen.—s.	d.
ABUTILONS, in beautiful variety, to name, 6 for 2/6	4	6
ANTHEMIS PALLIDA, the beautiful hardy Marguerite, 3 for 1s. 3d.	4	6
BOUVARDIAS, in charming variety, 6 for 2s. 6d. ...	4	0
CAMPANULA isophylla alba, beautiful variety for pots, 3 for 1s. 3d.	4	6
COLEUS, the newest and most beautiful, 6 for 2s.	3	6
CHRYSANTHEMUMS, a very large collection, including all the best of the Japanese, Incurved, Reflexed, and Pompon varieties, 2s. 6d., 3s. 6d. and	6	0
CYCLAMEN persicum giganteum, strong seedlings, autumn-sown, 6 for 2s. 6d.	4	6
DAHLIAS, a magnificent collection:—		
,, Show and Fancy, 6 for 2s. 6d.	4	6
,, Pompon, 6 for 2s. 6d.	4	6
,, Cactus-flowered, in splendid variety, including the newest, 6 for 2s. 6d.	4	6
,, ,, Mikado, new, beautiful, terra cotta-fawn, very distinct, each, 1s. 6d.		
,, Single-flowered, 6 for 2s.	3	6
FUCHSIAS, seven superb new varieties, a charming set, 10s. 6d.		
,, beautiful sorts, our selection, 6 for 3s. 6d. ...	4	6
HELIOTROPE, White Lady, splendid for pots, deliciously scented, each 4d.	3	6
MARGUERITES, or Parisian Daisies, in variety, 6 for 2s. 6d.	4	6
,, Cloth of Gold (New), very fine, each 9d., 3 for 2s.		
MUSK, Harrison's Giant, each 4d.	2	6
PELARGONIUM, single-flowered, Zonal, a set of 9 superb new varieties of 1888, 10s. 6d.		
,, ,, very choice sorts, our selection, 6 for 2s. 6d.	4	6
,, Double-flowered Zonal, 3 superb new sorts for 1889, 8s.		
,, ,, in splendid variety, 6 for 2s. 6d.	4	6
,, Double-flowered, Ivy-leaved, magnificent for pot culture. a set of 5 superb new sorts, very fine, 10s. 6d.		
,, ,, ,, most beautiful sorts, 6 for 2s. 6d. ...	4	6
PENTSTEMONS, in beautiful variety, 6 for 2s. ...	3	6
PHLOXES, Herbaceous, very fine sorts, 6 for 2s. ...	3	6
PETUNIAS, New Double Fringed, superb named sorts, 6 for 3s. 6d.	6	0
,, Double White (alba maxima), each 9d., 3 for 2s.		
,, ,, Crimson King, each 6d., 3 for 1s. 3d.		
STREPTOSOLEN JAMESONI, beautiful plant for pots in the greenhouse, each, 9d., 3 for 2s.		

DANIELS BROS.,

TOWN CLOSE NURSERIES,

NORWICH.

FERNS—FERNS—SUCCULENT PLANTS.—Twelve lovely Greenhouse FERNS, good growers, fine habit for rooms or Greenhouses, 6s. or 9s.; small Ferns for planting in Rockeries &c., indoors, for fancy pots for table, 4s. per dozen; 12 distinct Stove Ferns, the best sorts for general collection, 9s. and 12s.

SUCCULENT PLANTS.—Handsome, singular, fine for pot plants in carpet beds or for contrast with other Greenhouse Plants, 12 varieties, all named, 6s., 9s., 12s., 18s. CATALOGUE of sorts of these and all other plants free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

TO THE TRADE.

ARALIA SIEBOLDII.—Fresh Seed, just harvested. Price per ounce on application.

FERN SPORES (Seeds).—100 choice varieties. List of names on application.

Special LIST of choice Perennial, Biennial, and Florists' Flowers. Seeds for present sowing on application.

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SUPERIOR GRASS SEEDS,

For LAWNS, TENNIS GROUNDS, &c.

Extra Select Mixed Dwarf Evergreen Lawn Grasses, excluding Ryegrass,
Per pound, 1s. 4d., per cwt., 145s.

Extra Select Mixed Dwarf Evergreen Lawn Grass, with a limited proportion of Dwarf Ryegrass.
Per pound, 1s., per cwt., 105s.

These Mixtures are composed exclusively of the dwarfest-growing and finest leaved grasses, and form, in a very short time, a beautiful, velvety turf, of the finest texture and colour.
Delivered Free by Rail or Parcel Post.
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DICKSONS

(LIMITED),

THE ROYAL SEED WAREHOUSE,

CHESTER.

FLOWERS WHICH EVERYONE CAN GROW

and with which Everyone will be Satisfied.

PANSIES.—Very fine fancy varieties, true to name, from our famous collection, 4s. per dozen, carriage paid.

VIOLAS.—The best varieties in existence, either for Bedding or Cut Flowers, guaranteed all standard good sorts, 2s. 6d. per dozen (in 12 varieties), carriage paid; 16s. 6d. per 100 (in 25 varieties), carriage paid.

PYRETHRUMS.—Specially strong plants, which will bloom well this summer. Fine named varieties, 5s. per dozen, carriage paid.

PHLOXES.—Our collection is the largest and best in Scotland. Named varieties of the Early or Late-flowering Sections, 4s. per dozen, carriage paid; unnamed, 2s. 9d. per dozen, carriage paid.

DAHLIAS.—Show, Fancy, Single, Pompon, and Cactus. Only the best varieties grown. These always give unqualified satisfaction. Cuttings, 2s. per dozen, carriage paid; strong plants, in May, 5s. per dozen, carriage paid.

NOTE.—One dozen of each of the foregoing (five dozen in all), correctly named, and well packed, will be sent, carriage paid, for 20s. Descriptive CATALOGUE on application.

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NEW CATALOGUE for 1889.—Near 130 large pages, with prices, descriptions, useful cultural and other hints, of near 7000 of the best species and varieties of plants for the Stove, the Greenhouse, or the Flower Garden, also list of all necessary Sundries; in short, everything wanted for a garden, free for 3 stamps.

SEED CATALOGUE of the finest new and the most reliable old varieties of Vegetables or Flowers, free for 1 stamp.

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The finest, most varied, choice, and interesting Collection in the Trade.

1400 species and varieties of Stove, Greenhouse, & Hardy Ferns.

Partially descriptive CATALOGUE free on application.

Illustrated CATALOGUE (No. 21), containing 120 Illustrations, and much valuable information on the Cultivation of Ferns, 1s. 6d. post-free.

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SHIRLEY POPPY.

NEW and very lovely; invaluable for Table Decoration. No garden should be without this charming flower. Sow at once. 1s. per packet.

THOS. BUTCHER, Seed Merchant, CROYDON.

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Selection of the above, from Borneo, Manilla (Philipines), Bangkok, Java, Rangoon (Burmah), &c., to the extent of £5 and upwards, packed and shipped (at consignee's risk) on receipt of order with remittance. Address,

THE ORCHID NURSERY,

UPPER WILKIE ROAD, SINGAPORE.

Special care given in packing.

NEW VARIETIES ALWAYS ON HAND.

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beg to announce that their LIST of the above is now ready, and will be sent post-free on application. Specially worthy of note are

MARCHIONESS OF LORNE, H.P. (Wm. Paul & Son).—Plants ready in May, 10s. 6d. each.

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WHITE PERLE, T. (sport from Perle des Jardins). Plants ready in May, 5s. and 7s. 6d. each.

THE QUEEN, T. (white sport from Souvenir d'un Ami). Plants ready in May, 5s. and 7s. 6d. each.

The collection also includes other new Roses (English and Foreign) for 1889, and all the best new Roses of 1888.

WM. PAUL AND SON have also a fine stock of the leading older varieties of Roses in pots, for planting out for garden decoration and cutting, 10s. 6d. to 15s. per dozen, £4 to £5 per 100.

Rose Growers by appointment to Her Majesty the Queen,
WALTHAM CROSS, HERTS.

EVERGREENS.

HARDILY-GROWN. STOCK UNEQUALLED.

Special Prices, with Catalogue, Post Free.

DICKSONS —The— Nurseries CHESTER.
(Limited.)

VEITCH'S
CHOICE FLOWER SEEDS.
The Finest in Cultivation.

AMARYLLIS, VEITCH'S HYBRID.
Saved from the magnificent collection grown at our Chelsea Nursery. Per packet, 2s. 6d.

CALCEOLARIA, International Prize.
Unsurpassed for size, shape, and substance of flowers. Per packet, 2s. 6d.

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Saved from our unequalled collection of all the finest varieties; likely to produce many new beautiful sorts. Per packet, 2s. 6d.

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Flowers of large size, circular form, great substance, and most brilliant colours. Per packet, 2s. 6d.

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Saved from the magnificent collection grown at our Chelsea Nursery. Per packet, 2s. 6d.

PRIMULAS, VEITCH'S.
Red, White, and Mixed.
These are the finest in cultivation, and were awarded a First-class Certificate by the Royal Horticultural Society for superior quality. Each, per packet, 2s. 6d.

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BARR'S
BEAUTIFUL, NEW, HARDY
DAFFODILS.

CUT SPECIMEN FLOWERS
CAN NOW BE HAD, CORRECTLY NAMED.

12	Fine Named Sorts,	1 Flower each,	3/6
12	,, ,,	3 Flowers each,	9/6
25	,, ,,	1 Flower each,	6/-
25	,, ,,	3 Flowers each,	15/-
50	,, ,,	1 Flower each,	11/-
50	,, ,,	3 Flowers each,	30/-

Sent carefully packed, free by post, with Descriptive Catalogue.

SEEDS, BULBS, PLANTS.

BARR & SON COVENT GARDEN LONDON

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THE

Gardeners' Chronicle.

SATURDAY, APRIL 27, 1889.

SKIMMIAS.

DURING the past winter the general interest in these beautiful berry-bearing shrubs was revived by the exhibition at the Royal Horticultural Society and elsewhere of a very fine new variety by Mr. Foreman, of Eskbank, under the technically inappropriate name of Skimmia Foremani. The name was inappropriate according to Mr. Foreman's own showing. He gave the history of the plant as a cross effected by himself by the pollen of S. fragrans out of S. oblata. Obviously then the plant had no right to a Latin specific name, and the Royal Horticultural Society added one more to its many breaches of the rules laid down by itself for the proper nomenclature of plants certificated by it. Had the plant in question been simply called Foreman's variety, or Skimmia "F. Foreman," no rule would have been violated, no confusion could have occurred, and the records of botany would have been encumbered with one useless synonym the less. Breaches of this kind are of such constant occurrence among horticulturists that they are well nigh as common, if not more so, than are the observances. Nevertheless, on principle, it is as well to raise a protest against the Society for its laxity in these matters. No blame attaches to Mr. Foreman, who, as an individual, has a right to call his plant what he chooses, the error of confirming an inappropriate name rests with the registrar—in this case, the Royal Horticultural Society. Be all this as it may, the production of Mr. Foreman's beautiful variety and the circumstances connected with it brought us a shoal of letters, and not a few specimens, among the latter being, in particular, some from Mr. Rogers, of Southampton, different from Mr. Foreman's, but not less beautiful, so far as could be judged from cut specimens. The letters and specimens revealed the usual confusion of nomenclature, made more intricate in this case by the circumstance that the plants are, in

some instances, unisexual, in others the sexes are mixed in various ways, while different names have been applied to different sexual conditions of one and the same species.

In the hope of being able to clear up some of these obscurities, we were induced to look into the history of the subject, and to examine all the specimens, living and dried, that we could lay our hands upon. We have to thank numerous correspondents who furnished us with specimens, and, if we do not here mention them individually, we trust they will consider the abstention arises from the same cause that induces the statement "no cards" to be appended to the public announcements of weddings.

The history is simple enough now that it is cleared up, but the process involved a good deal more labour and research than is evident on the surface. The very first stage in the history is marked by an error on the part of two very distinguished botanists, an error which, as it seems, might have been avoided, had the native country of the plant in question been considered.

As a matter of fact, the plant universally known in gardens as Skimmia japonica, and so considered by Sir William Hooker and Dr. Lindley, is not japonica at all, and for aught we know at present, does not occur in Japan, although it is likely enough that it will eventually be found there.

Next, the plant (female) described in these columns by our late friend and colleague, Mr. Thomas Moore, as Skimmia oblata, is none other than the true S. japonica of Thunberg, and later of Siebold and Zuccarini. So far we feel quite sure of our ground, and we can substantiate our opinion; but now come certain names, such as fragrans, fragrantissima, rubella, intermedia, described by Carrière, on which we hold strong opinions, but of the correctness of which we cannot in all cases offer proof. As demonstrable, then, we repeat that there are two species in gardens, the one generally called japonica, but which has no right to the name, the other oblata, which is the true japonica. As highly probable (and indeed in some cases attested by the raisers), we hold that the other names alluded to represent varieties which are either seedlings, cross-breds, or true hybrids.

In discussing these matters we may pass over the Himalayan S. laureola, which is, though nearly allied to, and often confused with, the Japanese species, distinct from it. It has a bad smell, a tender constitution, and finds no favour with cultivators—all good reasons why we should not trouble ourselves with it here. For the rest it will be convenient to follow the order in which the plants were first made known.

1. Skimmia japonica, *Thunberg* (not of gardens) = *S. oblata*, Moore.

This is a Japanese plant, originally described by Thunberg in 1784, and subsequently by Zuccarini in Siebold and Zuccarini's *Flora Japonica*, t. 68 (1835).

Comparisons of the fresh specimens with the figures and descriptions just cited, with the illustrations in Japanese books, and especially with native Japanese specimens in the herbaria, leave no doubt at all that the plant called S. oblata in English gardens is none other than the female of the true S. japonica, a species characterised by its separated sexes, its berries flattened at the top and bright red, but subject to much variation from the cross fertilisation that must inevitably ensue owing to the construction of its flowers. In fact, the evidence we now have goes to show that many of the garden varieties of these are sexual forms of this species.

The flowers of the wild Japanese plants in the herbaria are what is botanically termed "polygamous" or "polygamo-dicœcious," which, being interpreted, means that the flowers, so far as their sexual organs are concerned, exist in several modifications:—(1) hermaphrodite and male flowers may exist together on the same plant; or (2) the plant may bear male flowers only; or (3) it may produce female flowers only.

It must be remembered that a flower even if possessing within the same envelope stamens and pistils, and which is consequently structurally hermaphrodite, may not necessarily be — indeed, generally is not, functionally so. The pollen is not utilised on the stigma next adjacent to it, but is conveyed by insects to the stigma of another flower, or if, as must frequently happen, it falls on its neighbouring stigma, it produces no effect, because that stigma has not arrived at maturity so early as the pollen. All these facts are now well known, and they were very readily observable in the flowers of Skimmias, wild as well as cultivated, from various sources, that we have examined. In short, we have in Skimmia a very similar condition of the flowers to that of the common Holly, and it would be as reasonable to consider all the forms of Ilex aquifolium (the common Holly) in cultivation as species, and to confer upon them corresponding specific names, as it would be to bestow the badge of the same rank on the several forms of Skimmia. Unfortunately, in the latter case, specific names have been given to some of these "forms" before their legitimate claims were investigated, and their true nature ascertained.

We use the word "form" as a convenient one, precisely because it does not predicate any particular rank. A term of this description, purposely vague, and indefinite in its application, is often a great convenience, because it asserts nothing, need mislead no one, and has not to be unlearned in the increased light of fuller knowledge.

To show the amount of variation in the sexual characteristics, we may cite the following facts:—

In twenty-six flowers taken at random from separate garden plants we found the arrangements as follows:—In four specimens the flowers had each four stamens only; in two, there were five stamens only; in nine, there were four stamens and as many pistils; in one, three imperfect stamens and four pistils; in one, five stamens and three pistils; in four, five stamens and four pistils; in five, five stamens and as many pistils. Of course, the number of flowers examined is much too small to afford a trustworthy average, but it is sufficient to indicate the general character of the variation. It shows, for one thing, that one character relied on to separate the Himalayan Skimmia with five, from the Japanese with four petals and stamens is of no great value.

Another curious point seems to be indicated, and that is a co-relation between the vigour and size of the flower, and the reddish tint and hairy edges of their coverings, and these are precisely the flowers in which the pistil is more markedly developed, those, in fact, which (if duly pollinated) are the most likely to produce fine berries. The evidence for or against this co-relation requires to be more fully investigated than we have been able to do. We merely allude to it as a promising field of observation.

The true S. japonica of Thunberg, was introduced from Japan by Fortune into the nurseries of Messrs. Standish and Noble, of Bagshot, and was, as we have said, named S. oblata by Mr. Moore in 1864. In the Kew herbarium are Japanese specimens of both male and female plants from Fortune, and in the same institution is a drawing, apparently made for Mr. Moore, and from which our illustration fig. 90, p. 524, has been copied. The seedling variations of this plant differ from one another in stature, in the colour, shape, and texture of their leaves, the size and degree of branching of the inflorescence (the male being generally much more branched than the female), see fig. 89, p. 521, the dimensions of the flower, the size, form, and colour of the berry, to say nothing of the sexual characteristics before alluded to.

2. S. Fortunei, *Masters* (S. japonica of Hooker, Lindley, and of gardens, not of Thunberg).

This is the plant first introduced into gardens in 1849, and is distinguished from the foregoing in its origin (China, not Japan) by its dwarfer habit, lanceolate leaves of a very dark green colour, its invariably hermaphrodite flowers, its tendency to produce berries of a dull or dark crimson-red colour and obovate form, and by its seeds pointed at both ends. It is the plant introduced by Fortune, described by Lindley, *Gardeners' Chronicle*, 1852, *passim*, and in Paxton's *Flower Garden*, and figured by Sir William Hooker in the *Botanical Magazine* in 1853, t. 4719, and from which our illustration (fig. 91, p. 525) is taken. The colour of the leaves and berries is, however, not well represented in the Magazine figure, while their size is greater than we are accustomed to.

Concerning this plant, Mr. Noble has obligingly furnished us with the following reminiscence, which entirely bears out our opinion:—

"Skimmia japonica (hort.) was introduced from China by Mr. Fortune, and sent over under the name Ilex spec. Honan. I am unable to give the dates [1849], but the facts I am quite certain about. Only one plant reached England alive, and grew freely after it had recovered from its voyage. When it flowered I took up a small sprig to Dr. Lindley at 21, Regent Street; he looked at the specimen, and smilingly said, 'Well, 'tis not a Holly, certainly;' to which remark I assented. 'It is a new genus,' he continued; 'I must examine it.' I may mention that in those days a considerable amount of enthusiasm pervaded the horticultural world, and my charge of Fortune's introductions always ensured me a welcome from Dr. Lindley. In a short time Dr. Lindley pronounced the plant to be Skimmia Laureola, a native of the Himalaya. Meantime, Fortune's plant produced crimson berries. I interviewed Dr. Lindley again, and after a few days he said, 'Your plant is quite new, and is Skimmia japonica!' Now comes this difficulty: If Skimmia japonica, how did Fortune get it in China, for he had at that time never set foot in either Japan or the Himalaya? However, the plant was duly propagated and sent out, I believe, in 1852, and the presumption was that the Chinese had obtained it from Japan. I am under the impression that it was a cultivated plant when found by Fortune, but of this I cannot be quite certain; I believe, also, that we obtained Skimmia Laureola, and grew it until it was proved to be so entirely uninteresting that it was thrown away; at any rate I can recall nothing about it further. At that time we (Standish and Noble) had never imported anything from Japan or the Himalaya, and Skimmia japonica stood alone, no other species was heard of, as far as I know, and there has never been any question of sexual difficulty, but always abundant flowers of the sweetest description, followed by a plentiful crop of fruit.

Then came Fortune's visit to Japan, and the introduction of Skimmia oblata, but of this I know little, as I had then separated from Standish; I remember, however, that he exhibited a plant which was nicely berried, and afterwards sold plants which, I presume, were seedlings. I heard nothing of Skimmia fragrans or fragrantissima or Skimmia mascula or fœmina, nor do I think anything can be found about them in the records of that time, but I remember that soon after S. oblata had been sent out complaints were heard that it would not fruit. I was myself much disappointed, and, indeed, have never had a good specimen, so I conclude that most of the plants were seedlings which had assumed this disappointing character. I wonder if the original plant of Skimmia japonica is still alive? It was bought for five guineas by the late Mr. G. Bohn, Twickenham. To the non-scientific eyes Skimmia japonica (China) and S. oblata (Japan) seem two distinct plants, bearing about as much relationship one to the other as the peccary and the wild hog.

I have never known S. japonica (of gardens = Fortunei) fail in setting its fruit by thousands.

I have never known S. oblata (the true japonica) set its fruit, except in a most fugitive way, and of the original plants purchased no two appear alike. *Chas. Noble.*"

On this letter of Mr. Noble's some comment is necessary. The resemblance of the Chinese and specially of the Japanese Skimmias to the Himalayan one is close, especially if dried specimens alone be examined, but the living plants are considerably different, and the evil smell alone, of S. Laureola, suffices to distinguish it; indeed these differences were insisted on by Lindley and others in our columns in 1852, p. 183. As, therefore, the Chinese plant grown as japonica is not referable to that species, it

must necessarily have a name, and we therefore propose to call it S. Fortunei. We ought to state that there is no wild specimen in the herbarium from Fortune or, indeed, from China at all, nor is it mentioned in Messrs. Forbes and Hemsley's enumeration of Chinese plants, and but for Fortune's own statement there would be no decided evidence of its Chinese origin. Fortune's own account, which has generally been overlooked, is naturally of the greatest importance. It is to be found in *Gard. Chron.*, 1852, p. 739. Here we learn from the introducer himself that he met with the plant in 1848 in a nursery near Shanghai, and that it was introduced to England by him in 1849. The Chinese nurseryman from whom he obtained it stated that the plant was brought from a high mountain in the interior called Wang Shang. Fortune dilates upon the beauty and hardiness of the shrub, and its distinctiveness from



Fig. 89.—SKIMMIA JAPONICA, SEEDLING MALE FORM = FRAGRANS OF GARDENS. (SEE P. 520.)

S. Laureola, the Himalayan plant. Fortune's plant was exhibited at the Horticultural Society's Rooms, 21, Regent Street, on October 23, 1852, when the Knightian medal was awarded it, and the plant, in popular parlance, made a great sensation. *M. T. M.*

(To be continued.)

SKIMMIA.—Did you ever hear of a "hybrid" between a bull and a cow? If you didn't, you may see something quite as absurd in your own columns at p. 709, 1888, in which Skimmia Foremanni× is spoken of as a "cross" between S. fragrans and S. oblata! I thought every tyro in gardening knew that these were the two sexes of one plant. I have grown the two together for the last ten years, and you have actually figured the resultant berries in your own columns! So much for this "welcome addition!" And the Floral Committee of the Royal Horticultural Society, too! Proh pudor!

New or Noteworthy Plants.

BAMBUSA TESSELLATA, *Munro*; AND BAMBUSA VEITCHII, *Carrière*.

In my list of new, or newly recorded garden plants of 1888, published in the *Kew Bulletin* for this month, I have stated that Bambusa Veitchii is the same as B. tessellata. I regret to find that this is an error, into which I was led by a statement of General Munro's.

In October, 1887, a type specimen of Bambusa Veitchii was brought to the Kew Herbarium from Messrs. J. Veitch & Sons, Combe Wood Nursery; this specimen I immediately recognised as being identical with specimens collected by Mr. Maries and Mr. Bisset in Japan. To Mr. Bisset's specimen Gen. Munro has appended the following note:—"Bisset's 1254 is Arundinaria kurilensis, Rupr., and my memoir, p. 17, also Schmidt Reisen, in *Amurlande*, p. 198. As, however, I find that the flowers contain six stamens, it must be removed to Bambusa. It is, I believe, Bambusa tessellata, Munro, Monogr. 110 = B. reticulata var. macrophylla of Ruprecht = B. Ragamowski of gardens, and I think very probably B. senanensis, Franchet and Savatier, p. 182." On another specimen of this plant, received from the St. Petersburg Herbarium, and named Arundinaria kurilensis, Rupr., var. paniculata, General Munro has written, "Perhaps Bambusa senanensis, Franch. and Savatier, and B. tessellata, Munro; and B. Ragamowski of gardens." From the above, I was led to believe that as General Munro had himself thought the plant to be the same as his B. tessellata, I was justified in referring it to that species, although at the time I could not find Munro's own specimen of B. tessellata. Now, however, a specimen from his herbarium, named by himself B. tessellata, is laid in the Kew Herbarium; this specimen is not the type of B. tessellata (which was founded on some leaves of a Bamboo used by the Chinese for packing Tea in), but is from a plant cultivated as B. Ragamowski. Some leaves of the Bamboo which the Chinese use for packing certain kinds of Tea in, have, however, been procured, and these seem to be identical with the specimen of B. Ragamowski named by Munro B. tessellata, and also with B. Ragamowski as grown at Kew; they also agree admirably with the original description of B. tessellata.

On comparing B. Ragamowski with B. Veitchii, there can be no doubt that they are two distinct species, and that General Munro was in error in supposing Mr. Bisset's plant, and Arundinaria kurilensis, Rupr. var. paniculata, Schm. (which are certainly the same as B. Veitchii), to be the same as B. tessellata (B. Ragamowski).

I have seen no flowering specimen of B. tessellata neither had General Munro, so far as I can discover, so that the genus of this plant is as yet only conjectural, and I do not find any mention of it under the name of B. Ragamowski in Rivière's *Les Bambous*.

Of B. Veitchii, however, there are several flowering specimens in the Kew herbarium, and I find, on dissecting them, that whilst the stamens are generally six in number, yet in three flowers (buds) I found only five stamens, and in one bud only four stamens. These were probably exceptional cases, for there can be little doubt that six is the usual number of stamens for this plant. But although this character taken alone would place this plant in the genus Bambusa, yet the general character of the inflorescence is not at all like that of Bambusa, but is exactly the same as that of Arundinaria, to which genus, in spite of the character of the six stamens, I believe this plant should be referred, as has already been done by Schmidt. It appears to me, however, that it ought scarcely to be considered as a variety of A. kurilensis, as the leaves are so much broader and more distinctly tessellated, and the inflorescence has much longer peduncles, and is much more lax, the branches of the panicle being longer, the spikes narrower and somewhat linear, and not "oblong-obovate" as described for typical A. kurilensis; the spikelets also appear to be smaller, and not so closely placed to each other. Taking all these differences into consideration, I think this plant should be held as specifically distinct from A. kurilensis, I would therefore propose for it the name of Arundinaria Veitchii.

From this point of view the synonymy of the two plants concerned in this note will be as follows:—

Bambusa tessellata, Munro, in *Transactions of the Linnean Society*, vol. 26, p. 110 (1868).

B. Ragamowski, Wheeler, in the *Gardeners' Chronicle*, 1876, vol. 6, p. 847; see also vol. 7, p. 50 (1877).

Arundo Ragamowski, Lambert, MSS. ex Wheeler in the *Gardeners' Chronicle*, 1876, vol. 6, p. 847.

Native of China.

Arundinaria Veitchii, N. E. Brown.

A. kurilensis, Rupr. var. paniculata, Schmidt, *Reisen im Amurlande*, p. 198.

Bambusa Veitchii, Carrière, in *Revue Horticole*, 1888, p. 90.

B. palmata, *Hort. Latour-Marliac.*

Native of Japan and Sachalin Isles.

With respect to Bambusa senanensis, Franchet and Savatier (*Enumeratio Plantarum in Japonia sponte crescentium*, vol. ii., pp. 182 and 606), I am unable to refer it to either of the above satisfactorily, as I have not seen an authentic specimen, and can only judge of it by the description, which does not seem exactly to accord with the Kew specimens of the above plants. Mention is made of a variety albomarginata, Franch. and Savat., which may possibly belong to Arundinaria Veitchii; but this is purely conjectural. *N. E. Brown, Herbarium, Kew.*

*

THE DAFFODIL ROT.

Mr C. Wolley Dod's letter on the above subject, at p 459, while conveying the reverse of good tidings for lovers of Daffodils generally, also teaches a valuable lesson, which is, never to plant Daffodils on cold, heavy, badly drained soils—without doubt the worst that can possibly be selected for many other things of a bulbous character besides Daffodils.

Happily I have no knowledge, at present, of the disease referred to, which seems to be of a rather exceptional nature, and for which Mr. Walker's system of annual lifting might appear the best preventive. Has Mr. Dod ever tried planting the diseased bulbs—I mean such as are only slightly affected—on very sandy soils? This, with annual or biennial lifting, and the addition of an abundance of burnt earth to the existing soil, might lessen the evil, which appears to have its foundation in the soil. I have known pallidus præcox from the Pyrenees disappear in a rather mysterious manner after three years' standing in one soil; but in this case the bulbs have become less by degrees, and upon examination proved to be wasting rapidly, and to be probably but one half the size as when planted. Galanthus Elwesi disappears in the same mysterious manner in some soils.

Since reading Mr. Dod's remarks I have had a search among our Daffodils, and have examined a few that have distorted stems, premature buds, or discoloured leaves, but in each case the bulbs have been perfectly sound, and have an abundance of healthy roots; but whether anything more serious would have resulted had these bulbs remained undisturbed I cannot say. One thing, however, appears obvious, that the bulbs so affected could not possibly perfect the same healthy bulb and flower for another year, as might have been expected from healthy vigorous foliage. The kind thus affected was the double form of Telamonius, though it would appear to have no relation to the disease to which Mr. Dod refers. In our case the foliage is yellow, the discoloured portion extending only to just beneath the surface of the soil. While searching for any signs of disease I found some leaves evidently attacked in a similar manner, but in a more advanced stage, thickly set with a dull coloured powder, which floated in the air upon being touched.

Another form of disease which affects a great many Daffodils is a dry-rot, which makes its appearance after the bulbs are lifted and dried, and which extends to even the commonest kinds in a greater or less degree, while Emperor, Empress, Stella, Princeps, Ard Righ, and Spurius, generally suffer most; but these, if detected in time, and planted immediately, the bulbs are saved, and mostly always recover quickly. Its cause also is still unexplained, though samples have been sent to experts on the Continent and at home. The principal symptoms are a brown, dry, decayed base at first, which if left alone becomes soft and rotten, in which case they are best burnt out of the way.

It would be interesting to know whether in Mr. Dod's case the Daffodil rot is more severe than usual this spring; if so, the cold sunless season of 1888 may have had something to do with it, as many Daffodils last year were tardy to ripen at all. *J.*

—— Last week I wrote to complain of the Daffodil rot, which had attacked, and nearly destroyed, certain varieties of Ajax Daffodils at Edge. I now draw attention to one or two special features of the present flowering season, which, I think, ought to be placed on record. All the Incomparabilis section are flowering remarkably well. I attribute this to the cross of N. poeticus which they contain. All the varieties of Narcissus poeticus like strong moist soil, and suffer in dry seasons. Not only are the flowers of the Incomparabilis kinds unusually large and healthy, but the orange tint of the crown, which is so desirable a feature in some of the varieties, is more conspicuous this season than I have ever seen it, extending in some varieties to the very base of the crown. I have a great many of the earliest introductions of what are called Leeds varieties, though I have lost the names of some. I can undertake, however, to say that some varieties which before have never shown any tint of orange in the crown—at least, in my garden—are this year brightly coloured with orange. It has been generally thought when the varieties which usually show orange in the crown have failed to do so, that the failure was owing to want of sun, either in the ripening season or the flowering season; but last season we all know to have been the worst ripening season for many years, and for the last three weeks we have hardly seen the sun until yesterday (April 18). It would be interesting to know whether this prevalence of orange crowns has been observed in other gardens. Here it is not confined to one or two situations, but appears everywhere. A Daffodil called Nelsoni aurantius, which when first introduced had an orange crown, afterwards disappointed many gardeners. I do not think I have this kind here, but perhaps some one can tell us whether it has recovered its colour.

Some other Daffodils are flowering this year better than ever before. One of them is Queen Anne's Daffodil, called Capax, or Eystettensis; another is the citron-coloured Hoop Petticoat. Both of these I have in many parts of the garden, so that the circumstance is due to season, and not to soil or situation. The Oporto white Triandrus, of which I have had for four seasons many clumps under a south wall, is also flowering very well. It is perhaps worth while to mention these results, after the very unfavourable weather of 1888 during the early summer, which is thought to be the critical time upon which the flowering of the next spring chiefly depends. *C. Wolley Dod, Edge Hall.*

MR. WILSON'S GARDENS AT WEYBRIDGE AND WISLEY.

It is nine years since I had the pleasure of spending an entire day with Mr. Wilson in his gardens, and a record of that visit was published in the *Gardeners' Chronicle*, vol. xiv., n.s., p. 10. At that time I fancy the old garden at Gishurst Cottage was more cared for than it is now. An arrangement of rocks and stones had been made for hardy rock plants; now the stones are moss-grown—indeed, there are traces of age all over the place. The famous orchard-house trees have aged decidedly; many of them remind one of those queer old gnarled trees one sees in some Japanese drawings; but they have done good service in past years, and at the time of my visit many were in blossom, others were bristling with fruit buds. The orchard-house is light and airy, and the trees are close to the roof, and they will undoubtedly be furnished as usual with a plentiful crop of fruit. At the extreme end of the garden a bank of evergreen shrubs has been planted, and a large bed of Pernettyas, which have made wonderful growths, and will require to be replanted again soon, so as to give the plants more space. These plants have showy fruits, which are conspicuous during the autumn and winter months, when the bushes are full of white, rose, purplish, scarlet, black, and other coloured berries. The old garden would not be itself without the Lilies. A number of the best species and varieties are still grown in pots in the Lily-house; but the most remarkable examples of Lily culture are those growing in a wood adjoining the garden. Surely no such plants are to be seen elsewhere as those in the six large beds in the Pine wood. The old stems are there to testify to their robustness, some being as thick as walking canes, and one had a height of 11 feet. The question may well be asked, How is Lilium auratum grown to obtain such remarkable results? The old soil has been dug out to a depth of 5 feet, and the beds for the bulbs have been made up with good loam, leaf-mould, and peat, and the soil is quite free and porous, so that the feet sink into it. The old stems are left uncut, and the ground is thickly covered with the leaves of Oak and other trees. The strong shoots are now pushing up through this covering, a large proportion of the old stems still remaining.

Mr. Wilson obtained his gardening experience at first hand, preferring the teaching of Nature to any other. The tree leaves form the best of all coverings, and the old stems naturally gather and retain them about the latter and over the spot where the bulb lays. Gardeners have not, as a rule, patience to wait until the stems of such plants as Lilies decay before they cut them down or pull them out of the bulb, and this last method is the worst, as a hole is left in the soil and in the bulb itself, into which the rain and melting snow find an entrance, causing perhaps decay.

In the "wild garden" at Wisley, Lilies form also a great feature, and, as at Weybridge, they are left in the same place year after year. L. Hansoni seems to be one of the most vigorous species, as it is also one of the most distinct and handsome.

The strain of Primulas grown here is well known, and they are found in thousands and of all colours. Blue colours in Primulas are the most difficult to obtain, and the purplish-blue Scott Wilson, one of the first, was obtained many years since, and was the first decided break in this direction. It is now surpassed by another—Alice Wilson—whose colour is a kind of deep blue, the centre being yellow.

There are some beautiful varieties of the Primrose of the Polyanthus type, with rich, orange-yellow flowers—pretty forms, which have been selected from the thousands which are raised yearly from seed. These selected ones are planted by themselves, and from these again the next group of seedlings is obtained, and another progressive step made. Auriculas seem to grow almost as well as the Primroses in the wild garden—the alpines particularly; but some of them have not yet taken kindly to their new home. It takes time to find out the right position for each particular species; some of them, like our own Bird's-eye Primrose, succeed best on spongy bog, others on dry mountain loam; and in respect to soil and situation for particular plants, Mr. Wilson is accumulating a mass of useful information, which must be of great future value to him. For instance, a species of Gentian had been planted close to the side of the water, another plant of the same further removed, and one more still further up the bank. The plant farthest removed from the water was the healthiest. The charming little species, G. bavarica, was growing almost in the water, and was well established there. The distinct and beautiful varieties of G. acaulis, collected by Mr. Scott Wilson in Switzerland, have also become well established, and if seeds can be obtained from them, more of the same class might be obtained.

The varieties of Hepatica triloba, red, white, and blue, do well on the let-alone system. The soil and position of the plants in the wild garden seem to suit them admirably. The double blue has established itself firmly, and some of its clumps were producing numerously, large flowers. The double red will grow in any garden; not so the double blue, which will always be a scarce plant. There are many varieties of the single Hepatica, especially the pale blue.

The plan of planting a genus of plants, composed of many species, on mounds of earth and rock is a good one. Here, for instance, is a well contrived habitat for the Dianthus family; another position has been selected for Saxifragas, another for Cyclamens, &c. All, or nearly all, of these plants do best in sunny spots, but the Saxifrages are likely to suffer in hot weather in summer, if they do not get a good supply of water at the roots. Indeed, this applies to all alpine plants; even the succulent Sedums will give the best results, if grown in moist soil.

Daphne Blagayana was very pretty, being in full flower. The masses of Chionodoxa Luciliæ, and the variety sardensis, were very lovely; so also were the various species and varieties of Scilla. Sisyrin-

chium grandiflorum, purple, and the pure white form of it, are charming border flowers at about the end of March or early in April. Mr. Wilson is also trying some half-hardy plants in the wild garden, amongst them Iris fimbriata. Todea superba was in capital condition, under a slight glass protection; and protected by slabs of rock, some Ferns, usually grown in hothouses, had passed safely through the winter, amongst them Pteris serrulata, Adiantum cuneatum, and Lygodium palmatum.

A great feature here in July and August must be the masses of the Iris Kaempferi planted close to the margin of the water. It may be observed, too, that the old leaves of these plants are best left alone, for the new ones will push through them, and if they are cut off in the spring it is not easy to avoid mutilating the young growing leaves. *J. D.*

PLANT NOTES.

PROTEA NANA.

This is one of the prettiest of the Proteas, and it is now in flower in the Cape-house at Kew. It is 15 inches high, and has numerous branches clothed with linear Pine-like leaves, 1 inch long and bristle-tipped. The flower-heads are terminal, nodding, cup-shaped, and 2½ inches across; they are composed of small imbricating scales at the base, the upper ones larger, and forming the cup, which encloses the pappus-like cluster of flowers; the colour is deep crimson. There is a figure of this species in *Smith's Exotic Botany*, vol. i., t. 44, which was published in 1804, where, however, it is called P. rosacea. It does not appear to have been well known in the early days of this century, when Proteas were favourite garden plants in England, and of which numerous figures are found in the *Botanical Magazine* and *Andrew's Botanical Repository*, published during that period. Altogether about twenty-five species were in cultivation, and that they were mostly really beautiful plants may be seen by a glance at the plates in the volumes in question. They are scarcely known now in English gardens, but at Kew there are half-a-dozen species to be found, and the largest flowered of these, viz., P. cynaroides, will be in flower at Kew shortly. Most of the Proteas are as easy to grow as the Camellia; they may be propagated from cuttings, and they flower annually; besides this they last in bloom for several months.

P. speciosa, with large cups 4 inches long, composed of brown bracts margined with black and fringed with tufts of white silky hairs; P. latifolia, equally large, but coloured rose-red, with a conspicuous fringe of white hairs; P. pulchella, P. canaliculata, and P. virgata would create a sensation if some one could show them in flower at one of the meetings of the Horticultural Society. They are all natives of South Africa, where P. mellifera is known as the sugar or honey plant, owing to the copious secretion of honey-like nectar found in the flower-heads. *W. W.*

DROSERA CISTIFLORA.

Whatever popularity Droseras have in gardens is due to their wonderful insectivorous propensities, and not to any particular floral or foliar beauty. There is of course the beauty of adaptability in the character and structure of the foliage for the purpose of attracting, trapping, and practically devouring insects, all of which is described and explained in Darwin's *Insectivorous Plants*. In Drosophyllum we have a plant with pleasing yellow flowers, but owing to its "miffiness" under cultivation, one rarely meets with it. But the last addition to cultivated Droseras is a really beautiful flowering plant, and as it appears to be as easy to cultivate as D. capensis and the other Cape species it promises to become a valuable addition to greenhouse herbaceous plants. Miss North, to whose travels and insight we are indebted for many very fine new garden plants such as, for instance, Nepenthes Northiana, Boronia heterophylla, Protea cynaroides, &c., has also been instrumental in bringing this Drosera under the notice of English horticulturists. Her picture of it in the gallery at Kew caused great excitement and some doubt among those who saw it and knew something of Cape Droseras. But Miss North had dried specimens to show, as well as the picture, and there was no getting over these. Shortly afterwards seeds were obtained, but these, although they germinated freely, did not come to anything. Then Miss North procured roots of the plant, and these after about a year's treatment have developed into flowering plants, one of which was sent to Kew in bud, and is now in flower. Miss North had desired the plant to be exhibited at the last meeting of the Royal Horticultural Society, but unfortunately the flower was not then open. An illustration has been prepared for the *Botanical Magazine*. "Drosera cistiflora, Linn., as far surpasses our native species in the size and colour of the flowers, as our cultivated Pelargoniums do their wild ancestors in South Africa. On the other hand the foliage is so like that of our long-leaved species as to be apparent to the most casual observer." This is the catalogue note to the picture painted by Miss North. In another picture a white-flowered variety of D. ascitiflora is represented. It is a little surprising that a plant which appears to be common enough at the Cape should have remained practically unknown so long. Burman, in his curious old book on African plants, published in 1738, has a poor figure of this Drosera, and apparently this is the only publicity the plant has had. The specimens in the Kew Herbarium have not more than a single flower on each stem, but in Burman's picture there are two.

The plant now at Kew, which Miss North has presented to the gardens, is 5 inches high, has ten leaves each 2 inches long by one-eighth of an inch broad, and covered with short reddish glandular hairs, as in D. capensis. The flower-stalk is erect, 1½ inch long, and the flower is cup-shaped, nearly 2 inches across, the five petals being obovate, concave, dentate on the upper edges, an inch long, and five-eighths of an inch broad. Their colour is bright poppy-scarlet. The stamens are short and clustered in the centre of the flower, the anthers being yellow. The stigmas are somewhat remarkable; there are six of them, and each has a thin hair-like stalk half an inch long, curved downwards on to the petal, the branched apex pressing hard and springy; they are grass-coloured. The flower closes in the evening and in dull weather.

The development of a large bright-coloured Drosera in a region like the Cape, where the other species of Drosera have small unattractive flowers, is a question for those naturalists who delight in finding a reason for everything. Horticulturists will find most pleasure in cultivating the plant for the sake of its beautiful flowers. *W. W.*

RANUNCULUS CORTUSÆFOLIUS.

A gigantic Crowfoot, from the Canary Islands, with long-stalked, and slightly hairy-cordate leaves—from 15 to 18 inches in diameter, by about 12 inches from the cordate base to the apical lobe—they are three to five cleft, or lobed, the segments being deeply toothed, and incised. The flower-stem leaves are much smaller, nearly stalkless, and not so deeply cut as the radical ones. The inflorescence is a much branched corymbose head of bright yellow flowers, thirty or more in number, and rising over 3 feet high. The flowers are typical of the order, five small sepals alternating with the five petals which are large and spreading, slightly cuneate and crenate at the apex, also a deep notch on the side of many of the petals—a clear shiny yellow, with the glistening appearance characteristic of the common Crowfoots; they are about 3 inches in diameter, and sweetly fragrant, and when the sun is on the plant its fragrance can easily be detected several yards away—indeed, so powerful is it, that a single specimen is capable of perfuming a moderately large greenhouse. The plant is said to be a native of Teneriffe, and consequently it is not likely to be quite hardy in this country, but no doubt slight protection either outside or in a frame would be sufficient. The subject of this note is growing in a 10 inch pot in a greenhouse, and was received from Lord Harrowby—who some half-dozen years ago, collected the plant in Madeira, and since then he has cultivated it in his gardens at Landon, Stone, Staffordshire. To those that are fond of interesting plants this giant Crowfoot has much to recommend it, and its cultural requirements are few. After flowering, keep the plant well supplied with water, to ripen the seeds and to encourage the young growths; in summer the plants are best placed out-of-doors, and any potting required should then be done, and for that purpose any loamy soil will be suitable. Very possibly the plant may be in other gardens in this country, and it would be interesting to know whether it has proved hardy or not. *F. Ross.*

NITROGEN OF VEGETATION.

Having considered in a previous article (p. 269) Sir J. Lawes' and Professor J. H. Gilbert's evidence by direct experiment as to whether the higher plants or soils by the agency either of micro-organisms or otherwise, fix the free nitrogen of the atmosphere, we pass on to consider the various modes of explanation adduced.

GAINS OF NITROGEN.

(*a.*) That combined nitrogen has been absorbed from the air, either by the soil or by the plant.

(*b.*) That there is fixation of free nitrogen within the soil by the agency of porous and alkaline bodies.

(*c.*) That there is fixation by the plant itself.

(*d.*) That there is fixation within the soil by the agency of electricity.

(*e.*) And, finally, that there is fixation under the influence of micro-organisms within the soil.

The balance of evidence recorded is considered, however, by the authors to be undoubtedly in favour of the last-mentioned mode of explanation, and that unless there be experimental error, it is pretty clear that there is fixation in the soil, under the influence of micro-organisms or other low forms.

LOSSES OF NITROGEN.

Much of the investigation that has been undertaken in recent years has been instigated by the assumption that there must exist natural compensation for the losses of combined nitrogen, which the soil suffers by the removal of crops, and for the losses which result from the liberation of free nitrogen from its combinations under various circumstances.

The loss by cropping, under the usual conditions of more or less full periodical return by manure, is estimated by the authors to be about 20 lb. per acre.

The loss by drainage, however, is much greater, and in some cases considerable. There may also, under some circumstances, be loss from the soil by the evolution of free nitrogen. Such loss may take place in the manure heap, or in soil very heavily manured, as in market gardening. But in ordinary agriculture such excessive manuring seldom takes place. Loss may also take place when the soil is deficiently aërated. But the balance of evidence is against the supposition that there is a constant and considerable loss by the evolution of free nitrogen from arable soils, which are only moderately rich in organic nitrogen, and which are fairly drained, either naturally or artificially.

A COMPENSATION FOR SOIL EXHAUSTION.

Whether we consider, say Lawes and Gilbert, the facts of agriculture generally, or confine our attention to special cases under known experimental conditions, the evidence does not favour the supposition that a balance is maintained by the restoration of nitrogen from the large store of it existing in the free state in the atmosphere. Further, our original soil-supplies of nitrogen are, as a rule, due to the accumulations by natural vegetation, with little or no removal, over long periods

of time; or, as in the case of many deep subsoils, the nitrogen is largely due to vegetable and animal remains, intermixed with the mineral deposits.

The agricultural production of the present age is, in fact, so far as its nitrogen is concerned, mainly dependent on previous accumulations; and, as in the case of the use of coal for fuel, there is not coincident and corresponding restoration, so in that of the use or waste of the combined nitrogen of the soil, there is not evidence of coincident and corresponding restoration of nitrogen from the free to the combined state.

In the case of agricultural production for sale, without restoration by manure from external sources, a very important condition of the maintenance of the amount of nitrogen in the surface soil, or of the diminished exhaustion of it, is the growth of plants of various ranges and characters of roots, and especially of leguminous crops. Such plants, by their crop-residue, enrich the surface soil in nitrogen.

It is, as a rule, those of the most powerful root-development that take up the most nitrogen from somewhere; and this fact points to a subsoil source. But independently of this, which obviously might be held to be only evidence of the necessity of obtaining water and mineral matters from below, in amount commensurate with the capability of acquiring nitrogen from the air, the experimental results at Rothamsted can leave little doubt that such plants obtain, at any rate, much of their nitrogen from the subsoil.

Inherent Fertility of Soils.

Bearing in mind, however, the very large store of already existing combined nitrogen, especially in subsoils, it is important to consider in what way or in what degree this store may contribute to chlorophyllous vegetation?

There is, in the first place, the question whether the roots of some plants, and especially those of certain deep and powerfully rooting Leguminosæ, whose root-sap is strongly acid, may either directly take up organic nitrogen from the soil and subsoil, or may attack and liberate it for further change, the nitrogen so becoming more available.

Again, so far as is known, the fungi generally derive their nitrogen largely, if not exclusively, from organic nitrogen. In the case of those of fairy rings, for example, there can be no doubt that they take up the soil organic nitrogen, which is not available to the meadow plants, and that, on their decay, their nitrogen becomes available to the associated herbage. In the case of the fungus-covering observed by Professor Frank on the roots of certain trees, it is to be supposed that the fungus takes up organic nitrogen, and so become the medium of the supply of the soil-nitrogen to the tree. More pertinent still is the action of the nitrifying organisms in rendering the organic nitrogen of the soil and subsoil available to the higher plants. It may well be supposed, therefore, that there may be other cases in which lower organisms bring the organic nitrogen of the soil and subsoil into a more available condition, whilst it seems not improbable that the growth and crop-residue of certain plants favour the development and action of special organisms. *J. J. Willis, Harpenden.*

FRESH SOIL AND SODS FOR CUCUMBERS.

The rage for maiden soil is at times and in places carried to great excess. Early in March the writer saw a house planted with Cucumbers. The loam that formed the major portion of the compost was so full of sod that the grass had smothered the young Cucumber plants, the latter looking rather poor and needy under and among the long grass. Examining the roots somewhat closely, those of the Cucumbers were conspicuous by their absence, while the roots of the grass seemed to possess the surface of the inverted sods. Thus the freshness of the loam seemed to defeat the purpose of the Cucumber grower. The first object of the most successful cultivator of these is rapid root growth, not only in, but through and over the surface of the compost. Give me a few roots run over the surface and frequent top-dressings, and I will almost ensure rapid and profitable production in long succession of tender, sweet Cucumbers; but apart from roots, and especially surface ones, produce becomes problematical or scarce. If this be so—and no experienced Cucumber-grower will controvert it—it follows, as a matter of course, that the soil or compost that favours root production the most will prove the best and the most profitable. Hence the vital importance of the inquiry, whether fresh or ripe—that is, mellow soil—fosters and feeds root-growth the most, and this soonest. Science and practice agree in answering, ripe or mellow soil. The feeding capacities of most soils or composts is in the inverse ratio of their freshness, and for this all-sufficient reason—that plants cannot absorb either fresh soils or rank manures. Decomposition is the only key that can unlock the myriad storehouses of plant-food laid up by Nature and provided by art. There



Fig. 90.—Skimmia japonica, female = oblata of gardens: copied from a drawing made from the plant as first exhibited: berries bright red, leaves pale yellowish-green. (see p. 520.)

are few more ample, or better filled with plant food, than our wide fields of maiden loams. But while in their natural state they may be able to support good crops of grass or grow sweet hay more or less abundantly, if it is desired to concentrate their foods into a limited area within a short period of time, science and experience would alike suggest that some previous cooking or preparation may be needed. The best, cheapest, and simplest of all preparations is the lapse of time, to enable partial and slow decomposition to set the plant-food free, and present it in such changed forms that the living roots of Cucumbers and other plants may be able to absorb and convert it into their own substance and products.

All this seems to have been better understood by our fathers than by the present race of cultivators. Doubtless, many of the old gardeners carried the practice of compost-making to ridiculous extremes; their mixtures were far too complicated, their constituent parts absurdly multiplied, and their mixings and compoundings too numerous; but the principle that underlies their empirical mixtures—and compoundings—was sound and philosophical. It may be briefly described in a sentence, thus the ripening and enriching of plant food to such a degree and in such modes as to render a maximum amount of it available for any given crop in the shortest possible time.



Fig. 91.—Skimmia Fortunei = japonica of gardens: leaves dark-green: berries dull crimson. (see p. 520.)

Seldom or never did the crops of our forefathers perish within sight and smell of rich stores of plant-food, while that food was preparing for their use. The compost heaps were to them what the fires and stew-pans are to the cooks in the kitchen. They brought the food into such tempting chemical and mechanical conditions, that the plants perforce and from choice could not do otherwise than at once eat abundantly and be filled thereby.

No doubt a good many of the old composts were too rich and overcharged with a plethora of food. Almost my first recollections of a compost heap was one formed bread-and-butter fashion"; thus, two-thirds of turfy loam, the turves being 3 inches thick, sandwiched with one-third of cowdung. This after being stirred for two years, formed a stingo compost for the rapid growth of Cucumbers, Melons, Grapes, Pine-apples, and many other plants. Now in such stimulating food or dressings plants ran no risk of semi-starvation which they often do, even though being grown in soils and manures too fresh to be utilised as food. Some years ago I was called in to advise in a case of striking failure in the growth of Cucumber culture by express. Everything at first sight favoured success. Heat, moisture, general treatment seemed all that could be desired. But just as the fruit bloomed they seemed to be smitten with a sort of withering blight, and made little or any more progress.

After careful investigation it was found that the fresh loam was incapable of supporting the plants under the unusual strain of express culture, though top dressings of Melon composts, frequent waterings of liquid manure, formed by soot and fowl's dung, and a drop of temperature from 85° to 65° furnished the plants with sufficient food, and gave them more time to utilize it. With more food in an immediately available form, and more time for its assimilation, the plants recovered their lost vigour, and gradually attained to abnormal fertility. Long before these fresh supplies of food were exhausted, decomposition had tapped the reserved mercurial forces of the maiden loam—and the plants and their products were as it were doubly fed—with the happy results of enormous crops throughout the season.

Fresh maiden soils were doubtless the natural rebound from antiquated composts, hoary with age, close in texture, and crammed all too fully with an excess of over-rich foods. While there is no desire to return to these, the question may well be considered—whether more satisfactory results might not often be reaped in less time were our plant-foods applied in more immediately available conditions. It is not enough that the food and the plants are brought together. The more vital question is, can the plants absorb or assimilate the food in crude form presented to it. In many cases they cannot, and while the food is preparing the plants are starving, as was the case with the Cucumber plants referred to. To say that most of us would starve in the presence of raw meat and uncooked vegetables is greatly to understate the case. For most of us would, and all could, eat these, and also assimilate enough to keep us alive. But plants are physically and structurally incapacitated for the absorption or utilization of rank food until it is mellowed by age or prepared for their use by decomposition. *D. T. F.*

Lycaste.—An excellent article on these plants accompanied by a coloured illustration of L. Skinneri var. delicatissima, is given in the current number of the *Revue de l'Horticulture Belge*. It is the work of Count De Kerchove, who passes in review the several species, and their appropriate method of culture.

INDOOR AQUATIC PLANTS.

(Continued from p. 492.)

Nymphæas.—These are very accommodating plants, and may be grown in any plant stove in small pots plunged in fresh water; indeed, even where there is a regular aquatic house, pots are to be preferred for them to planting them out, as they flower more freely, and ripen their tubers better. In tropical Nymphæas we get many colours, varying in shades from white, red, blue, and yellow. The two best yellows are found in N. flava, a North American species, with neat, rather small flowers and foliage; it is tolerably hardy, and to flower it well the offsets, which it gives off in abundance, should be kept picked off; it is a plant difficult to keep over the winter, not going so completely to rest as some others. N. marliacea chromatella is a recent introduction; it has a bolder flower than flava, but it is only yellowish in colour.

Of white forms there are many in cultivation, viz., N. Lotus, N. l. dentata, one of the freest, both in growing and flowering; N. ampla and N. thermalis are desirable species.

Of reds there are N. l. rubra, N. Devoniensis ×, and N. kewensis ×.

In blues there are a great many species, varying considerably in depth of colour. One of the most striking is N. gigantea, which is said to produce leaves in its native habitat (the Australian lagoons) nearly 2 feet across. I have never heard of them approaching to that size in this country, but it is a very distinct and desirable species. Moreover, it opens its flowers in the day, and closes them at night; thus it behaves similarly to our hardy N. alba. And as the opposite of most of the tropical species, which close in the daytime, and open only at night, or in very dull weather; N. Daubeneyana × behaves in a similar manner.

N. stellata is a free growing blue, with many fine varieties, of which are N. s. cyanea and N. s. zanzibarensis, with its reddish-blue flowers—a splendid variety, N. scutifolia differing but little from stellata, unless it be in the slightly larger flowers.

Nymphæas are easily raised from seeds, which should be sown early in the season, and where there is the convenience of a warm tank, flowering plants may be raised in one season, but unless in raising new sorts it is unnecessary to trouble with seedlings, as tubers are generally produced in plenty. In starting the tubers in spring we have frequently potted them in small pots, and transferred them to their flowering pots later on, with excellent results. The system is useful where there is only a limited space of heated water.

A rich loamy compost suits them admirably; and should greenfly put in an appearance, fumigation with tobacco must be done. Keep the plants well syringed.

Another interesting stove aquatic is Eichornea azurea (see *Gardeners' Chronicle*, p. 16, Vol. xxv., 1886), a beautiful plant, producing spikes of lovely blue flowers from the axils of the leaves of the stem or floating leafy rhizome. As growth is rapid, and as the flowers come only near the growing point, it is often a necessity to shorten back the plants, which is easily done by cutting off the points of the shoots and repotting the plants in 32's. It will flower well for about five months. A plant very similar in flower but very different in habit is Pontederia crassipes (see *Gardeners' Chronicle*, p. 113, vol. xxv., 1886). The inflated leaf-stalks float the plant, evidently with the object of enabling it to travel in search of nutriment, for when it is planted in soil the swollen leaf-stalk disappears, and if the conditions—temperature, light, &c., are favourable, the plant will flower. It is easily propagated from the offsets, which are freely produced.

Other interesting small floating aquatics are Trianæa bogotensis, with its thick inflated leaves arranged in little rosettes; the Water Lettuce (Pistia stratiotes) has leaves in erect rosettes, 3 to 5 inches long and 2 to 3 inches broad, light green and cuneate; Azolla pinnata, a minute floating plant, which, when grown in a cool temperature, assumes a nice red colour, may be grown in any water-tank out-of-doors. These last three increase freely from offsets, and are very useful for furnishing small aquaria. Their flowers are inconspicuous.

Salvinia natans is perhaps the most curious of these small aquatics, the two flattened leafy-like processes have a peculiar punctated appearance, rendering the plant very dissimilar; its reproduction is somewhat different to the others, in summer it grows and multiplies freely enough—vegetatively—but on the approach of winter it produces spores, and the plant dies; when the spores are getting mature the plants should be put in shallow pans, filled about half full of loam, so that when the plant dies the spores will remain in the soil, which must be kept moist in winter. These on being introduced to heat and moisture in spring germinate, and the plant for a time goes on again multiplying itself. Another very pretty, nearly hardy aquatic, with slender trailing stems, thickly covered with finely divided feathery-like leaves—is Myriophyllum proserpinaloides. It is easily propagated from cuttings inserted in the ordinary way—in small pots, and stood in water it will soon make nice decorative masses. There are many other aquatics well worth including in a full collection—but the plants mentioned are amongst the most distinct. A plant of recent introduction—Sagittaria montevidensis—is well worth growing where space can be afforded it. It somewhat resembles a gigantic form of our native Arrowhead. *F. R.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM VILLOSUM, *Lindl. var.* AUREUM.

A splendid form of this variety is now in flower in the collection of Mr. Tautz, Studley House, Shepherd's Bush. The flower is not so large as it sometimes is, but the colour appears to me brighter and clearer than usual. The upper sepal is of a bright light greenish-yellow, veined with reddish-brown at the base and with a narrow white border. The petals are bright golden yellow, the upper longitudinal half being stained with light purplish-brown, and having a darker purple-brown midline. The lip and staminode are entirely of a bright yellow. All the colours are very bright and clear. *N. E. B.*

Phaius maculatus.

Regarded as a foliage plant, this is probably the most effective of cool Orchids, and is well worth growing on that account alone. Its broadly lance-shaped pointed leaves are 12 to 18 inches long, and deep green freely marked with roundish bright yellow spots. As the young leaves are formed before the old ones decay, the plant preserves its ornamental appearance throughout the year. The flowers, too, are very beautiful. The broad, rounded sepals and petals are of a soft yellow, the basal part of the lip being of a deeper shade, while the front is streaked profusely with rich reddish-brown. The spikes are quite erect, two feet high, with eight to twelve flowers towards the top, each of these being over two inches across. This Orchid should be grown in turfy loam and peat, with a small amount of silver sand added. Water should be given in less quantity after growth is completed, but being evergreen, it is not well to keep the plants quite dry, especially as no difficulty is experienced in getting them to flower. A fine plant is flowering now in the cool house at Kew.

There is an unspotted form of this species in cultivation which I have seen under the name of P. gracilis. It is identical with P. maculatus, except in the absence of spots on the leaves. Both are natives of Northern India. *W. B.*

Tetramicra minuta, *Rolfe*, n. sp.

This is a tiny species, a sort of miniature edition of the pretty and well-known T. bicolor; the whole plant, pseudo-bulbs, leaves, and flowers, barely 2 inches high. A specimen has been received from Messrs. James Veitch & Sons, of Chelsea, to whom I am also indebted for a view of the entire plant. Although so small three flowers were borne by the plant, and, judging by appearances, a large and well-bloomed tuft might easily be accommodated in a space about the size of the top of a tea-cup. The leaves are short, fleshy, and acute, proportionately stouter than in T. bicolor, and brownish-green in colour. Peduncles erect, slender, 1-flowered, about 2 inches long. Bract sheathing, ovate, acute Sepals oblong, subacute. Apex reflexed, 3½ lines long, nearly white. Petals narrower, oblanceolate-linear, not reflexed. Lip equalling the sepals and petals, 3-lobed; front lobe broadly orbicular, slightly emarginate, white with a rosy-purple disc; side-lobes rounded, convolute, white. Column short and stout, white, faintly suffused with rose, apex a pair of small acute teeth. Stigma margined with pale rose. *R. A. R.*

Dendrobium dixanthum.

Although not new, it is rare to meet with a good specimen of this pretty Moulmein Orchid. The large clear yellow flowers, in sprays of from two to five, springing from the slender pseudo-bulbs, render it attractive enough to be included in small collections. Several good examples of the plant are now in bloom in Mr. Wm. Gordon's Nursery, Amyand Park Road, Twickenham, where a specially good collection of Dendrobes is kept, many of which are now in flower or bud. *J. O'B.*

CULTURAL MEMORANDA.

AMARANTHUS SALICIFOLIUS VAR. SPLENDIDISSIMA.

This half-hardy annual is a charming plant of pyramidal growth. The leaves are willow-shaped, linear, and wavy, from 7—15 inches in length. In the later stages of growth the leaves are brilliantly banded and tipped with various colours—orange, light red, and bronze. Seed may be sown in light sandy soil, and covered lightly and placed in a hotbed or forcing pit. When the seedlings are large enough to be handled, they should then be pricked out into boxes or pans in a soil consisting of three-parts of light sandy loam and one of leaf-mould, giving a little water to settle the soil about the roots of plants, which should then be returned to heat and shaded from sunshine until the roots have taken to the soil. When getting crowded in the pans, pot them off singly into 3-inch pots, and treat as before. A. Henderi is also well deserving of being cultivated in 3-inch and 4½-inch pots for decorative purposes. *H. W. Ward.*

THE APIARY.

There is a very interesting account of the Rev. John Dzierzon in the *British Bee Journal* for April 18. This gentleman is a Roman Catholic priest, and has reached the age of seventy-eight. He has been a beekeeper ever since he was a boy, and his father was one before him. He has made remarkable experiments at various times with bees, and as a consequence has not only greatly increased his own knowledge, but has given it to the world in the shape of an excellent book in the German language. This book was translated into English several years ago. Mr. Dzierzon discovered that the queen bee can lay eggs, which will hatch into drones without pairing. This statement met with great doubt for some years, and procured him many enemies. These enemies afterwards turned into friends when they discovered Dzierzon was right, and the occurrence of parthenogenesis is now universally accepted. He proved that the queen lays two kinds of eggs, which produced three kinds of bees. Without pairing it can lay drone eggs, but it requires the assistance of the drone (or male) to lay worker eggs. These same eggs also produce queens when specially treated by the bees. As in the case of many other insects, the pairing of the bees occurs high up in the air on a warm, quiet day. A very curious performance this act is. The

queen and drone wheel about in circles, and ultimately they wrench themselves apart by twisting in opposite directions, the consequence being that the drone is mutilated, and then falls to the ground dead. The queen flies back to the hive, and she never leaves the hive again except to accompany a swarm. Honours have been heaped upon Dzierzon by many of the sovereigns of Europe, and while we write, he is a hale old man, doing nothing but attending to his bees. His holy office he has long since resigned on account of ecclesiastical troubles.

It is very probable that many hives have been lost this winter because the queens were unable through wet weather last summer to take their wedding flight. From one cause and another bees are very scarce, and the beekeeper will do well this year to strengthen and increase his stocks. *Bee.*

Plants and Their Culture.

Propagation of Stove Flowering Plants.—If increase is required the old stock plants of Poinsettias may be started for the supply of shoots for cuttings, and the soil be well watered and the plants frequently syringed. Cuttings may be taken when the shoots are two or three inches long and with a heel, inserting them, singly or otherwise, in small pots, in a sandy compost, and which should be put into a hotbed and kept shaded for a few days.

Plants struck last year may be shaken out of the soil and repotted, and if afforded bottom heat they will make useful plants for early autumn uses.

Plumbago rosea, and P. coccinea may now be propagated, if that has not been done; and the stock of Euphorbia Jacquinial flora may be increased by taking cuttings, as advised for Poinsettias, and allowing them to dry at the ends for a short time before putting them into the cutting pots. Species of Justicia and Eranthemum may still be propagated.

Any other winter flowering plants may be propagated, and as soon as possible, in order to obtain strong plants this season.

Plants in Flower.—Anthuriums will now be in full bloom, and when damping down care must be taken to keep the spathes dry, and shade them from the bright sun, so that their beauty may endure; the plants of Jasminum Sambac, and J. gracillimum, which flowered early, should now be encouraged to make growth, and to that end liquid manure should frequently be afforded them. If cuttings are required, take strong shoots with a heel, and propagate them in a warm frame. These are free-blooming plants, and very effective if well grown and kept free from red spider and thrips.

Gloriosas, started early, which have filled their pots with roots, may now be afforded weak liquid manure occasionally, and as they are liable to be infested with the first-named insect, it is well to syringe them daily whilst they are growing. If the plants are trained on a trellis, they should be removed to a rather cooler and drier house as they come into flower, so as to prolong their beauty.

The whole of the Gesneras should now be attended to, the tubers carefully shaken out of the soil, and repotted in a compost of fibrous peat, a little turfy loam, leaf-mould, and plenty of coarse, clean sand, and they should receive water with care until the new roots have taken to the soil. Give the plants a light place, so that growth may be sturdy.

Aphelandra aurantiaca and A. Roezlii should now be making good progress, and should be kept free from scale and mealy-bug. Some of the older plants may be cut back to a couple of buds, and started into growth; others should be kept dormant, so that a succession be kept up. The seedlings of this season should be afforded a place on shelf close to the glass.

Another sowing of Torenias may be made; the plants raised from this sowing will be valuable in the late summer if grown in small pots. Another sowing of the useful Impatiens Sultani should now be made; these will make succession plants for late autumn decoration when other flowering plants are growing scarcer. The plants will not require so much pot-room as plants previously raised. The young seedlings need careful handling in the early stages, and plenty of heat and moisture. A hotbed suits them well if the shading is carefully done.

A small sowing of Gloxinias at the end of the month will be found serviceable, the plants from it producing a quantity of bloom in small pots all through the late autumn months.

Attention should now be paid to the repotting of Calanthes, as these will now have commenced to grow. In repotting the pseudobulbs, we use yellow turfy loam that has been stocked for some months, some decayed dry cow-manure, and charcoal broken up into pieces about the size of a Walnut. A small quantity of peat should be added if the loam is of a clayey nature. The plants should never be syringed overhead, and be always carefully watered till the pots are full of roots. *G. Wythes, Syon House, Brentford.*

The Orchid Houses.

Evergreen Terrestrial Orchids.—In many places the handsome pure white Calanthe veratrifolia will be sending up its spikes strongly, if it be not already in flower. Formerly it was a leading exhibition plant, and when well done it forms a telling object in a group. With it may be associated Calanthe natalensis, still a very rare plant, with large heads of mauve flowers, which change to yellow with age; C. curculigoides, yellow; C. Masuca, purplish rose; C. Dominii, lilac and purple; C. furcata, white; C. pleiochroma, mauve; C. Textori, white, with orange spot on the lip; and others of like growth. My object in naming these species is to call attention to the fact that they thrive well only when kept shaded. There are many of these plants languishing in sunny houses, and producing only small unsightly leaves, and no flowers, or very poor ones, which would rapidly become robust and floriferous if potted into a compost consisting of about two-thirds turfy yellow loam broken up by hand, with a layer of crushed bones placed on top of the crocks, and the plants afterwards placed under the shade of the taller plants in an ordinary plant stove or warm Orchid house, a liberal supply of rain water being afforded them. The same remarks apply to Phajus tuberculosus, P. Henryi, and P. Humblotii, which have been, fortunately, again imported recently, as well as to the handsome old Phajus Wallichii, P. grandiflora, P. Blumei, and other plants of the same habit.

Unhealthy plants should be repotted at once, but where the plants are really vigorous the repotting should be done a few weeks after flowering, unless it be decided to let them remain over till another year. *J. O'Brien.*

Fruits Under Glass.

Peaches.—As soon as the fruit is gathered from the trees in the early house, the wood which has borne fruit should be removed, training in the young shoots, to supply the bearing-wood for next year. The shoots should only be lightly tied into their places, thinning them out where they are too close together, and stopping those which are too robust, and exposing the wood as much as posible to the sun. A thorough syringing will be of benefit after the late dry treatment afforded the trees during the ripening period, and if a little soft-soap and sulphur be mixed with the water it will be still better. After this time a small quantity of soot or clear manure-water may be mixed with the water used for syringing the trees, an operation which should be done regularly night and morning in fine weather. The borders should be thoroughly moistened, using manure-water if the trees are old ones, clear water only if the trees are young and vigorous, and a free circulation of air by day and night should be kept up when the weather is not unfavourable.

Later Houses.—Pinch off the laterals, and expose the fruit to the sun in houses where it is ripening, and maintain a free circulation of air, looking over the trees twice a day to gather any fruits which may be fit, and storing them in a cool room, instead of fixing nets underneath the trees for them to drop into.

Houses in which the fruit is swelling should be syringed twice a day, and the borders efficiently watered; carry out former instructions, and keep a sharp look-out for red-spider, especially on foliage which may be near the hot-water pipes. The weather has been the worst I have experienced in the Midlands for fruit, or, indeed, any kind of forcing. The trees in the late house will now have set their fruit; give them a heavy syringing to clean their leaves, continuing this regularly night and morning when fine. Disbud the shoots at regular intervals, and thin out the fruit gradually. A fumigation will most likely be necessary, and where the trees are in pots, great attention must be given to the watering of them, examining them two or three times a day in bright weather. *W. Bennett, Rangemore, Burton-on-Trent.*

The Hardy Fruit Garden.

Treatment of Strawberries.—The plants which have been forced and after fruiting were placed in a cold frame should now be planted out, and if they are infested with red-spider or mildew, giving them a dipping in a mild mixture of Gishurst Compound before turning them out of the pot. The ground should have been well prepared by trenching and manuring some time since, and should now be hoed to loosen the soil and destroy weeds. After this is done, a good coating of soot should be strewn over it, and the ground firmly trodden, especially if it be light; then rake it over and plant the Strawberry plants at 2 feet between the rows, and 1½ feet from plant to plant. If dry, before turning them out of the pots water the plants thoroughly, and shake away some of the soil from the roots, and disentangle them, and in planting make the soil about them very firm with a potting-stick; give water to settle the soil, and mulch with short manure. Some varieties, especially the Vicomtesse Héricart de Thury, will produce a fairly good crop of fruit in autumn, and to prolong this supply, if space is available, some plants should be planted in cold frames, so that the lights may be placed over them to ripen the fruit when the proper time arrives.

Fig Trees in cold districts, when much protected, assuming that the materials used have been gradually removed, should now be pruned. The knife should be used sparingly if the trees are inclined to grow strongly, and care should be taken not to remove much of the short-jointed wood. If the roots are confined to a narrow border, see that the border and the roots are in a thoroughly moist state; and if the border is well filled with roots, manure-water may be applied occasionally throughout the summer. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

Seeds to be Sown.—The main crop of Carrots should now be got into the ground, although good Carrots may also be secured by sowing in May. Those seeds which were in a former Calendar recommended to be sown in pots for planting out must be carefully watered until such times as the absence of severe frosts will allow of their transference to the open ground. The last sowings of Broccolis should now be made; also Kales for planting out after the early Potatos. Make a successional sowing of Cauliflower; sow Spinach twice in a month; and New Zealand Spinach may be sown in pots and reared on mild hotbeds for planting out when it is safe to do so. A fair substitute for Spinach, will be found in the leaves of Spinach, Silver or Seakale Beet, and a small quantity of each may be sown, and if the plants get frequent applications of manure-water during the growing season, the leaves will be but little inferior to true Spinach.

Seeds of Scorzonera, Salsafy, Whitlof Chicory, and Dandelion should be got in at once. The ground for these must be deeply trenched, and should have been manured for a previous crop; or if that cannot be done, the manure should have been placed at the bottom of the trenches.

Lettuce ought to be sown fortnightly. Lettuces under protectors should have abundance of air, and some weak manure-water occasionally, being careful not to let any of it touch the leaves. Cabbage Lettuces are in favour with some persons, while preference is given to the Cos varieties by others. To have the latter well blanched they must be tied up with bast a week or more before being eaten.

Radishes and small saladings should be sown frequently. The seed for the main crop of Celery may now be sown, and seedlings raised earlier pricked off into frames in which early Potatos were grown, or under similar shelters. In the former the soil should be removed, and a layer of 2 inches of coal ashes placed on the manure, to be followed by a similar layer of half decayed leaves, and finishing off with a light compost 1 inch thick. By so carrying out the work good masses of roots will be secured. Give every attention to watering and airing the earlier plants, so as to secure a stocky growth in them. Sow a small quantity of Australian, American, and Normandy Cress. *W. M. Baillie, Luton Hoo, Beds.*

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THE GARDENERS' CHRONICLE,

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, May 2—Linnean Society.

SHOW.

TUESDAY, April 30—Royal Botanic of Manchester, and, in conjunction, National Auricula Society's (Northern Section.)

SALES.

TUESDAY, April 30—Orchids in Flower, at Protheroe & Morris' Rooms. Greenhouse Plants, Carnations, Picotees, &c., at the City Auction Rooms, by Protheroe & Morris.

WEDNESDAY, May 1—Roses, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms. Collection of Succulent Plants of the late J. T. Peacock, Sudbury House, Hammersmith (two days), by Protheroe & Morris.

THURSDAY, May 2—Established and Imported Orchids, at Stevens' Rooms.

FRIDAY, May 3—The First Portion of the Collection of Orchids formed by C. Dorman, Esq., Sydenham, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—51°.

The Rose Conference.

The schedule of the great Rose Conference to be held next July, under the auspices of the Royal Horticultural Society, at Chiswick, provides classes for Roses practically of every kind. The summer-flowering Roses are handsomely provided for, and it may be hoped that the collections asked for of these denizens of the Rose gardens of an elder day may be the means of bringing into prominence not a few old-world varieties of interest that have been lost sight of of late years. There must be innumerable gardens in which some of these old-fashioned Roses have escaped destruction; but there is the danger of amateurs thinking that because they only possess a few Roses of any particular class, that therefore it is not worth while to take them to Chiswick; or else that, because they themselves have long been familiar with some variety, it is not likely to be of interest to other growers.

It would seem reasonable to anticipate that many old garden Roses should be found in the North, where it is conceivable that they might longer have held undisputed sway, in consequence of the undesirability, owing to climatic conditions, of introducing varieties supposed to be more tender and more delicate in constitution. For instance, the numerous and fine bushes to be seen in the neighbourhood of Edinburgh of the beautiful Celestial Rose, and the thickets of Damask Roses that may still be found in Lancashire, are only examples of survivals that are probably not infrequent, and amongst which there might be much of interest.

The importance of Rose species in the garden is twofold. In the first place there are many that are themselves very decorative garden plants: and, secondly, not a few species are playing a prominent part in the production of garden varieties of Roses, originating fresh types and groups, and constantly extending the Rose raiser's field of operations. This dual aspect is recognised in the Chiswick schedule, in which there appears a class for collections of single Roses of decorative value, and though, of course, this may include varieties of garden origin, still of such there are so few comparatively in cultivation that the class will mainly consist of various species, while another class is provided for species irrespective of their value as ornamental garden plants, and no doubt will bring together many Roses of great botanical interest, amongst which raisers will do well to look for any that are characterised by valuable qualities, such as complete hardiness, immunity from mildew, continuity of blooming, or the possession of conspicuously beautiful or evergreen foliage, with a view to imparting these desirable properties to garden varieties by means of hybridisation.

It is to be hoped that the informal nature of the exhibition will be the means of securing an effective display of what, for lack of a better term, are generally described as garden Roses. It is most unfortunate that this expression should, among so many growers, have come to be considered a term of reproach! To the mere exhibitor it simply means that a Rose so described is not available for exhibition, and may consequently be ignored; and it is a fact that, unless a Rose is generally exhibited, it hardly ever becomes generally known. Nevertheless, there are among these little known Roses many which have been introduced some considerable time, and which are invaluable decorative garden plants, in spite of their individual flowers not being up to the exhibition standard. That they might be made effective subjects for exhibition there is no doubt; but the method of staging them would need to be a much bolder one than the horribly conventional system of displaying solitary blooms at regular intervals over a uniform surface.

Of course, convenience must always be a potent factor in determining all arrangements in exhibiting, especially when flowers have to be conveyed long distances by train; and to stage many garden Roses effectively so as to show their character, they would have to be put up in long-stalked bunches, which could not be safely conveyed to the exhibition except in boxes having lids some 2 feet deep, and thereby likely to prove unduly cumbersome in railway travelling. The objection perhaps would not apply to the case of growers living sufficiently near to be able to drive to the show ground in their own vans; and considering how easily accessible in this way Chiswick is to many probable exhibitors, the opportunity should be seized to make a bold attempt to stage collections of Roses not generally exhibited in competition for prizes, but nevertheless valuable as decorative garden varieties, in an unconventional and effective manner.

It would be immensely interesting if the Conference could be the means of obtaining reliable information as to the exact amounts of cold, which, with other concomitant conditions, such as position, locality, nature of the previous season, &c., have resulted in the destruction of particular Roses, whether individuals or classes; or, on the other hand, to what amount of cold they have been exposed, and under what conditions, without being destroyed. At present, a great absence of precision characterises what little information there is recorded on this subject, which is nevertheless one upon which the making of accurate observations should present no insuperable difficulty.

It would probably be useful if it were found practicable to lay down some definite rule in regard to the names of garden varieties of Roses, especially as to dispensing with unnecessary prefixes. The plan adopted by the National Rose Society is a good one, but it needs to be made public. At present the inconvenience of no plan at all being followed in most trade catalogues is considerable. An amateur admires, perhaps, Etienne Levet or Eugénie Verdier, but may hunt in vain for either in many a catalogue under the letter E, little thinking that what he is looking for is hidden under the clumsy appellation Monsieur E. Levet or Mademoiselle E. Verdier. Baroness Rothschild even is sometimes found under letter M, as Madame la Baronne Adolphe de Rothschild; and well-known catalogues have been guilty of the absurdity of printing the names and descriptions of Duchesse de Morny and La Duchesse de Morny, as though they applied to two different and distinct Roses.

The botany of the Rose is sure to figure prominently at the Conference, and it may be hoped will arouse the interest of Rose growers to a greater extent than has hitherto been at all generally the case. A knowledge of the species is invaluable to the raisers of Roses, and now that so many of the species themselves are recognised as decorative garden plants, they ought no longer to be unknown to anyone. Again, there are the structural arrangements of the flower and their manner of growth, subjects about which the majority of rosarians know absolutely nothing, although the variations they so greatly admire are entirely dependent on them.

Views at Heckfield.—In our supplement are represented views in the garden and park at Heckfield Place, Winchfield, Hampshire. The upper one shows a pleasing prospect on the upper lake showing the large Rhododendrons, and indicates considerable taste and judgment on the part of the late Lord Eversleigh in regard to the planting of the shores and island. The lower view is that of a fine border of hardy herbaceous plants, for which Heckfield, under the able management of Mr. Wildsmith, for many years has acquired a notoriety equal to that enjoyed for bedding out. The idea of putting an arched trellis over a path for the growth of select Pears and other fruits is not new, but it is one that is seldom adopted for the growth of flowering climbing plants in conjunction with a border filled with hardy plants. Where the climbers are selected from species which are not very dense in their growth, and these are planted at sufficiently wide distances to admit of all the light required by the plants beneath, it is a feature which might find a place in many gardens. In planning such border the site should be such that the sun would shine on it the whole day, preferably on one side in the morning and on the other in the afternoon; and, moreover, the path ought to be of such a width, say from nine to twelve feet, that no undue amount of shade is cast by the plants on one side on those on the other. There is no reason for adopting the straight line in all cases.

Royal Horticultural Society.—At a meeting of the Narcissus Committee, held in the Drill Hall on Tuesday last, a very deep yellow Ajax, named "Distinction," was registered, and a First-class Certificate was recommended for the late Mr. Kendall's seedling, "Lulworth." Some collected





VIEWS IN THE GARDEN AT HECKFIELD, HANTS.

varieties, and some seedlings from different sources were shown. Mr. Barr drew attention to the variation in colour of "Johnstoni," and to the fact that he found it growing between "Calvas yellow" and triandrus, which led him to consider it to be a hybrid.

Paris Exhibition.—The huge Agaves sent from Mexico, which we alluded to previously, have, says *Le Jardin*, arrived in a rotten condition; nevertheless, the managers proposed to distil some "pulque" from those portions which still remain sound. Beware of *grog Mexicain* at the Exhibition!

The Origin of the Garden Auricula.—We have been favoured with the following communication, accompanied by specimens, which we regret did not reach us till after the Auricula meeting of the Royal Horticultural Society:—"The question of the probable origin of the garden Auricula has been several times mentioned in your columns. Some years ago I brought two Primulas from the Alps, Primula Auricula lutea and Primula viscosa, a very pretty pink variety. I have crossed these both ways, and when the yellow kind is the seed-bearing parent, the produce is an inferior alpine garden Auricula; when the pink kind is the seed-bearer, a very pretty purple hybrid is produced, with very little variation in the character of the different seedlings, though they are quite distinct from either parent. I enclose specimens of the parent plants and of the hybrids, from which you will see that in those whose seed-parent was P. A. lutea there are several gradations of colour. I think such specimens as these would, by careful selection, soon yield many, if not all, the shades of colour now cultivated in our gardens. *James Ellis.*"

Nectarine and Peach on the same shoot.—Peter Collinson, in 1741, was the first to note the occurrence, and many instances of a similar character are given in Darwin's *Variation of Animals and Plants*, i., p. 340. One such case was figured in our columns on September 8, 1887, p. 297. This is still a rare occurrence, but when first observed was evidently thought more miraculous than we should now consider it to be. This is evident from a beautiful water-colour drawing in the Kew Herbarium, made in 1802, and from which we copy the subjoined particulars:—"This drawing is a representation of fruit as it appeared in the garden of Mr. Gilpin, at East Sheen, in the summer of 1802. The upper branch, with two Nectarines and one Peach, is an exact portrait with respect to the size, colour, and situation of the fruit and leaves, as well as the length of the branch. The lower branch is introduced to show the kind of fruit which the tree in general produced.

"Drawn on the spot, September 5, 1802,
"By W. Hooker, Kew Green.
"Eye-witnesses of the above fact,
"William Cracroft,
"Charles Baron Hompfrych, Lt.-Gen."

[This latter signature is obscure.]

"Oh, South Kensington!"—All outward and visible signs of the Royal Horticultural Society's tenure at South Kensington are rapidly disappearing before the besom of the auctioneer and builder. Last week the plants were sold, or rather, we might say, given away in most cases. It is comforting to know that the best of the large plants were purchased for Kew, and will find a permanent home in the large temperate-house. Of these the most interesting are two tall examples, over 30 feet high, of what Loddiges called Chamærops Griffithiana, but which is apparently C. Martiana, a native of Nepaul, at an elevation of about 5000 feet. The trunk is about 6 inches in diameter, blackish and smooth in the lower half, the upper covered with fibre and the sheathing bases of old leaves, whilst the head is made up of about a dozen graceful fan-shaped leaves. The appearance of these plants is similar to that of the well-known Borassus. Sabal Blackburniana, Seaforthia elegans, Strelitzia augusta, Cyathea medullaris, and several others, all large specimens have also been procured for Kew. A plant of the beautiful Rhododendron nilagherricum, the largest specimen we have seen, was obtained for Kew for 14*s.*, scarcely the price of the pot it was planted in. The large specimen of Rhododendron arboreum was purchased by T. E. Walker, Esq., Studley Castle, Warwick. The keenest competition was shown for the Aspidistras and Aralia Sieboldii, plants which the London decorators find difficulty in obtaining just now. In a week or two the conservatory itself will be sold by the auctioneer. The Commissioners have even sold some property given to the Society by the Queen. But it is useless to bemoan the doings of those awful Commissioners. Well may the Society be congratulated at escaping from their clutches.

Railway Rates.—This subject is of such universal importance, that we venture to call the attention of those who may not have seen it to the table prepared by Mr. Goodchild, and given in our last number.

Reading and District Gardeners' Mutual Improvement Association.—The fortnightly meeting of the above Association was held at the "British Workman," Reading, on Monday, April 15, and was largely attended. Mr. W. Lees presided, and Mr. R. Dean, of Ealing, gave an able lecture on "The Florists' Tulip." The lecture was illustrated by coloured diagrams, and was much appreciated by the members.

Grass Seeds for the Metropolitan Parks.—Probably one of the first orders given out by the London County Council was for grass seeds required for the parks in its control, the order being placed, as heretofore, in the hands of Messrs. James Carter & Co. for execution.

Drought and the Fruit Crop in New South Wales.—Whilst we have been favoured with a wet and comparatively mild winter, our kinsmen at the antipodes have suffered severely from want of rain, the drought having been more severe than in any year since 1859. Wheat is a total failure, young plantations of the grape vine are burnt up, and the stems of old vines have died. Apples and pears either fell from the branches without maturing, or ripened prematurely; and even on irrigated lands, as our correspondent, Mr. Paterson, of Calrossy, Tamworth, informs us, the fruit is not what it should be owing to the prevailing aridity of the atmosphere.

Philadelphia.—Thanks in particular to the persevering efforts of Mr. Thomas Meehan, Bartram's Garden, Juniata Park, Northwood Park, and Weccacoe Park have been secured to the city as public parks, municipal effort having been seconded by the liberality of individuals. Philadelphia has in its older parts some parks, but within the last quarter of a century miles of houses have been built, without an open space near them. Municipal authorities often overlook the fact that a number of small spaces distributed over densely crowded districts are more valuable for sanitary reasons than are larger parks placed in the suburbs. Bartram's garden—which has historical importance—will form the nucleus of a Botanic Garden. In some quarters it has become the practice to decry gardens as means of study, or to place them on a lower level than the herbarium or laboratory. The truth is none can be dispensed with, and for certain kinds of research the garden offers far better opportunities than either of the other two. As botanic gardens proper are usually—but no means necessarily—ugly, efforts should be made not only to make them attractive, but instructive to the populace as well as to the botanist. The public needs to be told that botany has its useful as well as its ornamental and abstrusely scientific side.

Leptospermum scoparium.—This shrubby tree (writes Mr. Morris), belonging to the natural order Myrtaceæ, is plentifully distributed in New Zealand and some parts of Australia. The leaves are small and prickly, the flowers white, and the fruits about a quarter of an inch in diameter, globular, and somewhat dry. Since the introduction of pheasants to New Zealand it appears they have taken most kindly to the fruits of the Manuka—as the plant is known locally—and the birds are most flourishing. This fact has suggested the desirability of introducing the Manuka to this country as pheasant covert. Already plants introduced by Mr. Enys, now 10 to 12 feet high, are growing in Cornwall, and probably they would grow equally well in other parts in the South and West of England with a mild climate. In New Zealand the Manuka grows in the poorest soils and in the most exposed situations up to 3000 feet elevation. As regards soil alone there would be no difficulty in establishing comparatively large areas in this country. It is important, however, to bear in mind that the situation must be an open one, without overhanging shade, and facing south if possible. More than this, it must not be exposed to severe frosts in winter.

Chrysanthemum Centenary at Ghent.—In addition to the exhibition of Chrysanthemums to be held at Ghent from November 24 next to December 1, it has been decided to offer prizes for the finest collections of Japanese Orchids in flower, the best collections of Primula sinensis (double and single respectively), the finest lot of Azalea mollis in flower. Prizes are also offered for the best specimens of Japanese or Chinese porcelain representing Chrysanthemums. A similar prize is offered for the best collection of drawings on paper or embroideries on silk, &c., representing Chrysanthemums. Here is a hint for the Chrysanthemum Conference at Chiswick, or the National Chrysanthemum Society.

Rosa moschata.—Dr. Schweinfurth has lately sent to M. Crépin wild specimens of this species from Arabia, at an elevation of 3000 feet above the level of the Red Sea. It differs from the R. abysinnica of Robert Brown.

Notts Horticultural Society.—At the last monthly meeting, held on Wednesday, the 17th inst., Mr. J. D. Pearson, Chilwell, Notts, read a paper on "Daffodils and Narcissi." There was a good attendance, and a collection of cut flowers illustrating the paper was on view.

Orchids from Cheltenham.—Some specimens from Mr. James Cypher's nurseries show to what perfection fine Orchids may be brought by good culture. A fine-flowered spike of Cattleya Skinneri was the finest in size and colour of flowers we have seen. Two spikes, one of three and the other of four flowers, of Cattleya intermedia, were so showy as to approach in general appearance Lælia elegans Schilleriana; the one has white flowers with rosy lip, and the other was rosy lilac with an amethyst crimson-coloured lip; a fine C. Lawrenceana, and the richly-coloured C. Trianæ superba were also included, together with some magnificent forms of Dendrobium Wardianum, D. luteolum, D. Jamesianum, D. nobile; the pretty light D. nobile pulchella, D. primulinum, D. Falconeri; and Messrs. J. Veitch and Sons' perpetual flowering, richly-coloured hybrid D. rhodostoma×. Other noteworthy flowers were the handsome Odontoglossum maculatum anceps; Phalænopsis Luddemanniana superba; the fine white Chysis bractescens; a twin-flowered scape of Cypripedium barbatum (var. Crossianum); some very large Lycaste Skinnerii; and the bright rosy-purple Epidendrum evectum, which was illustrated in these pages, with some others of its section, on June 23rd, 1888, p. 771.

Publications Received.—*Durban Botanic Society: Annual Report for the year* 1888. (Durban, Natal: Robinson, Vause & Co., West Street).—*The Useful Native Plants of Australia.* By J. H. Maiden, F.S.S., &c. (London: Trubner & Co., Ludgate Hill).

Notices of Books.

Practical Rose-growing, by John Harkness. (Armitage & Ibbetson, Bradford).

In spite of its somewhat tautological title, Mr. Harkness' little work may be emphatically recommended as "a guide for amateurs in the cultivation of the Rose for exhibition and decorative purposes." It is difficult to say anything new about the subject, but Mr. Harkness proves that it is possible to put sensible directions before the reader in clear language, to avoid "high-falutin slop-over," and yet to write with a light, crisp touch, which shall relieve the dull detail of description.

With reference to the question of the Manetti, the author writes as follows:—"To what extent its unpopularity has been hastened by its abuse is an open question. By the unscrupulous nurseryman [are there such people?] advantage has been taken of its accommodating nature. So vigorous is it, and so energetic is the life within, that propagation has been effected in the following rough and ready manner. Cuttings have been gathered into bundles, and by an axe or bill-knife cut into lengths of 10 or 12 inches, then, instead of having each eye removed, except the two or three top ones, and the base of each cutting prepared for rooting, they have without any disbudding or subsequent dressing, been stuck into cutting beds to root, and thus used for Rose budding. Under proper conditions Mr. Harkness recommends the Manetti especially in cold or late localities, though, on the whole, he gives his preference to the Briar stock. For Roses on their own roots he has not much to say, while the dealer, growing "own-root Roses" and attempting to compete with the nurserymen using suitable stocks, has been well likened to a "donkey striving to outstrip a locomotive." A few misprints require correction in that second edition which we expect will be called for before the year runs out, such as De la Grifferia, which should be Grifferaie. It is also not usual to be so lavish in the use of capitals as the author is in "Rosa Indica Hybrida Odorata," where all but the first might be dispensed with, as also in the case of such words as Rubiginosa, Lutea, Spinosissima, Arvensis, Sempervirens, and Alpina, which would all be the better for the small initial letter, but these are small matters of form, the substance of the book is so good that it is little affected by such trifles.

Stechginster (Ulex europæus) und Seine wirthschafliche bedeutung alsfutter-pflanze für den Sandboden. (Karl von Riepenhausen-Crangen.) Leipsig: Dunder & Humblot; London, 14, Henrietta Street, W.C.

"Furze and its Economical Importance as a Forage Plant in Sandy Soils," is the title of a little pamphlet by a Pomeranian landed proprietor. His reasons for putting his experience into print are manifold, viz., the great number of inquiries which reach him concerning his Furze fields at Crangen, and which it is impossible for him to answer in any other way; a desire to improve the distressed farmers—large and small—of his native land, who seem, from a combination of circumstances, to be going from bad to worse; and to bring before the cultivator a forage plant with few requirements, which may be successfully grown on the sandy soils of which the area of Northern Germany mainly consists. He is careful not to bring forward the culture of the plant as likely to be the salvation of the *Bauern*, but merely as a subject which may grow with advantage to poor soils.

In Germany the farming class owing to the high price of labour generally, and the scarcity of the same in some parts, make but little profit from their occupation, and every bushel of grain and ton of roots cost more to produce than the sale price brings in, the loss on light land being heavier than on heavy; and much of this might be averted by the cultivator taking perennial deep-rooting plants in hand instead of annual ones only, as at present. By doing so the cost of production would be lessened by the non-necessity of annual ploughings and sowings, and the deep-rooted plants would not suffer on the driest sandy soil in the warmest season.

The author, after long journeyings into Spain, England, Sweden, Eastern Europe, Turkey, returned with various plants, of which we may here name species of Vicia, Lathyrus, perennial Lupins, and Symphytum asperrimum. From the Kirghese steppes he received a perennial Rye, but nothing came of all these various plants, and he was driven at last to make experiments with Furze, and in the last seven years has sown about 316 morgens of land (948 acres), employing from 8 lb. to 50 lb. of seed per morgen.

The pamphlet closes with an account of methods of culture, preparation of the Furze shoots for forage, and a quantity of useful information, including an analysis of green, half-dry, and completely dry samples of the fodder.

PLANT PORTRAITS.

Calochortus obispoensis, *Garden and Forest*, April 3.—Californian bulb. Flowers lemon-yellow to brownish-orange; petals deeply fringed with orange-coloured hairs at the base over the pit; colours very remarkable.

Cattleya labiata autumnalis, *Orchidophile*, March.

Chamærops humilis var. dactylocarpa, *Bull. R. Soc. Tosc. d'Ortic.*—A variety of this species, with long cylindrical fruits.

Cherry, White Bigarreau, *Bulletin d'Arboriculture, &c.*, March.

Cypripedium Maeserelianum ×, a hybrid by C. Spicerianum, out of C. insigne var. Chantini.—*Illustration Horticole*, t. 77.

Cypripedium Rothschildianum, *Reichenbachia*, t. 61.

Dendrobium aureum, *Reichenbachia*, t. 63.

Helianthus mollis var. cordatus, *Garden and Forest*, March 20.

Lælia albida, *Garden*, April 6.

Lycaste Skinneri delicatissima, *Revue de l'Horticulture Belge*, April.

Oncidium macranthum, *Reichenbachia*, t. 64.

Peach Domerque, *Revue Horticole*, April 1.

Rhipsalis pulvinigera and floccosa, *Gartenflora*, April.

Rose Rainbow, *Californian Florist*.—A sport from Papa Gontier.

Scilla Ledienii, Engler, sp. nov., Congo, *Garten Flora*, t. 1294.—Leaves spotted, bulbiferous at the tips; flowers small, bell-shaped, in a stalked raceme—curious.

Vanda Sanderiana, *Reichenbachia*, t. 62.

IRIS ROSENBACHIANA.

I ventured two or three years back to prophecy a great feature for this recent introduction by Dr. Regel from Bokhara, and further acquaintance has confirmed my opinion.

In the first place it is splendidly hardy. A plant in full bloom in the open in my garden was exposed this spring to 17° F. of frost; it simply smiled. The large-spreading, somewhat flaccid leaves, need protection from too blustering winds, and the plant should be so placed that the bulbs get well ripened in summer, not soddened with July rains, but beyond this they need no care.

In the second place it is extremely variable, more variable than any other Iris known to me. It varies much in the size of the blooms, but still more in colour. Some would be called ugly, perhaps, by those who are ungrateful enough to call any flower ugly which dares to bloom in the bleak days of February, while others are of even gaudy beauty. It will be the duty of gardeners in the future to cherish the more beautiful ones, and let the meaner ones be forgotten.

Perhaps the most beautiful of all the forms which I possess is the one first given me by Dr. Regel. The pure white apex of the fall, the deep dark crimson of the greater part of the rest of the blade of the fall, the bright orange of the crest of the fall, and the bronzy golden sheen of lower parts of the styles and claws of the falls, make up together a combination of colours which even an Orchid dare not despise. The least pleasing forms are those in which all parts of the flower are of a dull purple, in which blue predominates, without any striking or pleasing contrasts between the different regions. Dr. Regel has given varietal names to several of the forms, but I find that hardly any two plants are exactly alike, and it is obvious that gardeners will have to fall back upon the usual fancy names. One form, which he calls var. albo-violacea, is very charming; the whole flower is nearly pure white, except for a large blotch of deep violet on the blade of the fall, the rich orange crest of the fall, and a few touches of violet and sheen of rich yellow elsewhere. Very pleasing, too, is a form which he sent me last autumn, as var. lutea; the whole flower is a soft creamy yellow, except for the rich orange crest of the fall and one or two deep purple lines by its side. It is easy to see that in the hands of skilful cultivators a large number of the most beautiful and varied forms may be brought into existence. This Iris seems to me to possess, more than any other Iris which I know, the potentialities of a "florist's flower."

The culture of the plant needs no special notice, except, perhaps, the advice to eschew the much-beloved "sandy peat" or "peaty sand." Like all other, or nearly all other, Juno Irises known to me, this Iris likes a relatively stiff soil; a good rich loam seems to me to suit it best. I may repeat that it is not fond of the summer rains, and the hotter and drier it is kept in July the fuller and richer will be the blooms in the following spring. *M. F., Shelford, April 13.*

Florists' Flowers.

THE CHRYSANTHEMUM.

The cultivation of specimen plants does not command generally so much attention as it should, and the ambition of a large number of growers seems limited to the production of large flowers. To this end it is necessary, unfortunately, to grow almost as many plants as there are blooms required if the grower is an exhibitor. Although three first-class exhibition blooms may be cut from one plant of the best and most constant varieties, and these large and symmetrical flowers are objects of great beauty, still they should not be obtained at the expense of well-developed specimen plants. During the last ten years great progress has been made in the culture of the plants for blooms only, but specimen plants were as well or better grown before that time than they are now. This is not satisfactory; because well-managed specimen plants are more valuable for decoration than those which are allowed to produce but three blooms apiece. The chief point to be kept in view is the production of and the retention of healthy foliage up to the time of the full development of the flowers, and this is possible only when the plants are kept quite free from mildew and green-fly.

I have often urged the importance of making a start with propagation in December. Indeed some of the cuttings may be put in in the last week of November, being allowed to form roots on a cool greenhouse shelf. If cuttings do not show signs of growth in three or four weeks, a gentle bottom-heat will help them to do so. When well rooted each plant must be potted, and placed near the glass in an airy greenhouse. When this is done growth is rapid, and cuttings of free-growing varieties grow into handsome specimens by the end of the season. If intended for exhibition the plants ought to be large; and as judges usually favour those who produce plants of an uniform size, some varieties must be grown from old stools. Here again there is a difficulty to face at the outset, as the chief Chrysanthe-

mum societies will only recognise plants which have been grown from a single stem, and that stem must be distinctly visible above the soil. Such free-growing varieties as Mrs. Geo. Rundle, Mr. Geo. Glenny, Mrs. Dixon, Empress of India, &c., may be produced from cuttings of the year; but there are others, as Prince of Wales, which I used to grow for exhibition, because of its distinct colour; Lady Hardinge; Antonelli, a distinct bronzy-salmon coloured flower, and which makes a telling specimen when grown from old stools.

The Christine family in white, yellow, and rosy blush, form excellent specimens from cuttings, and grow to an immense size from old stools. The pink and white Venus are also excellent as specimens. Some of the Japanese varieties make fine specimen plants, and one of the best is Hiver Fleur, creamy-white, with a rosy-violet flush on it. Peter the Great is an excellent golden-yellow, and Lady Selborne is the best white. Other good varieties to choose from as being well adapted to form specimens are:—Bouquet Fait, La Nymphe, Madame Bertier Rendatler, Album plenum, and Fair Maid of Guernsey, which is frequently grown into a grand specimen. Joseph Mahood and Triomphe du Nord are good dark varieties. The only way to obtain plants from old stools with a single stem is to search for them in November amongst those plants which have produced single blooms, and a few may be found in all large collections, these being furnished with a few outgrowths from the stems above the ground line. These stools have an advantage over the plants raised from cuttings the same season, in not having to make roots, but at this season all of them should be making good growth, and usually the difficulty the gardener has to overcome is to find suitable accommodation for them under glass. Whatever is done, the plants must not be huddled together at a considerable distance from the glass, and rather than do that they would be better placed out of doors. Indeed they must be placed outside about the middle of May. There is danger in placing the plants out of doors at this early date, and the transition should be made as easy as possible, so that a serious check to growth does not take place in May, as this could not be made up again readily. I prefer to grow my plants in pits, from which the lights can be removed, and they ought to be drawn off, so that the plants may be exposed to the weather at least all day long, placing them on again at night; and this partial exposure is necessary to enure them to full exposure presently.

It is more important that specimen plants should be grown without cessation from the first, than is the case with the plants which are to produce blooms of large size. The point of the young stem must be pinched out when the latter has grown to the height of 6 inches, when four or five buds will start at the top of the stem which will form the foundation of the future specimen. By the middle or the end of June pinching of the shoots ought to be discontinued; some growers transfer the plants at once from 60's into the pots in which they are to flower, but this is not the way to command success. The large flowering varieties, including Japanese, develop into large handsome specimens in 11-inch pots, and the pompons in 8 or 9-inch pots, and they should be repotted at least three times. The potting compost ought to be of a durable character such as good partially decayed loam, stable manure well-rotted, a little sifted leaf-mould, and some crushed bones. If pounded oyster shells are added to the soil it is rendered more porous than it would otherwise be, the vigour of the plants appear to be increased. Surface dressings of rich material is useful when the buds are formed, late in the autumn. The plants when in their summer and autumn quarters should be fully exposed to the sunshine, for although they will make more growth in a partially-shaded place, the flowers are neither so numerous nor of so large a size. The growths must now be trained, some being bent down and tied to a wire fixed round the outside of the pot immediately under the rim, care being taken not to snap them off by so doing. The plants ought to be well fumigated before placing them out-of-doors, as greenfly is not easily moved when it has established itself in the points of the shoots. *J. Douglas.*

MACLEANIA PUNCTATA.

For the opportunity of figuring the berries of this plant we are indebted to Mr. O. Thomas, of Chatsworth (see fig. 92), who has enabled us to supply a void in the history of the genus, the fruit of which was unknown up to the present time, being undescribed even in the *Genera Plantarum*. The berries are represented as slightly too globular in form. Their colour is something difficult to describe in words—translucent grey, flushed with pink, is the most expressive term we can think of. The plant was originally introduced from the Andes of Ecuador by Lobb to Messrs. Veitch, of Exeter, and its flowers were figured in 1849 in the *Botanical Magazine*, t. 4426. They are in dense clusters, vase-shaped, constricted at the throat, and with a short five-lobed spreading limb of a yellow colour, the angular tube being scarlet. The plant is rarely seen now-a-days, but is very handsome to the warm conservatory. The culture of this class of vacciniaceous plants is sometimes a matter of difficulty, and this may perhaps account for the rarity with which we meet with them in gardens under glass.

COLONIAL NOTES.

TRINIDAD.

Mr. Hart's lecture on "Our Work" has been published in the *Bulletin* of the Royal Botanic Gardens, Trinidad. It is devoted to the consideration of the work of the botanists in promoting and developing the culture of economic plants. As Mr. Hart truly says, botanists have received but scanty credit for what they have done in this way. What Roxburgh, Wallich, Royle, Falconer, and others, did in the past is scarcely known to the general reader, while the public appreciation of the labours of such men is generally summed up in their statement that "so-and-so is very fond of flowers." Mr. Hart appreciates what there is to do, and is very energetic in doing his share.

Flora of the Cayman Islands (West Indies).

About 20 per cent. of the species are found more or less throughout the tropics. They are such as one might expect to find on any tropical island. It is interesting to note that one of the Ferns (Acrostichum aureum), which is found growing to a height of 6 to 10 feet in swamps in Jamaica and throughout the tropics, is one of the first plants to establish itself on the Island of Krakatao, where a terrible volcanic disturbance a short time ago completely destroyed every vestige of plant life. On its shore was also found the fruit of another plant occuring in the Cayman Islands, viz., the Almond tree (Terminalia Catappa). The Gulf Stream and equatorial current will to some extent account for a number of American and West Indian species. About 35 per cent. are found elsewhere in Tropical America and the West Indies, more than half of which are found widespread over this region; others are more confined in their distribution, for instance, Cassia ligustrina is recorded only from Guiana besides the West Indies; others stretch beyond the region, one of the Vervains (Stachytarpheta jamaicensis) being also found in Florida. About 16 per cent. also occur in parts of the West Indies and Central America, 14 per cent. in the West Indies, of which three stretch north into Florida, and one into southern United States, 11 per cent. are found only in that region of the West Indies comprising Jamaica, Cuba, Haiti, four of whieh are also found in the Bahamas and two in Florida. The two Orchids appear to be endemic; at any rate, they are not known from any other locality. One of them, Schomburgkia Thomsoniana, was described for the first time last year, but its habitat was not known. It is a most beautiful plant in its native woods, the flowering stalk being 3 or 4 feet long, branching, and covered with a great number of gold and purple flowers. The first I found were growing in a small wood on the south coast of Grand Cayman on trees. Some miles further on I discovered them growing on bushes on the sea shore far from any tree, and almost on the ground. This same species was also abundant on Little Cayman and Cayman Brac. The other Orchid, Dendrophylax Fawcettii, was described in the *Gardeners' Chronicle*, November 10, 1888, by Mr. Rolfe, and appears to have been hitherto quite unknown. It is nearly allied to the Jamaican Dendrophylax (Aeranthes) funalis; it resembles it in its white flowers, with long thin shoots, and want of leaves. It is fragrant, much larger than the Jamaica species, and has a very long spur. *W. Fawcett, Jamaica.*

The Habitat of some of the Cypripediums.

Allow me to state that Cypripedium callosum, all other Cypripediums from the Siam Gulf, viz., C. Godefroyæ, C. concolor Regnierii grow at very low altitudes, never over 100 metres above the sea-level, and not as you state in your paper No. 110. C. callosum grows on very low hills only a few miles from the sea, in very shady places along the banks of rivulets, and in a very good sandy soil which is mixed with rotten leaves. They are never at rest although exposed to a very strong drought from December until beginning of May. C. Godefroyæ and C. con. Regnierii are found on the small calcareous bird's-nests islands, lightly shaded, and very often with only a few half-rotten leaves around the roots, the soil being constantly carried away during the rainy season. During the summer time they get no rain, and derive their nourishment from the heavy dews only. Generally they are only to be found on the western sides of the small islands, finding there shelter from the heavy sea and the north-east monsoon. *C. Roebelin, Orchid Collector, Singapore.*

HOME CORRESPONDENCE.

Use of bracts in pine cones.—Questions were raised as to the use of the bracts in Abies bracteata at the Royal Horticultural Society's meeting of March 12. The bracts in the cone are the analogues of leaves on the branch, and I have supposed these parts performed the same duty here as leaves would elsewhere. Sepals and all the green parts of the inflorescence are in all plants, I should suppose, to other duties add that of leaves in some degree. Why not? You do not say how the questions were answered by those present. *Thomas Meehan, Germantown, Philadelphia, U.S.A.* [The brown scales in question though morphologically leaves could hardly be so physiologically. Ed.]

The Narcissus Committee.—I happen to take an interest in the following varieties of Daffodils said to be submitted to the committee of April 9, a report of which appears in your paper of April 20; the sorts are the famous Castlewellan variety, to be sent out as the Countess of Annesley, and Dolly Varden—both yellow sorts. In white or Cernuus sorts, Countess of Desmond, Robert Boyle, and Silver Barr. I have now in my garden a trial lot of "registered" sorts, and tallies stating when they received such honours. I do not think it is much loss to the Irish varieties if they are not found in such company. The varieties are Automedon, Achilles (very much alike), Santa Maria, Trollius, and lusitanicus; and in white sorts not registered are Duchess of Connaught, Marchioness of Lorne, Princess Ida, and Sir Stafford Northcote. If such are ever brought before the committee—it will not be by me—and that then they are rejected as being "no improvements on existing and better sorts"—no "superiority" is the word—it will be a consolation to me. I look upon the Countess of Annesley, and of which variety I sent you a large box of blooms

early in the season, as one of the noblest Trumpet Daffodils grown—bold in flower, and vigorous in growth, producing bulbs of the size of N. Empress, and immense blooms, with a corona expanded after the manner of maximus, but wider, and for seed bearing purposes it has no equal. It has a strong perfume, reminding one of Ratifia. As for the Countess of Desmond Daffodil, it is one of the prettiest and most distinct in the whole of my collection, and it is certainly the most Cernuus-like and drooping of them all. Colleen Bawn, the prettiest of all the white Trumpet Daffodils, and the purest in colour. The Countess of Annesley carries herself with peculiar mien, and appears in the richest Tuscan or straw-colour, with the same nodding appearance as the last named. I did not send any blooms to the committee for two years, for reasons best known at the sittings, and I hold some beauties. *W. Bott, Cork.*

MUTISIA CLEMATIS.—With regard to the above-named plant, admirably illustrated by Mr. Smith on p. 501 of your last issue, my experience may be of some interest to the readers of the *Gardeners' Chronicle*, and I am sorry to say that I am far from having as favourable an opinion of its merits as an ornamental cool-house climber as the writer of the descriptive notice of it in your columns seems to have. In the first place, it is certainly not hardy; so that the experiment of planting it out-of-doors, about to be tried at Pendell Court, must necessarily result in failure. Some years ago I planted a healthy young plant of this Mutisia against the wall of my house, thinking that on this mild and moist seaboard of the South of Ireland it might possibly prove hardy. It grew with great luxuriance and rapidity during the summer and autumn, and reached a height of about 10 or 12 feet. It never showed any flower-bud, and was completely killed by the first frost of any severity. A near neighbour of mine also planted it in a handsome new corridor conservatory of considerable height, where it quickly reached the top of the glass roof, and hung about in a luxuriant tangle of growth. At last it showed a flower-bud, but too high up to see what it was like from the floor of the house; and the intelligent English gardener who had been watching it for more than a year, climbed a high ladder to inspect the bloom, but was so disappointed at the size and beauty of the flower when he got up to it, that as it showed no other signs of flowering, he came to the conclusion that it was not worth the large space it occupied in the house, and pulled it all down, to replace it with some more free-blooming and ornamental climber than in his opinion Mutisia Clematis had any claim to be. I should be glad if any of your readers could inform me whether the pretty pink-flowered Mutisia ilicifolia is now in cultivation. *W. E. Gumbleton.*

THE CHERRY HOUSE AT GUNNERSBURY PARK.—This house is always an object of considerable interest, both when the trees are in full bloom and when fruiting. Only recently the house was gay in the extreme, almost every variety presenting to view its shoots laden with wreaths of white blossom. There is a marked difference in the size of the blossoms of the varieties, some being large and bold, others smaller and less prominent. Should one-half of the blossoms produce fruit, there will be heavy crops. One feature of the house is the wealth of bloom seen on some trees, which were lifted, the soil shaken from the roots, and replanted about six weeks before the blossoms expanded. Mr. Roberts holds the opinion that a better set of fruit is obtained from trees subjected to a check of this kind, and he informed me that when the trees were originally planted, it was only a month before they were started into growth, and then he got a crop. The Early Purple Jean leads the way as usual both in regard to flowering and fruiting, and it always sets well. Early Rivers follows in point of time, but Mr. Roberts finds it is not so free planted out as in pots, so that it appears as if some root restriction is necessary, as it crops freely in pots. But it promises better than usual this season. The large Black Bigarreau is very full of bloom, and generally produces a good crop. Frogmore Bigarreau is one of the best under glass; also the Black Tartarian and Bigarreau Napoleon. The Black Tartarian is almost worth growing for the effective display it makes when in flower. May Duke was a great mass of bloom, especially a tree lifted and replanted a few weeks ago, and Mr. Roberts looks for a heavy crop from it. Tradescants Heart, or as it is best known at Gunnersbury—St. Margaret's—is a very fine late cherry, and brings up the rear of the blooming season. Monstreuese de Mezel is also named by Mr. Roberts as a very fine cherry under glass. When the trees are started into growth, a temperature of 45° by day and 40° by night is maintained. When they are in flower plenty of air is given, and the bees are encouraged to work among the blossoms as much as possible. Scarcely any fire-heat is employed; indeed it had been employed only once or twice in order to keep out frost. At the time of flowering plenty of ventilation is given top and bottom. As soon as the fruit has set, the house is closed up somewhat, and the temperature kept quite cool until the stoning process is over, then it is kept a little closer, as when the fruit has stoned it ripens quickly. It is a little difficult to thin out the fruit previous to the stoning stage, as it is uncertain which fruit will mature and which fail. A good watering is given to the trees before they get into flower, and then water is applied with moderation until the fruit has set. Cherries appear to do best, and set their fruit more freely when somewhat dry at the roots, whether the trees are planted out or in pots, and it appears to be quite certain that all flower more freely when worked on the Mahaleb than when on the Cherry stock. *R.D.*

PARSLEY.—In Mr. Fish's note on Parsley at p. 429, I observe that he mentions his Parsley having been severely punished by frost this season. I am at a loss to understand why it is that this herb so often perishes in the winter in some places, whereas here I have been gathering it from the open all the winter, and that without the slightest protection being afforded the plants. Two things are essential to secure this supply, *i.e.*, it must be grown in an exposed open place, and not as one so often sees it—huddled up in corners of the garden, and under trees and fruit bushes. And again, it is necessary to make a new bed by sowing seed every year, but allowing each bed to stand for two years. When two years' old it is better able to withstand the severities of the winter. *A. Bishop, Westley Hall Gardens.*

STACHYS TUBERIFERA.—This new vegetable is perfectly hardy. I planted a quantity of tubers last spring which increased considerably, and were lifted in the autumn and stored away carefully in sand; but on examining them this spring I find them all to be shrivelled, black, and useless, while the small bits of roots remaining in the ground, and even the pieces left on the surface, are now coming up and growing as vigorous as possible, the tubers being plump and sound. It would, therefore, seem to be the best way to leave the tubers in the ground, and only take them up as they are required. *C. Cundy.*
[We can confirm our correspondent's statement. Ed.]

CLIVEAS.—The varieties of this plant have increased greatly of late years, being so easily raised from seed, and some which have lately been observed at shows are very fine in appearance. Few plants are more useful for a room window or the greenhouse if the latter be kept a little warmer than usual, as the temperature which suits the plants best is that of a warm greenhouse, and the plant likes plenty of moisture. One of the finest I ever saw was growing in the window of a room, and the pot stood in a saucer to catch the drainage, and though not in a large pot it had seven spikes and trusses of magnificent flowers, the big fleshy roots being coiled and twisted above the soil, and the leaves looking the very picture of health. To keep them in this desirable state the dust was now and then sponged off, which is readily done by drawing the sponge up a leaf. To increase the plant any offsets or suckers may be pulled apart and divided, and the best time to do this is when the bloom is going over. It is at this season that the plants should be encouraged to make free growth by having more warmth afforded them and being kept well supplied with water at the root, as they are halt aquatic in their nature. *J. S.*

MISPLACED PLANTS.—Too frequently is planting done injudiciously and without thought, the result being an unrelieved mass of one colour, in place of what may have been with a little judgment and forethought a very pleasing and effective arrangement. Quite recently in a suburban garden I saw an instance of good plants misplaced, and which consisted of a very handsome hedge of gold-leaved Privet, Ligustrum ovalifolium aureum marginatum, splendidly coloured, and in finer condition than is usually seen. This was backed up by specimens of Golden Queen Holly, and to make matters still worse for my own eyesight at the moment, Jasminum nudiflorum was flowering on the wall of the residence, and, as if to place a final exhibition of bad taste upon the whole, the front of the house was faced with whitish or creamy-coloured bricks, and all this glare of colour within 10 feet of the pathway. It is to be wondered that golden Ivies had not been employed on the house walls also, but maybe this was overlooked; still, how very different this might have been, and how much more effective, had this golden hedge been replaced by the ordinary oval leaved Privet, or in place of the Hollies referred to, some specimens of Lawson's Cypress, or the erecta viridis variety. This, with some small green-leaved ivy on the house front to have relieved the monotony of the brickwork, might have produced far happier results. As it was, it merely represented a hideous glare of colour upon which the eye cannot rest with satisfaction, and serves to illustrate the need, even in a small garden, of at least some taste and forethought. Happily such arrangements are not frequent, and well it is so. Where taste and forethought go hand in hand in the planting of permanent subjects, the error to which I have referred will always be studiously avoided, and with the existing choice of trees and shrubs should never occur at all. *J.*

VIOLET CULTURE.—A good deal has appeared lately in the *Gardeners' Chronicle* upon the cultivation of this plant, in which I have been much interested. I may say that I have as nearly as possible adopted the same method of cultivation as recommended by your correspondents; but, not being so successful as I could have wished, I have for the last two years adopted another plan. I have a border facing south, which is damp, and partly shaded by a rather high hedge. On this I plant out my runners in spring in the usual way, planting them in beds the size so as to be able to place three light frames over them in September. Before doing this a trench is dug out, so as to bring the ground to within 9 inches of the glass. After the frames are in their places the remaining space is filled in with short manure or leaves. By adopting this plan I have had a capital supply of fine blooms all through the winter. The plants being well established, and left undisturbed, they bloom much more freely than those lifted and placed in frames in the autumn, and they are not so subject to damp off, or to the curling of the leaves. *C. Cundy.*

FRUIT PROSPECTS.—There is a fine promise of a good all-round crop of fruit in this part of Kent. Pears are very full of blossom-buds, and there is much promise, except on trees which cropped heavily last year. Espaliers, pyramids, and standards are alike full of buds. Apples look well. Bush and standard Cherries will soon be sheets of white bloom, and those sorts which are on walls, viz., Bigarreau, Kentish, Napoleon, Elton, Black Circassian, Early Rivers are equally full of flower—the latter a fine early fruit. Plums and Damsons are well studded with bud, and very strong. Peaches and Nectarines have opened their flowers well, and so far good crops may be expected. Apricots are the weakest flowerers, and many buds fell shortly after the sharp frost we experienced in February. Nuts it was thought at one time would be scarce owing to fewness of female flowers, and many opened before the male catkins, and a great number after. It would be interesting to hear what are the prospects in other parts. After such a cold and sunless summer we had last, undoubtedly the fine autumn was the means of the wood ripening more satisfactorily, making up for the early part. *H. Markham.*

GENUS PRIMULA.—A correspondent writes:—"Reference was made in a recent *Gardeners' Chronicle* to an exhaustive German work on the now largely-extended genus Primula, and a wish was at the same time expressed that some capable Englishman would favour English botanists and florists with a translation of it. I do trust that someone will be induced to act on so judicious a suggestion, and undertake the translation of a work that would certainly prove instructive and acceptable to all those interested in such a subject. I am passionately fond of all the Primulas, or of such of them as I know. I am, however, in common with others, puzzled with the imperfect, everchanging, and often conflicting nomenclature used regarding the same. The publication of a reliable special treatise (or of a supplementary one in connection with the suggested translation) on the long-cultivated P. Auricula, its varieties, history,

and mode of culture by some of the many special raisers who cultivate and perfect this old favourite, would, I am sure, rejoice many of the readers of the *Gardeners' Chronicle*, and others. This might appropriately embrace similar information and cultural directions regarding the many ever-increasing and perfected forms and varieties of P. vulgaris. So far as I am aware there is no authoritative work on the subject to aid inexperienced amateurs like myself. *J. G.*

SOCIETIES.

ROYAL HORTICULTURAL.

Tuesday, April 23.—Despite the fitful nature of the weather on Tuesday last there was a large attendance of visitors. Probably the exhibition of the National Auricula Society, held in conjunction, was instrumental in drawing some of these. At the afternoon meeting, over which Mr. J. Douglas presided, the Rev. F. D. Horner read a paper on the Auricula, which was received with much satisfaction. The lecturer, who was imperfectly heard, dealt with the further improvement of the flower, pointing out in what lines this should proceed, and gave many hints for the hybridist, deprecating the use of pin-eyed plants as seed-bearing parents. Many other points were raised, some evidently open to adverse criticism, but all put forth with great skill and frankness as well as humour. As a literary production it was excellent; for the rest we must wait till the paper is published, merely indicating that while many of the questions raised are matters of taste, others are questions of physiology, while the avowed advocacy of "narrow" views in floricultural matters is sure to be received with mingled feelings. But as the lecturer wittily said (therein arguing against himself), there is room for improvement, and that is a large room in which we all of us dwell. Mr. Shirley Hibberd and Mr. Douglas (Chairman) discussed some of the points raised by Mr. Horner. Before the next meeting we trust something may be done to improve the acoustic properties of the hall, and add to the convenience of the speaker.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. T. Baines, H. Herbst, B. Wynne, W. D. Leach, F. Ross, R. B. Lowe, C. Noble, J. Fraser, G. Paul, B. S. Williams, S. Hibberd, W. Goldring, and J. Walker.

One of the most attractive and decorative exhibits before the Floral Committee was a collection of varieties of Primula Sieboldi from Messrs. Ryder & Son, Manchester; each variety was represented by about twenty plants in a pan, and some thirty or forty pans were staged, being relieved by a judicious admixture of Maidenhair Ferns. The shades of colouring varied from pure white to rosy-carmine, and to deep lilac-crimson, and the general habit of the plants was dwarf. The following varieties were selected for distinction, and include the most distinct:—General Gordon, bright rose, shading off to white towards the centre of the flower; Mrs. Ryder, white, with a pink reverse—very pretty; Queen of Whites, free-flowering, pure white; and Miss Nellie Barnard, a very fine rich carmine, with a prettily fringed edge. The firm had also a few well-grown Primulas of other species of ordinary merit, but a good plant was to be seen in a variety of P. viscosa, distinguished as splendens. The plants were well grown, and the flowers were pure white.

Primulas in many species were a large portion of a group of plants from the Royal Gardens, Kew, and included such pretty gems as P. Kitaibeliana, P. Peyritschii, P. Pseudo-Fosteri, P. viscosa confinis, &c., there were also plants of Heuchera sanguinea with a profusion of their beautiful decorative carmine flowers. An exhibit in this group which attracted a considerable amount of attention was a specimen of Lathræa clandestina which had been cultivated in the gardens on the roots of a Willow, and of which mention was made in our columns last week, the plant bears sessile flowers about 1½ inch long and of a purple colour. By way of comparison there was a pan of very fine examples of our British species, L. squamaria, Cineraria cruenta, the plant from which our garden Cinerarias have been developed, was shown; there was a well-flowered plant of Rhododendron kewensis, with several trusses of pale flesh-pink flowers, spotted on one segment. Other plants were Orchis undulatifolia, O. longicornu, O. papilionacea, Mackaya bella, in a pot, very pretty; Mertensia virginica and Saxifraga flagellaris.

From Messrs. J. Veitch & Son, Royal Exotic Nursery, Chelsea, S.W., there came a good group of ornamental shrubs with several fine plants of the sweetly-scented Staphylea colchica forming a back row. Conspicuous was Chionanthus virginicus, of which the narrow white segments of the flowers and the pale yellow leaves were very pretty. Cornus sibirica Spathii had yellowish-green marginal variegation. Very pretty, too, were the Japanese Maples; and there were also Montan Pæonies and flowering specimens of Spiræa confusa. The firm had also a very pretty and distinct hybrid Rhododendron (Fosterianum × arboreum), called Her Majesty, with large flowers, almost flat, with a very short tube, the corolla white flushed with pink on the outside and white inside, faintly scented. The specimen shown was about 8 inches high, with three flowers in the truss; the small leathery leaves were obovate. Epiphyllum Makoyanum was also shown; the growth resembles that of E. truncatum, but is broader and more tapering, and round at the ends; flowers terminal, rich scarlet flushed with orange inside, with white stigmas; petals narrow and acute.

Collections of hardy herbaceous plants were sent from the nurseries of Messrs. Paul & Son, Cheshunt, and Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, the last-named showing a considerable variety of hardy Primroses, and also Cypripedium calceolus, Habranthus pratensis fulgens, rich red; Primula Sieboldi, P. japonica, and Lilium Thomsonianum. In Messrs. Paul's group Tulipa Leichtlini was shown, it has smallish flowers of rich but pale yellow, flushed with red externally; the segments of the perianth stand erect, and the acute tips curl outwards, the whole plant attaining a height of about eight inches, and is a very pretty species. Another good plant was Aubrietia Leichtlini, with flowers a trifle larger than those of deltoides, and of a rose colour. Other plants were Adonis vernalis, Violet Blandiana, Valeriana Phu aurea, Doronicum plantagineum excelsum, and hardy Primroses. Messrs. Paul also had some good Amaryllises, the best being Sea Nymphe, rich scarlet-crimson, with a prominent white nerve to each segment, and the flower of medium size; the Colonel, scarlet, with white nerves; and Triangle, a smaller flower, deep red.

A capital group of well-grown and nicely-flowered bush Roses, in pots, was sent by Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, N. The flowers were of good size and clean, the varieties being such favourites as Mad. Lacharme, Mad. Eugene Verdier, Alphonse Soupert, Perle d'Or, Miss Hassard, Marquise de Castellane, &c.

Messrs. W. Paul & Son, Waltham Cross, sent two Roses, viz.:—White Perle, pure white, and good form; and Claire Jacquier (Polyantha), white or yellow, and very elegant.

Roses were also shown by Mr. J. Walker, Thame, who had a lot of 36 very fine blooms of Marechal Niel, and another of Niphetos, in excellent specimens. In a box of various blooms were good samples of Mad. Falcot, Jules Margottin, and Catherine Mermet.

A few varieties of blue primroses were contributed by G. F. Wilson, Esq., Heatherbank, Weybridge. The shades of colour varied greatly, and two were selected by the Committee for distinction, viz., G. F. Wilson, deep blue-purple, with a lake zone and yellow eye; and Quakeress, slaty-blue, veined with a large yellow eye; Mr. Harrison, plum, flushed with crimson-purple, was also a distinct one.

A large collection of strong, free-flowering, and many coloured varieties of hardy Primroses were staged by Mr. A. Waterer, Knap Hill Nurseries, Woking, Surrey.

A specimen of Mignonette, Garaway's double white, was shown by Messrs. Garaway & Co., Clifton, Bristol; this is a very vigorous variety, of firm habit, tall, and fairly well scented, the spike of flower being of good length.



Fig. 92.—Fruits of Macleania punctata. (see p. 531.)

Mr. S. Hill, Latimer Road, Forest Gate, contributed a new Coleus of very rich colouring, named Eureka, the leaves were ovate, acute, rich crimson flaked, and the margin crenate and golden-yellow—a very striking object.

Other exhibits comprised:—From Mr. F. Ross, Pendell Court Gardens, Bletchingley, two spikes and leaves of Alpinia nutans, with flowers of ivory-white externally, but yellow and rich red internally—a very striking plant; also Saraca (Jonesia) indica, a leguminous plant having a head of flowers of yellowish-red; and a truss of Crinum asiaticum. From Mr. W. H. Divers, Ketton Hall, Stamford, a flowering shoot of Mackaya bella, from an unpruned plant grown in a tub and trained on a wall. A Gloxinia with erect flowers, violet-crimson lobes and throat, with a white margin, from Messrs. J. Laing & Sons, Forest Hill, S.E. Gentiana angulosa in full flower, from Mr. Burrell, gr. to D. T. Hodges, Esq., Chislehurst, very pretty. Pansy blooms, from Messrs. A. Bailey & Son, Southwick; and a hybrid Primula (Alpine Auricula × ciliata purpurea), from Mr. R. Dean, Ealing; the flowers here were rich violet, undulate at the margins, and with an eye almost white. P. ciliata was the seed bearer.

The group of Daffodils shown by Mr. J. Walker, Whitton, Middlesex, was conspicuous for the good quality and abundance of fine old and new varieties included in it. Of new or little known Narcissus, mention may be made of N. Barri, Beatrice Murray, N. corbularia conspicua, of richer tint and larger flowers than the type; Colleen Bawn a N. cernuus, but with larger parts, it is creamy-white altogether; N. Dr. Hogg, French-white trumpet; N. Leedsi Gem, white and palest yellow; N. L. Flora Macdonald, white perianth and lemon-coloured corona; N. L. Albion, Edward Hart, and others.

Rivalling this fine group in quantity and quality was that shown by Messrs. P. Barr & Sons, King Street, Covent Garden, which numbered 150 varieties. A few of the best and newest were John Nelson, Flora Wilson (Barri albus), white perianth and orange cup; Lady Grosvenor, creamy-white, of the cernuus section; Bridesmaid, lemon-yellow; Duchess of Westminster, a variety of N. Leedsii, with perianth white and cup of an apricot colour; N. Leedsi Gem, N. Gloria Mundi, Walter Kendal, an Incomparabilis of great beauty, having broad white perianth segments and frilled large orange cup.

Orchid Committee.

Present: Dr. M. T. Masters, F.R.S., in the chair; and Messrs. J. O'Brien, F. Moore, E. Hill, J. Roberts, H. Williams, H. M. Pollett, F. Sander, J. Dominy, and J. Douglas.

The work of this committee was light on this occasion, the exhibits being few of not of a particularly striking character. The most noteworthy was that from Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne, who showed a vigorous plant of Cypripedium nitidissimum, with a spike of three large flowers. This is a cross between C. caudatum and C. conchiferum, and has the habit and form of the first-named, with the delicate brown and yellow markings of the other. On the plant shown the flowers were 3½ inches in length, and had the lateral sepals produced into tails about 10 or 11 inches long. The sepals were pale yellowish-brown, veined with a darker hue. The lip is somewhat similar but darker and more heavily marked, while the tails are red-brown, slightly hairy at their bases.

Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking (Mr. Bickerstaffe), had a few interesting Orchids, including Leptotes bicolor and L. b. serrulata, the difference between these being that in the type the flower is white, with a lip of rosy-carmine edged with white, and with a prominent white apex, whereas in the variety serrulata the colour is run all over the lip.

A pretty object was Dendrobium melanodiscus×, represented by a small plant in full flower; this has been already mentioned and was fully described in our issue of March 9, p. 297. A plant of Ophrys Bertolonii must also be noted, it has the segments of a pale rose, with a large and prominent lip of deep, almost black-brownish crimson, densely set with short hairs of the same colour, with the exception of a central spot which is naked and has a polished appearance.

A Cattleya, with the sepals, petals, and lip, white very faintly flushed with rose and a good yellow in the throat, was contributed by R. B. White, Esq., Ardarroch, N.B. (gr., Mr. R. C. Fraser), it was shown as C. Blunti to which it bore a great resemblance, but was certificated as C. Mendelii, Ardarroch variety, and a very pretty form it is too, well worthy of the distinction awarded.

From H. M. Pollett, Esq., Fernside, Bickley, was a well-flowered specimen of Odontoglossum Pescatorei Thomsonianum, with a good strong spike of flowers, which were remarkable for the depth of colouring of the spots, which were also numerous and large.

Other exhibits were fine-cut spikes of good forms of Odontoglossum cirrhosum, from Mr. J. P. Leadbetter, gr. to Arthur Wilson, Esq., Tranby Croft, Hull; while a Cattleya Mendelii, and a nicely-flowered specimen of Dendrobium nobile Cooksonianum, were shown by T. Lange, Esq., Heathfield, Gateshead-on-Tyne (gr., Mr. A. Methven).

Fruit Committee.

Present: T. Francis Rivers, Esq., in the chair; and Messrs. J. Wright, C. Haycock, G. Wythes, F. Q. Lane, H. Balderson, R. D. Blackmore, W. Warren, J. Cheal, G. W. Cummins, J. Hudson, H. Weir, and Sir C. W. Strickland.

A collection of thirty-three varieties of Apples and three dishes of Pears was shown, the best looking and best kept of the first-named being Alfreston, Norfolk, and striped Beaufin, Bismarck, Annie Elizabeth, Stone's Pippin, Betty Geeson, Lady Henniker, Washington, Blenheim, Court Pendu Plat, and Brownlees' Russet. The Pears were of the stewing kinds. Some excellent sticks of Salt's Crimson and Hawke's Champagne Rhubarb were shown by Mr. R. Gilbert, Burghley Hall, Stamford.

Awards were made as follows:—

By the Floral Committee.

First-class Certificates.

To Epiphyllum Makoyanum, from Messrs. Veitch & Sons (unanimous).

To Rhododendron Her Majesty, from Messrs. Veitch & Sons (unanimous).

To Tulipa Leichtlini, from Messrs. George Paul & Son (6 to 4 votes).

Awards of Merit.

To Mignonette Garaway's Double White, from Messrs. Garaway & Co. (unanimous).

To seedling Primrose Quakeress, from G. F. Wilson, Esq. (5 to 4 votes).

To seedling Primrose G. F. Wilson, from G. F. Wilson, Esq. (unanimous).

To Primula Sieboldi var. Mrs. Ryder, from Messrs. Ryder & Son (unanimous).

To Primula Sieboldi var. Queen of Whites, from Messrs. Ryder & Son (unanimous).

To Primula Sieboldi var. Miss Nellie Barnard, from Messrs. Ryder & Son (unanimous).

To Primula Sieboldi var. General Gordon, from Messrs. Ryder & Son (unanimous).

To Primula viscosa splendens, from Messrs. Ryder & Son (7 to 1 votes).

To Coleus Eureka, from Mr. Hill (6 to 4 votes).

To Amaryllis Sea Nymph, from Messrs. George Paul & Son (5 to 3 votes).

To Aubrietia Leichtlini, from Messrs. George Paul & Son (5 to 1 votes).

To Rose (polyantha) Claire Jacquier, from Messrs. W. Paul & Son (unanimous).

By the Orchid Committee.

First-class Certificates.

To Cattleya Mendelii, Ardarroch variety, from R. B. White, Esq. (unanimous).

To Cypripedium nitidissimum, from Norman C. Cookson (unanimous).

To Odontoglossum Pescatorei var. Thomsonianum, from H. M. Pollett, Esq. (unanimous).

Botanical Certificate.

Ophrys Bertalonii, from Sir Trevor Lawrence, Bart. (unanimous).

Medals.

Silver Gilt Banksian.—To Mr. J. Walker, for group of Daffodils; to Mr. W. Rumsey, for group of Roses; to Messrs. Barr & Son, for group of Daffodils.

Silver Banksian.—To Messrs. Ryder & Son, for group of plants; to Mr. A. Waterer, for group of Primulas; to Messrs. J. Veitch & Sons, for group of plants, and another for a collection of Apples.

Bronze Banksian.—To Mr. T. S. Ware, for hardy herbaceous plants; to Messrs. Paul & Son, for hardy herbaceous plants.

NATIONAL AURICULA.

An agreeable surprise was in store for those who wended their way to the Drill Hall on April 23 to see the display at the annual Primula festival, and especially to do honour to the highest form of the genus, the Auricula. No one anticipated such a large, and, on the whole, such a good display. The season had been slow and sluggish; the Auriculas had come on very slowly indeed, that it was generally anticipated it would be a meagre one, and that the competition would be poor. But the varieties appeared in strong force, not a few of them in fine form, and there was a keen competition all along the line. Generally there was roughness and somewhat drawn plants, but neutralised by some in their best dress. The band of young growers, who reside at Reading, are especially to be commended for their valuable contribution to the show, and the fine quality of their flowers. That Mr. T. E. Henwood, the treasurer of the society, should beat Mr. C. Turner in the class for twelve Alpines, is as if a planet had eclipsed in glory the splendid effulgence of the full moon, and, to employ a school phrase, he also "took down" that renowned cultivator, Mr. James Douglas, in the class for twelve show varieties, though there was not a great deal to choose between the two collections.

Show Auriculas.—In the class for twelve dissimilar varieties there were four entries. The Rev. F. D. Horner, Lowfells, Kirkby Lonsdale, being 1st with green edges—Monarch, a little rough; the Rev. F. D. Horner (Simonite), very fine indeed, and one of the best and most useful green edges yet raised; and Green Plover, grey edges; Nigella (Horner), almost a white edge; white edges, Magpie and Mellor's Reliance. Selfs: McLaine, a fine maroon Self, large stout and smooth; Dimple, bright maroon, also of fine quality; Ebony, dark, somewhat large and rough, as shown; Heroine, very fine indeed; and Daisy, a plum-coloured Self. Generally the plants were finely grown, and they carried eight and ten expanded tips; 2nd, Mr. T. E. Henwood, Hamilton Road, Reading, with Green Edges; Prince of Greens, Lancashire Hero, in its green dress, The Rev. F. D. Horner, and the Old Colonel Taylor, still bright on the edge, but wanting the finish of later raised varieties. Grey edges: George Lightbody, Richard Headly, and Heather Belle (Simonite). White edges: Acme and John Simonite; Selfs: Black Bess, Heroine, and Sapphire; 3rd, Mr. J. Douglas, gr. to Mrs. Whitbourn, Great Gearies, whose best plants were a Rev. F. D. Horner, with eleven pips, selected as the premier Auricula in the exhibition, and Abbé Lizst, Green edges; George Lightbody and Mabel, Grey edges; and Mrs. Douglas and Black Bess, Selfs; 4th, Mr. A. J. Sanders, gr. to Viscountess Chewton, Cobham, Surrey.

In the class for six varieties there were also four entries. Mr. T. E. Henwood was 1st with green edges, the Rev. F. D. Horner, with nine fine pips, and Lancashire Hero; Grey: George Lightbody. White edge: Smiling Beauty, in fine form. Selfs: Heroine and Mrs. Potts, the last-named very smooth and finely developed; 2nd, Mr. J. Douglas, with green edges, the Rev. F. D. Horner, with twelve pips; and Verdure (Douglas). Green edges: Mabel and Heather Belle. White edges: Acme; and Heroine, Self; 3rd, The Rev. F. D. Horner; 4th, Mr. A. J. Sanders.

In the class for four varieties there were six competitors: here Mr. W. L. Walker, Erleigh, Reading, was 1st with green edge, the Rev. F. D. Horner. Grey: Dr. Horner, with twelve fine pips. White edge; Acme; and Self: Black Bess; 2nd, Mr. C. Phillips, Erleigh, Reading, with green edge, the Rev. F. D. Horner. Grey: George Lightbody. White: Acme: and Self: Heroine, with eleven fine pips; 3rd, Mr. R. Patterson, Ashbourn Gardens, Sunderland; 4th, Mr. E. Adams, Queen's Head, Swalwell.

In the class for two plants, Mr. C. Phillips was 1st, with grey, Dr. Kidd; and Self, Black Bess, with twelve pips; 2nd, Mr. E. Adams, with green edge, John Crossley (Pohlman), and Mrs. Potts, a charming blue Self with twelve pips; 3rd, Mr. W. L. Walker; 4th, Mr. R. Paterson.

Single specimens.—Green edges: 1st, Rev. F. D. Horner, with his namesake; 2nd, Mr. J. Douglas; 3rd, Mr. T. E. Henwood; and 4th, Mr. C. Phillips, with the same. Abbé Lizst and Colonel Taylor were also shown. Grey edges: 1st, Mr. J. Douglas with Marmion; 2nd, Mr. J. Sanders, with George Lightbody; 3rd and 4th, Rev. F. D. Horner, with Atalanta. White edges: 1st, Mr. T. E. Henwood, with Acme; 2nd, Mr. J. Douglas, with Conservative; 3rd, T. E.

Henwood, with John Simonite; 4th, Mr. A. J. Sanders, with Acme. Selfs: 1st, the Rev. F. D. Horner, with Heroine; and 2nd with the same; 3rd, Mr. J. Douglas, with Sir William Hewett; 4th, Mr. C. Phillips, with Pizarro.

Group of fifty plants.—Here Mr. J. Douglas was as usual placed 1st, having all show varieties; of green edges, Prince of Greens, Rev. F. D. Horner, and Abbe Lizst; grey edges: Alexander Meiklejohn, Ajax, Frank Simonite, Dr. Kidd, Mabel, and George Lightbody. White Edge, Acme, and Beauty; Selfs: Sir Launcelot, Sapphire, C. J. Perry, and Duke of Albany: 2nd, Mr. C. Turner, who had a mixture of Alpines. Excepting that this class helps the display, it is a useless one, as the collections contain the flowers that are not good enough to be shown in other classes.

Alpines.—Some very fine flowers were shown in the following classes, but the new varieties are now of very large size, but gained, it is to be feared, at the expense of refinement. With twelve varieties, Mr. T. E. Henwood was 1st with Sunrise, Charles Turner, Defiance, Albion, Edith, Miss Blackbury, Mungo McGeorge, Rosalind, Pallas, and seedlings—a very fine lot indeed; 2nd, Mr. C. Turner, with Alarm, Sceptre, Miss Blackbury, Caractacus, Harry Turner, John Bright—new and very fine, rich golden centre and dark ground edged with fiery salmon; Roland, Countess, T. E. Henwood, Lord H. Grosvenor, Exquisite, and Eclipse; 3rd, Mr. J. Douglas; 4th, Messrs. Paul & Son.

In the class for six varieties there were five competitors, Mr. C. Turner bring placed 1st, with Roland, T. E. Henwood, Surprise, creamy ground, edged with dark shaded to mauve, very fine; Sunrise, Flambeau, and Emblem; 2nd, Mr. T. E. Henwood, with Arethusa, Queen Victoria, Pallas, T. E. Henwood, Hotspur, and Reginald; 3rd, Mr. W. L. Walker; 4th, Mr. J. Douglas.

In the class for four varieties there were this number of competitors, Mr. W. L. Walker being placed 1st, with Mr. Llewelyn, Miss Blackbury, Mr. Meiklejohn, and Mungo McGeorge; 2nd, Messrs. Paul & Son, with Sailor Prince, Princess of Wales, Rev. F. D. Horner, and Diadem; 3rd, Mr. A. J. Sanders; 4th, Mr. R. Dean, Ealing.

Single specimens, with golden centres, Mr. T. E. Henwood, was 1st with Hotspur; 2nd, Mr. J. Douglas, with seedling, and 3rd, with Hebe; 4th, Mr. W. L. Walker, with King of the Belgians.

White centres.—1st, Mr. C. Turner, with a seedling, and 2nd, with Countess; 3rd, Mr. J. Douglas, with seedling; and 4th, Mr. T. E. Henwood, also with a seedling.

Gold-laced Polyanthus. — These were generally somewhat weedy in growth, and lacking in refinement. Mr. E. Adams had the best six, staging George IV., Formosa, Prince Regent, Nicholson's King, Cheshire Favourite, and Napoleon; 2nd, Mr. J. Douglas, with Prince Regent, George IV., William IV., Lancer, and two seedlings.

Mr. J. Douglas had the best three, showing Lancer, George IV., and a seedling; 2nd, Mr. R. Dean, with William IV., John Bright, and a seedling.

The best single specimen was George IV., from Mr. E. Adams; 2nd and 3rd, Mr. J. Douglas, with George IV.; Mr. R. Dean being 4th and 5th, with seedlings.

Fancy Auriculas.—With twelve varieties, Mr. J. Douglas was 1st, generally with yellow and buff-coloured selfs; Mr. R. Dean being 2nd, with doubles, laced, and others, among them being a large blue self named Blue Beard, which attracted a good deal of attention.

Fancy Polyanthus.—With twelve plants, Mr. J. Douglas was 1st, and Mr. R. Dean 2nd, both showing very fine and showy varieties.

Single Primroses.—Mr. R. Dean was 1st, with twelve superb varieties in the form of laced plants, carrying remarkable heads of blooms; 2nd, Mr. J. Douglas; 3rd, Messrs. Paul & Son.

Double Primroses.—With six varieties, Messrs. Paul & Son were 1st, with large made-up pans of platypetala, Harlequin, Croussii, Brilliant, a showy wine-purple variety; Lilac, and Sulphur. 2nd, Mr. R. Dean, with Croussii, Lilac, Crimson, White, Sulphur, and platypetala.

Species of Primulas.—There were three exhibitors of twelve plants, Mr. J. Douglas being 1st, with obconica, Cashmeriana, nivea, japonica, auricula, Readi, white, very distinct; obtusifolia, purple, very fine in colour, and quite novel; Nelsoni, very fine; viscosa, and intermedia. 2nd, Messrs. Paul & Son, with rosea, denticulata, auricula, rosea, ciliata purpurea, viscosa, pubescens, ciliata coccinea, &c. 3rd, Mr. W. Harpur, Midland Nursery, Guildford. Mr. R. Dean was the only exhibitor of six, having obconica, Cashmeriana, Sieboldi, auricula, verticillata, and intermedia Portia.

The premier Auricula of the exhibition was a fine example of the Rev. F. D. Horner, green-edge, shown by Mr. J. Douglas, in his collection of twelve show varieties.

Seedlings.—Green edges: The Rev. F. D. Horner was placed 1st with Dragon Fly, one of his own seedlings, good tube and paste, black body colour, and broad deep green edges; and 2nd with Neptune, also his own raising, in the way of the foregoing, but larger and broader in the black body colour. Grey edges: 1st, the Rev. F. D. Horner, with Calliope (Horner), gold tube, black body colour, but as shown wanting in refinement. Selfs: the Rev. F. D. Horner was 1st with Fanny Glass (Horner), a fine dark self in the way of Heroine, good tube and narrow paste, very smooth; and 2nd with Laura (Horner), a violet self, smooth and promising. Mr. Horner also had Firefly, a dull red self, with a large and finely formed pip, good tube, but a little weak in the paste; and Buttercup, the best yellow self yet produced, flat, smooth, and well proportioned.

Seedling Alpines.—Awards were made only to golden-centred varieties, Mr. J. Douglas being 1st with Easter Gem, and 2nd with Circassian, both very promising varieties.

A First-class Certificate was awarded to Fancy Polyanthus Brilliant, shown by Mr. R. Dean; colour, bright crimson, each segment having a distinct spot of white—very novel, distinct, and effective, and of fine shape.

Miscellaneous Primulas.—Mr. Anthony Waterer staged eight boxes of hybrid Primroses, of showy character; Mr. R. Dean, a group of hardy Primulas and Auriculas; Mr. C. Turner and Mr. J. Douglas, each a collection of Auriculas; Mr. T. S. Ware, a collection of hybrid Primroses; and G. F. Wilson, Esq., Heatherbank, Weybridge, a basket of blue Primroses of the Scott-Wilson type, that were very much admired.

Obituary.

JOHN WILSON.—The death is announced on March 25 of Mr. John Wilson, Superintendent of the Municipal Parks, Port Elizabeth. He had fulfilled the duties of his office for nearly thirty years, to the great advantage of the town and to his own great credit, having made the rocky desert "Veldt" blossom as the Rose.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending April 16.	Temperature. Accumulated. Above 42° for the Week.	Temperature. Accumulated. Below 42° for the Week.	Temperature. Accumulated. Above 42° difference from Mean since Jan. 1, 1889.	Temperature. Accumulated. Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (−) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1889.	Rainfall. Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the Week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	4 —	10	25	— 37	+ 47	1 +	83	15.0	35	18
2	1 —	8	25	— 47	+ 32	0 av.	63	6.5	14	21
3	5 —	5	18	— 68	+ 34	1 —	57	6.4	5	26
4	6 —	12	20	— 109	+ 135	2 +	58	4.8	8	21
5	6 —	12	22	— 113	+ 89	4 +	54	8.5	7	19
6	4 —	24	8	— 110	+ 93	1 +	57	6.5	8	20
7	4 —	13	22	— 50	+ 1	3 —	65	11.8	23	22
8	6 —	11	20	— 87	+ 19	2 +	60	7.9	10	20
9	5 —	28	13	— 93	+ 97	2 —	55	10.5	27	27
10	4 —	20	12	— 32	— 35	2 —	74	10.0	24	19
11	5 —	29	15	— 34	— 4	5 —	62	9.3	31	27
12	3 —	29	0	— 53	— 15	1 —	66	7.1	23	32

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending April 23.	Temperature. Accumulated. Above 42° for the Week.	Temperature. Accumulated. Below 42° for the Week.	Temperature. Accumulated. Above 42° difference from Mean since Jan. 1, 1889.	Temperature. Accumulated. Below 42°, difference from Mean since Jan. 1, 1888.	Rainfall. More (+) or less (−) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1889.	Rainfall. Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the Week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
1	1 +	28	6	— 32	+ 30	0 av.	89	15.8	21	18
2	3 +	15	1	— 33	+ 21	2 —	67	6.8	36	22
3	1 +	12	1	— 56	+ 25	4 —	58	6.5	32	21
4	2 —	16	8	— 100	+ 130	4 —	61	4.9	26	21
5	1 —	16	1	— 106	+ 79	3 —	56	8.7	27	20
6	1	14	1	— 109	+ 86	3 -	59	6.6	32	21
7	0 av.	33	0	— 52	— 8	1 +	69	12.7	36	21
8	1 —	34	0	— 87	+ 8	1 -	63	8.2	37	22
9	1 —	41	0	— 93	+ 90	5 —	58	10.7	16	28
10	1 -	37	1	— 33	— 12	2 +	78	10.7	26	20
11	1 —	12	1	— 35	— 8	3 -	66	9.7	35	27
12	1 -	52	0	— 44	— 16	1 —	67	7.2	51	33

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending April 23, is furnished from the Meteorological Office:—

"The *weather* has been rather rainy and unsettled in the extreme northern and north-western parts of the kingdom, but over England, the east of Scotland, and the south of Ireland the condition has been much fairer than of late. Towards the close of the period, however, thunder and lightning, accompanied by heavy showers of rain and hail, were experienced in many parts of England.

"The *temperature* continued below the mean during the earlier days of the week, but subsequently rose very considerably. The average for the week has been above the normal over the greater part of Scotland, as well as in the north-east of England, but elsewhere a slight deficit is shown. The highest of the maxima, which were recorded between the 18th and 20th, varied from 57° in 'Scotland W.' to 66° in 'England N.E.' and the 'Midland Counties' to 67° in 'Scotland W' and to 68° in 'England S.W.' The lowest of the minima were registered on the 16th, and ranged from 30° in 'Scotland W' to 36° in 'England N.W.' and to 41° in the 'Channel Islands.'

The *rainfall* has been a little more than the mean in 'Scotland W.' and 'Ireland N.' and about equal to it in 'Scotland N.,' but in all other districts it has been less than the normal.

Bright sunshine shows a decrease in 'Scotland N.,' but in all other parts of the kingdom it has been more prevalent than for some time past. The percentage of the possible duration ranged from 51 in the 'Channel Islands' and 46 in 'England S.W.' to 20 in 'Scotland N.'

LAW NOTES.

PREPARATION OF PLANS BY LANDSCAPE GARDENERS.

VERTEGANS (EDGBASTON) *v.* MASON.—This was an action to recover £9 9*s.*, the cost of a plan, tried at the Birmingham Court, before Judge Chalmers. In 1884 a conversation took place between plaintiff and defendant about laying out and planting St. Thomas' churchyard, and plaintiff alleged that he received an order from defendant upon that occasion to prepare plans and specifications. These were duly prepared, and an offer made to do the work for £274 5*s.* Plaintiff sent in his account to defendant for £23 3*s.* 3*d.*, being £9 9*s.* for the plans, and 5 per

cent. commission on the £274 5*s*. The plans were not used, and defendant refused to pay for them, alleging that he did not give the order. The claim for the commission was withdrawn, and on examination of defendant it appeared there had been an understanding as to the work being done. Judgment was given for plaintiff for £5 5*s*. and costs. His honour remarked that it was too often the case that people went to professional men and expected them to give advice free.

MARKETS.

COVENT GARDEN, April 25.

Our market has not recovered itself yet. Hothouse goods in full supply. The first Peaches this season just to hand. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	*s. d.*		*s. d.*	*s. d.*
Apples, half-sieve	2 0–	4 0	Lemons, per case	12 0–	21 0
— Canada and Nova Scotia, per barrel	7 0–	17 0	Pine-apples, Eng., lb.	1 6–	2 0
Grapes, per lb	2 6–	6 0	— St. Michael, each	2 0–	8 0
— new, per lb.	1 0–	7 0	Strawberries, per lb.	2 0–	4 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	*s. d.*		*s. d.*	*s. d.*
Asparagus, English, per 100		12 0–	Mustard and Cress, punnet		0 4–
— French, bundle	21 0–		Onions, per bunch	0 5–	
Beans, Jersey French, per lb.	3 6–		Parsley, per lb.	1 0–	
Beet, red, per dozen	1 0–	2 0	Peas, French, per lb.	1 0–	
Carrots, per bunch	0 6–		Potatos, per cwt.	4 0–	5 0
Cauliflowers, each	0 3–		— kidney, per cwt.	4 0–	5 0
Celery, per bundle	1 6–	2 0	— new French, lb.	0 6–	
Cucumbers, each	1 0–		Rhubarb, bundle	0 6–	
Endive, per dozen	3 0–		Sealkale, punnet	2 6–	
Green Mint, bunch	1 0–		Shallots, per lb.	0 6–	
Herbs, per bunch	0 6–		Spinach, per bushel	5 0–	
Leeks, per bunch	0 4–		Tomatos, per lb.	2 0–	
Lettuce, per dozen	1 6–		Turnips, per bunch, new	0 5–	
Mushrooms, punnet	1 6–				

POTATOS.—Beauty of Hebron, 70*s*. to 80*s*.; Imperators, 60*s*. to 65*s*.; Dunbar Magnums, 130*s*.; Lincoln, do., 70*s*.; and Dunbar Regents, 110*s*. to 120*s*. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	*s. d.*		*s. d.*	*s. d.*
Aralia Sieboldi, doz.	6 0–	18 0	Ficus elastica, each	1 6–	7 0
Arum Lilies, p. doz.	6 0–	12 0	Genista, dozen	8 0–	12 0
Azaleas, dozen	24 0–	42 0	Hyacinths, dozen	6 0–	9 0
Cineraria, per dozen	6 0–	12 0	Lily-of-Val., per doz. pots	10 0–	18 0
Cyperus, per dozen	4 0–	12 0	Margueites, doz.	6 0–	12 0
Dracæna terminalis, per dozen	30 0–	60 0	Mignonette, doz.	6 0–	12 0
— viridis, per doz.	12 0–	24 0	Musk, dozen	4 0–	
Erica, various, doz.	12 0–	30 0	Palms in var., each	2 6–	21 0
Euonymus, in var., per dozen	6 0–	18 0	Pelargoniums, dozen	9 0–	15 0
Evergreens, in var., per dozen	6 0–	24 0	— scarlet, doz.	4 0–	6 0
Ferns, in var., doz.	4 0–	18 0	Roses, H.P., doz.	12 0–	24 0
Foliage plants, various, each	2 0–	10 0	— Fairy, doz.	9 0–	12 0
			Spiræa, doz.	9 0–	15 0
			Stocks, dozen	4 0–	
			Tulips, dozen pots	6 0–	9 0

BEDDING PLANTS in variety from 1*s*. per doz.; per box, 1*s*. 6*d*. to 2*s*. 6*d*.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	*s. d.*		*s. d.*	*s. d.*
Abutillons, 12 bun.	3 0–	6 0	Marguerites, 12 bun.	3 0–	6 0
Anemone, Fr., 12 bun.	1 0–	3 0	Mignonette, 12 bun.	3 0–	6 0
Arum Lilies, 12 blooms	2 0–	4 0	Narcis., white, 12 bun.	2 0–	6 0
Azaleas, 12 sprays	0 6–	1 0	— double, 12 bun.	4 0–	6 0
Bouvardias, per bun.	0 9–	1 0	Pelargoniums, 12 spr.	1 0–	1 6
Camellias, white, 12 blooms	2 0–	4 0	— scarlet, 12 spr.	0 4–	0 6
— red, 12 blooms	0 9–	2 0	Primroses, 12 bun.	0 6–	1 0
Carnations, 12 blms.	1 0–	2 0	— dbl. white, 12 bun.	0 6–	1 0
Daffodils, dbl. 12 bun.	2 0–	4 0	Primulas, dbl., 12 sp.	1 0–	1 6
— single, 12 bun.	1 6–	3 0	Spiræa, 12 bun.	6 0–	8 0
— various, 12 bun.	4 0–	9 0	Roses, Tea, per doz.	1 0–	3 0
Eucharis, per dozen	3 0–	6 0	— coloured, dozen	2 0–	4 0
Gardenias, 12 blooms	2 0–	4 0	— red, per dozen	2 0–	1 0
Heliotropes, 12 spr.	0 6–	1 0	— Safrano, dozen	1 6–	2 0
Hyacinth (Dutch), in quantity, box	1 0–	4 0	— do., (Fr.), doz.	1 0–	1 6
Lilac, white Fr., bun.	4 0–	6 0	Tuberoses, 12 blms.	1 6	2 0
— lilac-coloured, p. bunch	3 0–	5 0	Violets, 12 bunches	0 6–	1 0
Lily-of-Val., 12 spr.	0 6–	1 0	— dark, Fr., bunch	1 0	2 0
			— Parme, Fr., bun.	2 6–	3 6
			Wallflowers, 12 bun.	2 0–	4 0

SEEDS.

London: *April* 24.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that there is still an active demand for farm seeds, under the influence of which stocks are getting much reduced. Moderate figures now rule for Alsike, red, and white Clover; Trefoil, however, is still very scarce and dear. Rye-grasses move off freely on former terms. For Tares the sale is slow. Not much business passing in bird seeds. Blue boiling Peas are still in favour. More money is asked for Rape seed. Other articles show no change.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended April 20:—Wheat, 29*s*. 10*d*.; Barley, 25*s*. 1*d*.; Oats, 17*s*. 9*d*. For the corresponding week in 1888:—Wheat, 30*s*. 7*d*.; Barley, 29*s*. 9*d*.; Oats, 16*s*. 5*d*.

FRUITS AND VEGETABLES.

Stratford: *April* 23.—Quotations: Cabbages, 2*s*. to 3*s*. per tally; Savoys, 2*s*. to 3*s*.; Cauliflowers, 1*s*. to 1*s*. 6*d*. per dozen; Turnips, 2*s*. 6*d*. to 3*s*. per dozen bunches, 25*s*. to 30*s*. per ton; Carrots, household, 23*s*. to 25*s*. do.; do., cattle feeding, 18*s*. to 21*s*. do.; Swedes, 14*s*. to 18*s*. do.; and Mangels, 14*s*. to 18*s*. do.; Onions, English, 120*s*. to 140*s*. per ton; ditto Dutch, 3*s*. 6*d*. to 4*s*. 3*d*. per bag; do., Bordeaux, 4*s*. to 4*s*. 6*d*. per case; Apples, English, 3*s*. to 7*s*. per bushel; do., American, 12*s*. to 15*s*. per barrel; Watercress, 6*d*. per dozen; Radishes, 1*s*. to 1*s*. 3*d*. per dozen bunches; Cress, 1*s*. 9*d*. to 2*s*. per dozen baskets; Rhubarb, 2*s*. to 2*s*. 6*d*. per dozen bundles; Spring Onions, 3*s*. to 4*s*. do.

POTATOS.

Borough and Spitalfields: *April* 23. — Fair supplies and moderate demand, with prices rather irregular. Scotch Regents, 80*s*. to 130*s*.; English, 60*s*. to 105*s*.; Magnum Bonums, 60*s*. to 100*s*.; Dunbar, 100*s*. to 130*s*.; other varieties, 60*s*. to 80*s*. per ton.

Spitalfields: *April* 24. — Quotations:—Champions, 55*s*. to 65*s*.; Regents, 80*s*. to 130*s*.; Imperators, 55*s*. to 70*s*.; Hebrons, 50*s*. to 60*s*.; Magnums, 55*s*. to 80*s*.; Scotch do., 70*s*. to 120*s*. per ton.

Stratford: *April* 23. — Quotations: — Scotch Regents, 80*s*. to 110*s*.; do., Magnums, 90*s*. to 110*s*.; light English Magnums, 60*s*. to 80*s*.; dark do., 55*s*. to 60*s*. per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, old, prime, 120*s*. to 128*s*.; do., best seconds, 80*s*. to 120*s*.; do., inferior, 36*s*. to 70*s*.; prime old Hay, 108*s*. to 126*s*.; new, 90*s*. to 105*s*.; inferior, 50*s*. to 70*s*.; straw, old, 42*s*. to 48*s*.; new, 28*s*. to 40*s*. per load.

NOTICES TO CORRESPONDENTS.

Asparagus plumosus: *G. R.* Certainly the plant cannot be classed with Ferns in an exhibition of the latter.

Books: *A. M. The Orchid Growers' Manual* (new edition), by Mr. B. S. Williams, and published at the Victoria and Paradise Nurseries, Upper Holloway, London, N.—*J. B.* Paxton's *Magazine of Botany*, 1834 to 1849, sixteen vols., 8vo. Can only be purchased at second-hand booksellers. Price various.

Cart Grease: *W. H.* Despite the statement, we believe in the efficiency of this when properly applied. Mr. Wilson lately exhibited before the Scientific Committee some specimens which effectually demonstrated the value of this "catch-'em-alive, oh!"

Chrysanthemums: *J. N.* See paper on the subject in this week's issue, p. 530; or, better, get Molyneux's *Chrysanthemums and Their Culture*, published at 171, Fleet Street, London, E.C. This book contains all the information you require.

Cotton Grass: *O. G.* We do not suppose that stock would be poisoned with this plant, but the silky hairs of the flower heads would have an injurious mechanical effect on animals if eaten in large quantities.

Cyclamen Increased by Division of the Corm: *J. H.* Provided the divisions were furnished with an eye or a bud there is no reason to suppose the method of increase would not be successful. We should be glad of further information on this subject.

Eight Acres of Garden Land, and Half an Acre of Orchard, Two Vineries, Two Peach-houses, One Stove, One Greenhouse, and Three Pits, all Stocked with Vines, &c., and Plants, Eleven Cows, and Poultry: *F. W. B.* The kitchen garden of one acre, walled in, will require at least one good man, and one accustomed to the care of fruit trees on walls and in the open; in this department it will often be necessary to import the labour from the other parts of the place. The houses will require two active men, the pleasure grounds two men, and one other to go with the mowing-machine during the summer, and who could attend to the cows with the assistance of a boy. The head gardener would superintend the whole, and assist personally in doing the lighter parts of the work. His wages, if he is a good man, should not be less than £80 per annum, with a dwelling, &c.

Insect in Vinery: *W. A. T.* It is the clay-coloured weevil (Otiorhynchus picipes), very partial to Vine leaves and shoots. They are difficult to catch, as they feed at night. Get broad pieces of board, or trays of metal or wood; smear them with coal-tar; place them beneath the Vine-rods; paper would also do. Go into the vinery at night with a dark-lantern, then turn on the light. The artful weevils will at once drop from the Vines on to the smeared boards; they are in too great a hurry to hide themselves to go back by the way they came. When there they must be killed, and the boards removed till the next night. By perseverance in this course many of the insects may be killed. Boiling water dashed under stones and bricks, and into crevices, will also destroy some.

Insects: *W. C.* The "large red spiders" sent are not spiders, they are a kind of mite (Trombidium holosericeum). They do no damage in the garden. The flies now found on the Gooseberry trees are the parents of the caterpillars which eat off the foliage, and turn to these common sawflies next spring. *I. O. W.*—*A. F. B.* The pretty little green beetles which are found damaging the young leaves of your Vines are a species of weevil (Phyllobius argentatus), with the same habits as the Otiorhynchi. They may be trapped in the same manner, and must at once be destroyed. *I. O. W.*

Leaves at Ealing: *J. W.* The leaves sent are those of the common Laurustine and in their present dry state quite innocent. The nuisance in question is probably the result of the use of night soil or other manure, or possibly from some old forgotten cesspool. The Stink-horn fungus has been suggested, but that does not appear till later in the year.

Leaves of Fig and Vine: *W. W. and F. T.* The leaves sent are spotted from over-turgescence and "burning"—no doubt the ventilation was bad and insufficient to ensure freedom of transpiration. This induces formation of blister-like outgrowths of tender tissue, which are easily "scorched."

Names of Plants: *Barr & Son.* Glechoma hederacea; trailing plant, not tap-rooted.—*A. Chapman.* Tussilago farfara (Coltsfoot). — *F. W. C.* Eupatorium Weinmannianum.—*Lymington.* Staphylea pinnata.—*No name.* 1, Juniperus recurva, male; 2, Cotoneaster rotundifolia; 3, 4, 5, Epimedium (next week); 6, Corydalis nobilis; 7, Narcissus Eystettenses; 8, N. cernuus; 9, Allium (next week); 10, Erythronium.—*H. T.* Pinus monticola; Rhododendron dauricum.—*J.R.* 1, Cypripedium calceolus; 2, Oncidium sarcodes, a light variety; 3, Odontoglossum citrosmum album (a good one); 4, Todea intermedia.— *Enclosed in a Tin Box; no Letter.* Two varieties of Odontoglossum luteo-purpureum.—*W. T. Ogilvy.* Impossible to tell from the dried up specimen.—*O. Orpet.* Please send fuller material. Is the flower sent a fair average specimen?—*F. G. T.* Bifrenaria Harrisoniæ.—*S. C.* 1, Pteris bastata; 2, Forsythia suspensa; 3, Bletia verucunda.—*H. J. R.* Yes; Pescatorea cerina.—*C. W. K.* Lælia Boothiana (= Cattleya lobata). —*J. Huggins.* Narcissus pseudo-Narcissus var. moschatus.

Seedsmen and Florists: *J. S.* There are lists given in the *Garden Annual*, published by W. Robinson, 37, Southampton Street, Strand, W.C.; and in the *Horticultural Directory*, published at 171, Fleet Street, E.C.

Seed Tester: *W. C. R.* The Geneva Seed Tester was illustrated in our issue for March 5, 1887. You could easily get one made upon the plan there shown.

Evergreen Shrubs for Town Gardens: *A. D. W.* Skimmia oblata (=japonica), Osmanthus aquifolius,

Hollies, Aucubas, Ligustrum coriaceum, Phyllyrea Vilmoriniana, Ilex minima, Griselinia littoralis and Yuccas. Rhododendrons and Laurels will not do well.

Strawberries: *R. G.* La Grosse Sucreé in flavour and appearance beats A. F. Barron, although had we tasted the latter only, we should have said that that variety was excellent. The fruits bore the journey well.

Tomato Trophy: *F. G. M.* The fruit is smooth, large, and of a red colour. It is a good bearer, and is rather late in coming into bearing. The growth will depend greatly on the soil it is planted in. As a general rule, the soil for Tomatos should not be rich, as this tends to coarseness of growth and deformed fruits; and the plants remain healthier when the amount of water afforded them is not in excess of their actual needs. When the fruit is swelling off, and when the plants by long standing have exhausted the food supply in the soil, assistance may be given in the form of liquid manure, or a mulching of fresh soil and decayed manure. If the plants are in a border it should be well drained.

Camellia Scale: *E. J. S.*—Your plants are infested with a coccus scale (see fig. 93). You should destroy them by applying methylated spirit to the insect with a small brush.

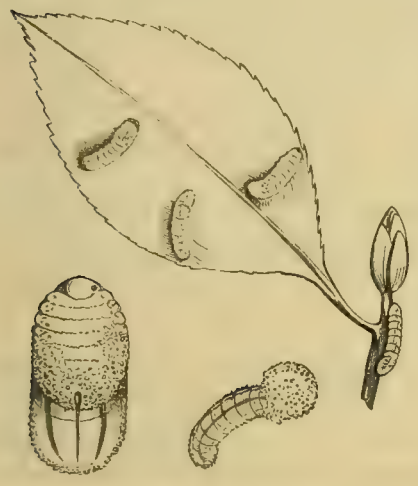


Fig. 93.—Coccus on Camellias.

Vine Borders: *H. B. P.*—For a very early vinery the border is better when entirely inside, but as Vines forced thus early do not last long—if they have not a rest once in three or four years—they are best in pots, tubs, or long wooden troughs, thereby avoiding the expense of big borders. Size of berry is a matter of early and severe thinning, according to variety, and of feeding during growth. Muscat of Alexandria and Gros Colmar are seldom forced for early produce, and the borders for these are better when they are both inside and outside the vineries. Outside borders keep in a wholesome state longer than inside ones, although much is due to the kind of materials employed to make them, and how made, and their treatment afterwards.

Vine Leaves: *T. B.* Looks like scalding, caused by the sun shining through bright glass on the wet leaves. Will examine them fully, and reply next week.

Vines: *W. J. C.* Scalding. Collect pollen with a hare's foot or a camel's-hair pencil. It will keep for a short time.

Violets: *J. H.* It would be more advisable to make use of our advertising columns.

Communications Received.—T. Wagstaff (next week).—W. H.—J. Hughes.—W. C. H.—J. P.—W. B. H.—J. McK.—Mrs. H.—Monbrillant.—C. Lacey.—F. R.—J. D.—J. J. W.—W. Hester.—H. M. W.—Professor Crépin.—J. W.—R. G.—W. P.—H. C. de K.—A. D. W.—Lady C.—G. C., Ochtertyre (many thanks, next week).

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquiries in the current week.*

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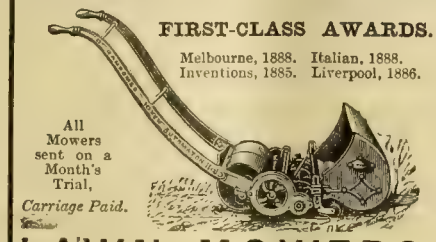
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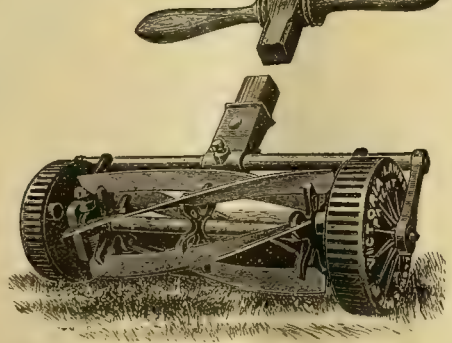
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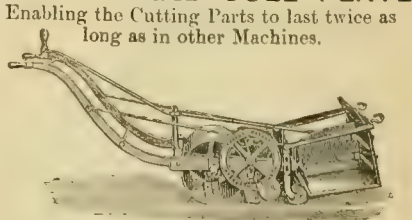
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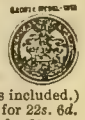
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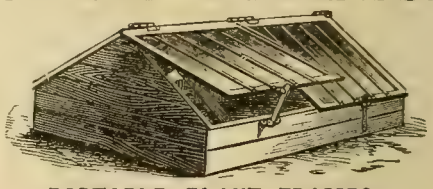
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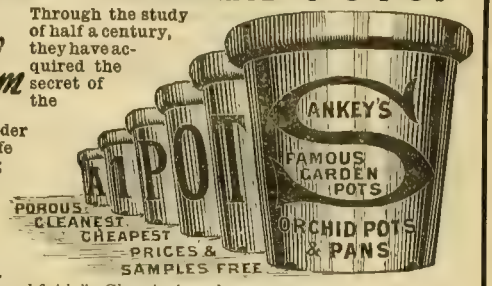


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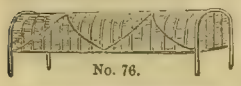
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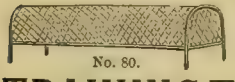
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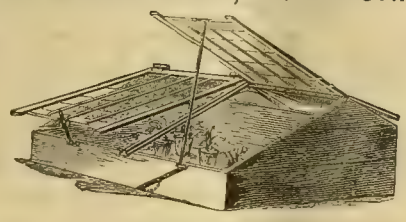


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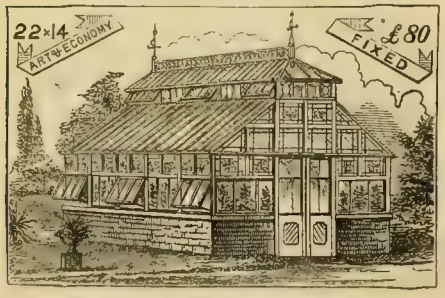
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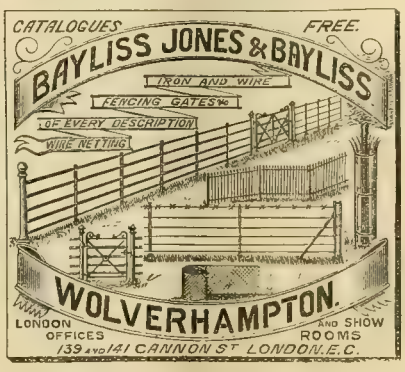
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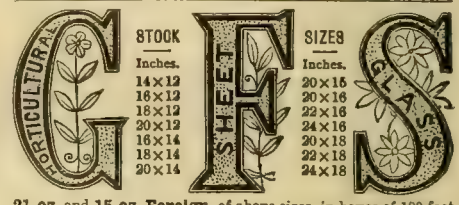
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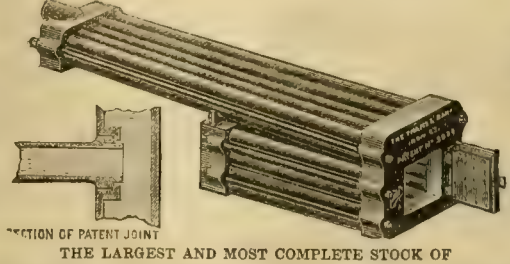
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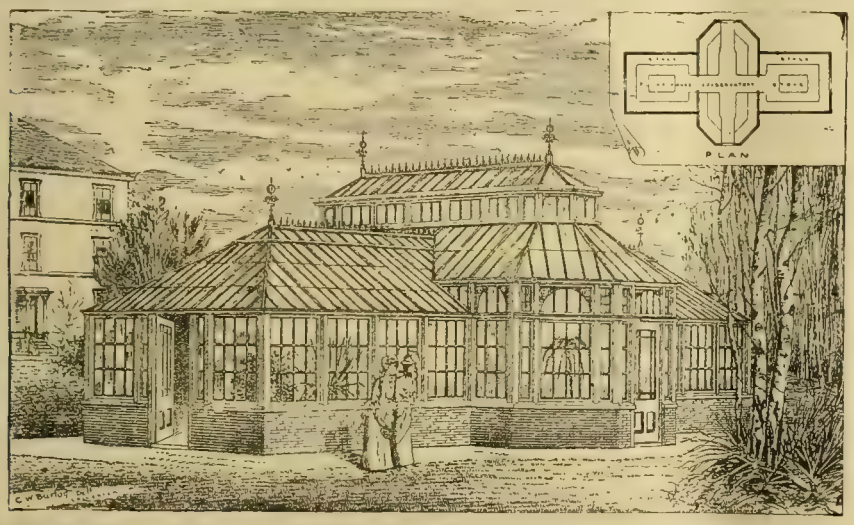
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Mr. W. A. HODGE has been appointed Head Gardener to Colonel PORTER, Fairford Park, Gloucestershire.

Mr. THOMAS HOBDAY, for the last seven years Foreman in the Rangemore Gardens, Burton-on-Trent, has been appointed Head Gardener to the Earl of YARBOROUGH, Brocklesby Park, Ulceby, Lincolnshire.

Mr. W. RUTHERFORD, formerly Gardener to C. W. BARTON, Esq., Glendalough House, Wicklow, has been appointed Head Gardener to Lord INCHIQUIN, Dromoland Castle, Newmarket-on-Fergus, Co. Clare.

Mr. G. P. BOUND, late of Bucknell Manor, Bicester, has been appointed Head Gardener to J. B. BARROW, Ringwood Hall, Chesterfield.

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B. S. WILLIAMS begs to intimate that he has at present in the Nursery and upon his Register some excellent Men, competent either to fill the situation of HEAD GARDENER, BAILIFF, FOREMAN, or JOURNEYMAN. Ladies and Gentlemen requiring any of the above will please send full particulars, when the best selections for the different capacities will be made.—Holloway, N.

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GARDENER (HEAD); age 35.—Should this meet the eye of any Lady or Gentleman who is in want of a thoroughly competent man, they can be accommodated by applying to Mr. R. GILBERT, Burghley Gardens, Stamford.

GARDENER (HEAD); age 40.—A GENTLEMAN can strongly recommend his late father's Head Gardener. A thorough good practical man. Abstainer.—HY. DEE, Inchback, near Stroud, Gloucestershire.

GARDENER (HEAD); age 32, married.—A. GOODEN, Norton, Atherstone, would be pleased to engage with any Lady or Gentleman requiring the services of a good all-round Gardener. Seventeen years' experience. Can be highly recommended.

GARDENER (HEAD); age 28.—Mr. JOHN MCKENZIE, Linton Park Gardens, Maidstone, will be pleased to recommend his Foreman, James Hughes, for the past five years, to any Lady or Gentleman requiring the services of a thoroughly good man.

GARDENER (HEAD); age 32, married.—A. GOODEN, Norton Atherstone, would be pleased to engage with any Lady or Gentleman requiring the services of a man well up in all departments. Seventeen years' experience in first-class places. Can be highly recommended.

GARDENER (HEAD).—Age 42, married; thoroughly experienced in all branches. Eighteen and a half years in last place. Left through reduction in garden. Highly recommended by late employer.—W. DUNCAN, Newton St. Cyres, Exeter.

GARDENER (HEAD); age 35, married, no family.—Mr. G. WYTHES, Head Garcener to His Grace the Duke of Northumberland, Syon, Brensford, would be pleased to recommend a practical man, thoroughly experienced in all departments. Ten years' excellent character from present employer. Address as above.

GARDENER (HEAD), where two or more are kept.—Age 35, married, no family; nineteen years' experience in Fruit, Flowers, and Kitchen Garden. Eight years' good character from last situation. Leaving through place being sold.—G. DRIVER, 125, Fulham Palace Road, Hammersmith, W.

GARDENER (HEAD), where others are kept; age 27, single.—Advertiser being disengaged seeks re-engagement as above. Twelve years' practical experience in Stove and Greenhouse Plants, Flower, Fruit, and Kitchen Garden; understands Poultry and other Stock. Abstainer.—G., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

GARDENER (HEAD), or ORCHID GROWER.—Married; ten years' excellent experience with Orchids. Last seven years with late J. T. Peacock, of Hammersmith. Could undertake any responsibility in connection with Orchids. Seven years' general experience in other branches of Gardening. Good furnisher. Excellent references.—W. GOSTLING, 15, Elm Gardens, Hammersmith, W.

GARDENER (HEAD), or GARDENER BAILIFF.—Age 42, married, no family; successful Grower of Grapes, Wall Fruits, Tomatos, Vegetables, Stove and Greenhouse Plants, Orchids, Ferns, &c. Nine years' in last situation. Excellent references.—S. C., Broomfields, Mallock Lane, Ealing Dean, W.

GARDENER (HEAD), or GARDENER and BAILIFF.—Age 45, married, one child (8 years); thorough practical and modern Gardener. Thirty-three years' practical experience in all branches of the business. Is a good Correspondent, having been in business for twelve years. Is now wishful to enter private employ. Good references as to ability and integrity.—C. M., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

GARDENER (HEAD WORKING), where two or three are kept.—Age 27; fourteen years' practical experience in good places.—T. GRANT, Claverton, Bath.

GARDENER (HEAD WORKING), where two or three are kept.—Age 35; experienced in all branches. Fourteen years' good character.—E. SEVERN, Bodawen, Portmadoc, N. Wales.

GARDENER (HEAD WORKING), where two or three are kept.—Age 30, single at present; eight years' good character. Can be well recommended.—S. KERRISON, Ormesby, near Yarmouth.

GARDENER (HEAD WORKING), where more are kept.—Middle age, married, no family; thoroughly qualified in every branch. Disengaged.—R. M. WALKLING, 2, Marsland Cottages, Station Road, Oxted, Surrey.

GARDENER (HEAD WORKING).—A GENTLEMAN wishes to recommend his Gardener as a very competent man in all branches of Gardening. Well-up in Fruit and Chrysanthemum Growing.—A. SOAMES, Esq., Buxted Park, Uckfield, Sussex.

GARDENER (HEAD WORKING); age 31, married.—A LADY wishes to recommend a thoroughly experienced, respectable, energetic man as above. Fifteen years' good testimonials.—Apply to Mrs. TENNANT, Cadoxton Lodge, Neath, Glamorganshire.

GARDENER (HEAD WORKING).—The MARCHIONESS OF HASTINGS would be pleased to recommend her late Gardener, who has been thirteen years in her service, to any Lady or Gentleman requiring the services of a good practical man.—26, James Street, Buckingham Gate, S.W.

GARDENER (HEAD WORKING); age 28.—W. HOLAH, Redleaf Gardens, Penshurst, Kent, strongly recommends H. Bickerstaff as above, who has been at Redleaf six years. Thoroughly understands Orchids, Early and Late Forcing, Kitchen Garden, &c.—Apply as above.

GARDENER (HEAD WORKING).—Age 42, married, no family; twenty-five years' practical experience. Thirteen years as Head. First-class character and previous excellent testimonials of long service.—H. SAWYER, Abbey Mill House, Reading, Berks.

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GARDENER (HEAD WORKING, or good SINGLE-HANDED).—Age 39, married; nine years' good character. Total abstainer. Satisfactory reasons for leaving.—R. MAY, Great Bromley Hall, Colchester.

GARDENER (HEAD WORKING, or good SINGLE-HANDED).—Age 28, married; twelve years' experience. Three years' good character last situation as Single-handed.—PINK, Ospringe Road, Faversham, Kent.

GARDENER (Head or good Single-handed); age 26.—John Chesher, Gardener to J. M. Heathcote, Esq., Connington Castle, can with confidence recommend H. Knightley, who has been under him four years as Foreman.—H. KNIGHTLEY, Gilston, Harlow, Essex.

GARDENER, where one or more are kept.—Age 30, four children; Abstainer. Four years' good character.—Wife could Manage Laundry if required.—J. M., 5, Coleford Road, Wandsworth, S.W.

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GARDENER (Single-handed, or where help is given).—Age 23, single; eight years' experience in Orchids, Palms, Ferns, Vegetables, &c. Good character.—F. BRIGGS, 5, Madras Place, Holloway Road, Holloway, N.

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GARDENER (Single-handed), or another kept.—Fifteen years' experience in all branches. Four years' good character from last employer.—THOMAS HARRISON, 15, Archdale Road, East Dulwich, S.E.

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GARDENER (Single-handed or Under).—Age, 33, single; twelve years' experience Inside and Out in Private Gardens. Total abstainer. Distance no object. Good reference,—C. SUTTON, 9A, Beech Road, Sevenoaks.

GARDENER (Single-handed or Second), where five or six are kept.—Age 23; four years' good character, three years' previous.—E. A., Sprowston Hall, Norwich.

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GARDENER (Second), in the Houses.—Age 23; eight years' character.—S. THOMAS, The Gardens, Haddon Hill, Christchurch, Hants.

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GARDENER (Under).—Age 24; good experience Inside and Out. Strong, active, and willing to make himself useful. Two years' good character.—W. HEWITT, Ashfold Cottage, Busper, Horsham.

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JOURNEYMAN, in the Houses; age 24.—A. Ryder, The Gardens, Oakfield, Dulwich, S.E., would be glad to recommend a trustworthy young man as above.

JOURNEYMAN, in the Houses.—Age 22; good recommendations.—G. E. S., 17, Bondgate Street, Alnwick.

JOURNEYMAN, in the Houses.—Age 20; four years' reference from last situation, Elkington Hall.—J. WILSON, Elkington, Louth, Lincolnshire.

JOURNEYMAN, in Bothy.—Age 19; had good experience in Nursery and Private Work. Good reference.—W. T. B., 225th Avenue, Bush Hill Park, Enfield.

JOURNEYMAN.—Age 19; over five years' experience. Can be well recommended by present employer. Bothy preferred.—J. DAVIS, East Hill House Gardens, Wimbledon, Surrey.

JOURNEYMAN, in the Houses.—Age 20; six years' experience in Growing Fruit, Stove and Greenhouse Plants. Good character.—WILLIAM HITCHMAN, Souldern, Banbury, Oxon.

JOURNEYMAN, in the Houses.—Age 22; four years' experience. Good references from first-class trade establishments. — G. H. WALL, Aldbro', Borobridge, near York.

JOURNEYMAN, in the Houses.—Age 20; five years' experience. Good recommendations from Head Gardener.—H. DAVIES, The Gardens, Langford Park, Maldon, Essex.

JOURNEYMAN, Inside; age 21.—J. Trigger, The Gardens, Milton, Peterborough, can highly recommend Samuel Watkins to any Head Gardener requiring an active and industrious young man.

JOURNEYMAN, Outside, with chance of Learning Inside.—Age 21; four years' character from last situation.—A. REYNOLDS, Aubrey Cottage, Notting Hill Grove, W.

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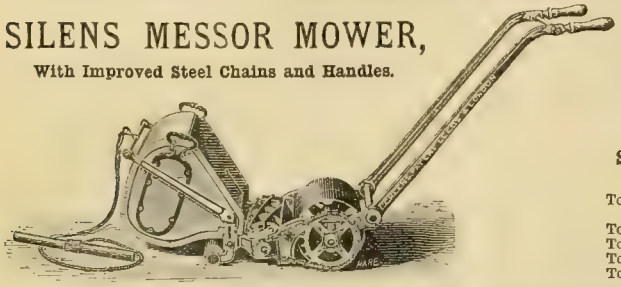
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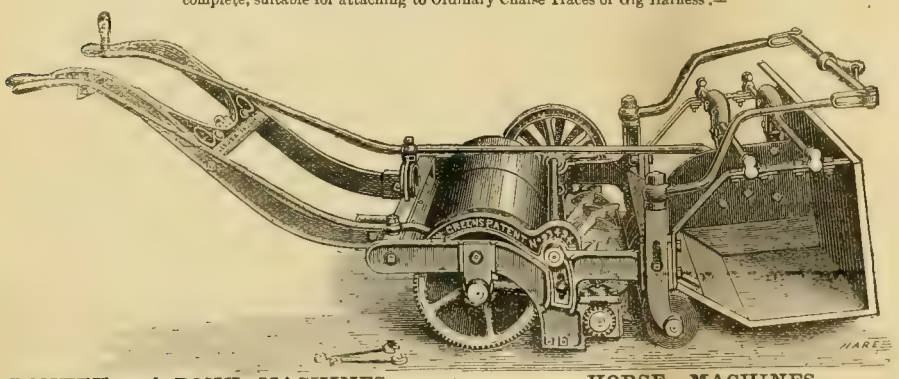
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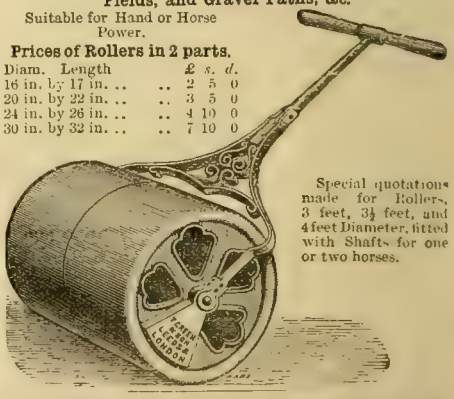
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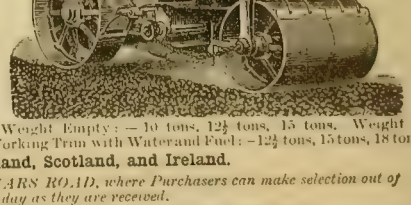
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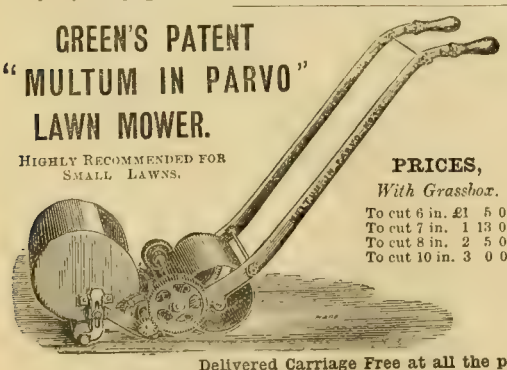
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W. RICHARDS, 41, Wellington Street, Strand, W.C.

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ROYAL HORTICULTURAL SOCIETY.
GREAT FLOWER SHOW in the Gardens of the Inner Temple on MAY 30th and 31st, 1889.
Schedules and full particulars to be obtained on application to the Secretary at the Offices of the Society, 117, Victoria Street, S.W. Applications for space to exhibit to be made to the Superintendent, Mr. A. F. Barron, R.H.S. Gardens, Chiswick.
Cups and Medals will be offered by the Society. The Veitch Memorial Trustees offer two prizes of a Medal and £5, open to amateur exhibitors in classes 2 and 3; the Turner Memorial Trustees offer 5 prizes for Show Tulips; and Messrs. Dobbie, of Rothesay, three prizes for Violas.
Entries Close on Saturday, May 25th.

CRYSTAL PALACE. GREAT SUMMER EXHIBITION of FLOWERS and PLANTS, SATURDAY, May 11, 1889.
Schedules and Entry Forms free by post on application to Mr. W. G. HEAD, Superintendent of Garden Department.
Entries Close on May 4.

SCOTTISH PRIMULA and AURICULA SOCIETY.
The THIRD EXHIBITION will be held on MAY 8, 1889, in Calton Convening Rooms, Waterloo Place, Edinburgh. Schedules from Hon. Secretary, WM. STRATON, Annfield, Broughty Ferry.

BOURNEMOUTH and DISTRICT CHRYSANTHEMUM SOCIETY.
THIRD ANNUAL EXHIBITION, NOVEMBER 13 and 14, 1889. Schedules of Prizes and Particulars of the Challenge Cup offered by the President, C. E. Baring Young, Esq., M.P., may be obtained of the Assistant Secretary, Mr. J. SPONG, The Gardens, Liudisfarne, Bournemouth.

BATH SPRING SHOW, MAY 15.
Amongst the open classes are:—

	1st,	2nd,	3rd.
9 Greenhouse Azaleas	£6 10s.	£4 10s.	£3
10 Stove or Greenhouse and 6 Ornamental Plants	£15	£10	£5
9 Stove or Greenhouse Plants	£6	£4	£2
Bank of Pot Roses, arranged for effect on space not less than 12 by 6 feet	£4	£2	£1
Group of Orchids arranged for effect on space 12 by 6 feet. (Ferns and foliage plants allowed.)	£5	£3	£2
6 Orchids	£3	£2	£1
Group of Plants arranged for effect on space not less than 150 sq. ft.	£8	£5	£3
Ditto ,, ,, 75 sq. ft.	£4	£2	£1

Entries Close May 10.
BENJAMIN PEARSON, Secretary, 14, Milsom Street, Bath.

SUTTONS' FLORISTS' FLOWER SEEDS.—Sutton's Perfection Calceolaria, 3s. 6d. and 5s. per packet; Sutton's Superb Cineraria, 2s. 6d. and 5s. per packet; Sutton's Prize Gloxinia, 2s. 6d. and 5s. per packet; Sutton's Prize Cyclamen, 2s. 6d. and 5s. per packet; Sutton's Prize Begonia, 2s. 6d. and 5s. per packet; Sutton's Superb Primula, 2s. 6d., 3s. 6d., and 5s. per packet. All Flower Seeds sent free by Post.
SUTTON'S SEEDS GENUINE ONLY DIRECT FROM SUTTON AND SONS, The Queen's Seedsmen, READING.

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Empties and Labels Supplied. Bankers' and other references.
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MR. E. ROGER CUTLER, and the several Gentlemen with whom he was associated, beg to express grateful acknowledgments to those numerous HORTICULTURAL BRETHREN who so kindly assisted them in securing the success of PERCY COURT at the late ELECTION, April 27, 1889.

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Price 1s. 3d. per pound, to sow 1 rod of ground.
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WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

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Fruit, Flowers, and Vegetables.
THOMAS, Covent Garden Market.
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SALES BY AUCTION.

Wednesday and Thursday Next, May 8 and 9.
The CONCLUDING PORTION of the valuable COLLECTION of ORCHIDS formed by H. J. Buchan, E-q.

MR. J. C. STEVENS has received instructions from H. J. Buchan, Esq., of Wilton House, Southampton (in consequence of the land having been bought for building), to offer for SALE, by AUCTION, without the least reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY NEXT, May 8 and 9, at half-past 12 o'Clock precisely each day, the concluding portion of his celebrated COLLECTION of ORCHIDS, comprising amongst other fine things:—

Cattleya labiata, autumn flowering
,, Mendeli
,, Sanderiana
,, gigas Buchaniana
Oncidium macranthum
Maxillaria Buchaniana
Lælia elegans alba
,, ,, Schilleriana
,, anceps alba
Odontoglossum lilliflorum
,, nævium majus
,, polyxanthum
Cœlogyne Massangeana
Cœlogyne Sanderiana
Vanda Parishii Marriottiana
Anguloa uniflora
,, Ruckeri
Cymbidium Lowi, 39 bulbs
Dendrobium nobile nobilius
Masdevallia Chimæra, 32 leaves
,, Veitchii grandiflora
Cypripedium Sanderianum
,, Sedeni, 38 growths
,, Harrisi, 42 growths, dark var.

Choice Hybrid Seedling Cypripediums.
Grand specimens of Odontoglossum Halli, radiatum, sceptrum, and Alexandræ in flower, &c.
On view mornings of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7923.)
5000 grand Bulbs of LILIUM AURATUM and other LILIES, received from Japan, in the finest possible condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 9.
On view morning of Sale, and Catalogues had.

Wednesday May 15.
SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 15, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS for this Sale will SEND LISTS NOT LATER THAN THURSDAY NEXT.

Preliminary Announcement.
THE CRAWFORD COLLECTION OF ORCHIDS.

MR. J. C. STEVENS has received instructions from W. H. S. Crawford, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY, June 12 and 13, at half-past 12 o'Clock precisely each day, without the least reserve, the COLLECTION of ORCHIDS formed by the late W. H. Crawford, Esq., of Lakelands, Cork, comprising about 700 specimens, some being fine exhibition plants, all in the best possible health, and many of great rarity and value.
Further particulars in future Advertisements.

Monday Next.
SPECIAL SALE of ORCHIDS. Entirely without reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, May 6, 1889, at half-past 12 o'Clock precisely, by order of Messrs. Seeger & Tropp, a large consignment of EAST INDIAN ORCHIDS, collected by Mr. C. Roebelen, and just received in best possible condition, consisting of the beautiful Cypripedium Godefroyæ, C. Regnieri, and a Cypripedium species which the collector believes to be a natural hybrid between C. Regnieri and C. Godefroyæ; also the rare and lovely AERIDES MITRATUM, wonderful masses of Saccolabium cœleste, the beautiful blue Saccolabium which was recently awarded a First-class Certificate by the Royal Horticultural Society, and other ORCHIDS of value.
On view morning of Sale, and Catalogues had.

Tuesday, May 7.
Second Portion of the Extensive Collection of ESTABLISHED ORCHIDS, formed by the late Mr. J. H. Bath, of Manor Farm, North Cray, For Sale, absolutely without reserve.
Important to the Trade and Large Buyers.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executors to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, May 7, at half-past 12 o'Clock precisely, the second portion of this EXTENSIVE COLLECTION of ESTABLISHED ORCHIDS, comprising large quantities of Odontoglossums, Dendrobiums, Cattleyas, Lælias, &c., in all about 500 lots.
On view morning of Sale, and Catalogues had.

Wednesday Next.
GREENHOUSE PLANTS and FERNS in great variety; 30,000 Seeds of ARECA LUTESCENS, BEDDING PLANTS, LILIUM AURATUM; and a quantity of other Bulbs.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, May 8, at half-past 12 o'Clock precisely.
On view morning of Sale, and Catalogues had.

Blackheath.
Close to the Station. By order of the Executors of the late J. Young, Esq. CLEARANCE SALE of STOVE and GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Conduit Lodge, Blackheath Park, on WEDNESDAY NEXT, May 8, at 12 o'Clock precisely, the whole of the STOVE and GREENHOUSE PLANTS, Ferns of various kinds, 50 Camellias and Azaleas, 50 Orchids, 70 Head of Poultry, and numerous other items.
May be viewed the day prior and morning of Sale. Catalogues had of the Gardener on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

Friday Next.
LÆLIA AUTUMNALIS ALBA, absolutely Without Reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, May 10, seven large masses of LÆLIA AUTUMNALIS ALBA, received from Mr. Pechacek, for Sale entirely Without Reserve. They are in excellent condition, and dried flowers will be shown at the time of sale. Also a small Collection of ESTABLISHED ORCHIDS from a private gentleman on the Continent.
On view morning of Sale, and Catalogues had.

Friday Next.
By order of Messrs. Shuttleworth, Carder & Co.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 10, at half-past 12 o'Clock precisely, a very fine lot of Imported ODONTOGLOSSUM CRISPUM (ALEXANDRÆ), of the best type in good condition, CATTLEYA TRIANÆ IBAGUE variety in good condition, ODONTOGLOSSUM ALEXANDRÆ (Established), unflowered, Masdevallias, Oncidiums, &c,
On view morning of Sale and Catalogues had.

Friday Next.
CATTLEYA MENDELII, a large importation for Unreserved Sale.

MESSRS. PROTHEROE AND MORRIS will include in their SALE of ORCHIDS, on FRIDAY NEXT, a large importation of CATTLEYA MENDELII, for SALE, without reserve.
On view morning of Sale, and Catalogues had.

The far-famed Sudbury House Collection of ESTABLISHED ORCHIDS,
formed by the late J. T. Peacock, Esq.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Executors of the late J. T. Peacock, Esq., to SELL by AUCTION, without reserve, on the Premises, Sudbury House, Hammersmith, W., on MONDAY, May 13, and four following days, at half-past 12 o'Clock precisely each day, the ENTIRE COLLECTION of ESTABLISHED ORCHIDS, being the contents of twenty-three Greenhouses, comprising 308 Odontoglossums vexillarium (mostly specimen plants), in splendid health; 102 Cypripedium Spicerianum, mostly large healthy plants; 100 Cœlogyne cristata, chiefly specimens; 50 Cymbidium eburneum, fine pieces; 350 Phalænopsis Schilleriana, amabilis, Stuartiana, grandiflora and tetraspis; 120 Oncidium macranthum and Edwardii, including several grand pieces; 5300 Odontoglossum Alexandræ and Pescatorei, 1000 Cattleyas, and 8000 other ORCHIDS in great variety.
No Plants will be sold privately prior to the Auction. The Collection may be inspected at any time by cards, to be obtained of the Auctioneers. Catalogues may be had on the Premises, and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

Friday, May 24.—Second Portion.
The justly celebrated COLLECTION of ESTABLISHED ORCHIDS, formed by C. Dorman, Esq., The Firs, Laurie Park, Sydenham. The whole for Sale, Without Reserve.

MESSRS. PROTHEROE AND MORRIS have received instructions to OFFER by PUBLIC AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, May 24, at half-past 12 o'Clock precisely, the Second Portion of the above justly celebrated COLLECTION of ORCHIDS. The plants are in splendid form, and include many fine specimens, further particulars of which will appear.
The plants will be on view the morning of Sale. Catalogues forwarded, post-free, on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

The Downside Collection of Orchids.
Highly important TWO DAYS' SALE of the remaining portion of this renowned Collection of ESTABLISHED ORCHIDS, including many plants matchless in point of rarity; the whole being remarkable for culture and condition. By order of Wm. Lee, Esq., who has sold the Estate, and is relinquishing the cultivation of Orchids, Absolutely without reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, May 28 and 29, 1889, at half-past 12 o'Clock precisely each day, absolutely without the least reserve, by order of Wm. Lee, Esq., who has sold the Estate of Downside, and is relinquishing the cultivation of Orchids, the remaining portion of this extremely valuable and celebrated COLLECTION of ESTABLISHED ORCHIDS. A list of the principal plants will be found in the *Gardeners' Chronicle* for April 27 last.
The Plants can be inspected by appointment at Downside prior to the Auction, and will be on view in the Sale Rooms on the morning of Sale. Catalogues may be had on application to Messrs. PROTHEROE AND MORRIS, Auctioneers, Estate Agents, and Valuers, 67 and 68, Cheapside, London, E.C.

TO BE DISPOSED OF, FLORIST and SEEDSMAN'S BUSINESS, as a growing concern, could be much increased with jobbing connection. Good position. Well stocked. Good opportunity for an experienced man.—Apply, W. A., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOR DISPOSAL, NURSERY and FRUIT GROUNDS. Partnership not objected to. Apply, J. FISHER, care of J. White, Fruiterer, Crofton Road, Orpington, Kent.

To Nurserymen, Gardeners, and Florists.
THE LEASE and GOODWILL of the compact BUSINESS PREMISES, situated at 18, Finchley Road, St. John's Wood, N.W.; also WAVERLEY NURSERY, containing 11 Greenhouses, well heated, with good Stabling and Sheds; also the CONSERVATORIES, Queen's Terrace, containing 3 good Greenhouses and 1 large Glass Show House, well heated; also ALEXANDRA NURSERY, adjoining Loudoun Road Railway Station, well planted with Trees and Shrubs, will be SOLD together, or separately. First-class Jobbing Connection. Valuation Low, and on Easy Terms.
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NURSERY (London West), within 8 miles of Covent Garden, about 1 Acre of Glass, consisting of Eight large Greenhouses and Pits, well stocked, Heated with Hot-water. Lease 16 years, with two Cottages. Rent £58.
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TO BE LET, or SOLD, a fine opening for Florist, Seed, and Jobbing Business. Corner situation, central position, chief thoroughfares, 2 miles from Southampton, half mile from station. New detached, superior built 6-room COTTAGE. About half an acre of fine deep loamy LAND. Immediate possession. Land planted with Vegetables.
Apply, N. BLANDFORD, Moor Hill, Westend, near Southampton.

Rodmersham, near Sittingbourne, Kent.
TO BE LET (with immediate possession), a comfortable HOUSE, with about 3 Acres of first-class Fruit Plantation, 6 Glass Houses, and Premises, all in good working order, held (with other Premises let off and producing £55 12s. per annum) under Lease which can be renewed.
Apply to Messrs. JACKSON AND SONS, Valuers, &c., Sittingbourne.

FARM TO BE LET, 6 miles from London, close to two stations; 68 acres Arable, 36 Pasture. Good modern double-fronted House; both convenient and modern Outbuildings. Abuts on good roads.
Rent, £225 a year.
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TO LET, the charming RESIDENCE, Highfield, St. Saviour's, Jersey, with Conservatory, Green and Hothouses, fitted with every convenience for saving labour. Magnificent Land and Sea Views. Situation high, subsoil gravelly; abundant water supply. The DWELLING-HOUSE contains Drawing, Dining, and Reception Rooms, Bedrooms, with necessary Offices, Stabling, &c.
The GLASSHOUSES consist of Conservatory, 26 by 17 feet; 2 Cruciform Houses, 98 by 32 by 22 feet, 124 by 46 by 22 feet; 1 Span, 70 by 15 feet; 2 Lean-to, 57 by 13 feet, 180 by 10 feet. All communicating. The whole heated by Horizontal Boiler; water laid on all over the houses. Surrounded by Ornamental Gardens, Avenues, Kitchen and Flower Gardens.
100 yards from above on same estate, 4 Span-roofed Houses, 68 by 11 feet; 5 Spans, 74 by 12 feet; heated by 1 Boiler, and water laid on. The whole water system supplied by Hot-air Engine and Forcing Pump in Engine-house.
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MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

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3s. 6d. and 5s. each.
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Daisy Hill Nursery, Newry.

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BEGONIAS (evergreen class), fine for summer or winter; 6 fine sorts, 1s. 9d.
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LANTANAS, fine for greenhouse decoration, pretty and free; 12 sorts, 2s. 6d.
SALVIAS, distinct and pretty; 6 fine sorts, 1s. 6d. Half number at same rates. New CATALOGUE of these and everything else you want for Greenhouses of Gardens, free for 3 stamps.
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CALADIUMS, GLOXINIAS. — Lovely CALADIUMS of the finest sorts, splendid varieties, handsome foliage, clean, easily grown; 12 sorts, 6s., 9s., 12s.
Gorgeous GLOXINIAS, rich colours, pretty foliage, lovely flowers; 12 for 6s., 9s., 12s. New CATALOGUE of these and all other plants, 130 large pages, free for 3 stamps.
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FORBES' CATALOGUE for 1889 is the largest, best, most reliable and complete ever issued on Florists' Flowers.
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The CATALOGUE itself is a most useful and convenient reference book on all sections of Florists' Flowers, and it should be in the hands of all, and carefully perused before ordering elsewhere.
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WILLIAM BADMAN offers as under, from store pots, all well rooted, and fit for present potting. The present is a good time for making up losses sustained during the winter: — VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6s. per 100; 12 choice named varieties, 8s. per 100. LOBELIA, Bluestone, pumila magnifica, Brighton Blue, 3s. per 100. CALCEOLARIA, Golden Gem, 6s. per 100. HELIOTROPE, Jaun d'Amour, Miss Nightingale, 6s. per 100. AGERATUM, Imperial Dwarf, blue, 5s. per 100. COLEUS VERSCHAFFELTI, bedding crimson, 8s. per 100. IRESINE LINDENII, dark crimson, good bedder, 8s. per 100. PELARGONIUM, Vesuvius, finest bedding scarlet, 8s. per 100; Master Christine, Mrs. Levers, Jenny Dodds, best pinks, 12s. per 100; Henri Jacoby, best crimson, 12s. per 100; Madame Vaucher, Niphetos, white, 12s. per 100; Queen of the Belgians, finest white, 3s. per doz., 20s. per 100; Waltham Seedling, Lucius, Jean Sisley, White Vesuvius, John Gibbons, 12s. per 100. SILVER VARIEGATED, May Queen (Turner's), Princess Alexandra, Flower of Spring, Little Trot, Prince Silverwings, Lady Plymouth, 12s. per 100. GOLD-LEAF, Crystal Palace Gem, Happy Thought, 12s. per 100. BRONZE, McMahon, Black Douglas, The Czar, best bedders, 15s. per 100. TRICOLOR, Mrs. Pollock, 15s. per 100; Sophia Dumaresque, Lady Cullum, Sir R. Napier, 18s. per 100. DOUBLES, F. V. Raspail, finest scarlet; Madame Thibaut, pink; Madame Baltet, Le Cygne, white, 12s. per 100. TROPÆOLUM, Vesuvius, Coccinea elegans, 10s. per 100. FUCHSIAS, in 12 good named varieties, 8s. per 100. PELARGONIUMS, Show and Decorative, from single pots, 3s. per dozen, 20s. per 100.
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H. AND F. SHARPE will be pleased to give special quotation for their fine selected stocks of home-grown MANGEL WURZEL and TURNIP SEEDS of 1888 growth, and raised from picked bulbs. The growth is strong, and the prices will be found very reasonable. Samples may be had on application.
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COLEUS, a charming assortment of the newest and most beautiful sorts, 6 for 2s.	3	6
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,, Single-flowered, all the most beautiful sorts, 6 for 2s.	3	6
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PELARGONIUMS, single-flowered, Zonal, a set of 9 superb new varieties of 1888 (Pearson), 10s. 6d.		
,, Single-flowered Zonal, very choice sorts, from our magnificent collection, 6 for 2s. 6d. ...	4	6
,, Double-flowered Zonal, 3 superb new sorts for 1889, 8s.		
,, Double-flowered Zonal, in splendid variety, very choice, 6 for 2s. 6d.	4	6
,, Double-flowered, Ivy-leaved, magnificent for pot culture, a set of 5 superb new sorts, very fine, 10s. 6d.		
,, Double-flowered, Ivy-leaved, most beautiful sorts to name, 6 for 2s. 6d.	4	6
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Descriptive List free on application.

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LILIUM HARRISSII
(WARRANTED TRUE).
SEND FOR TRADE PRICE LIST.

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RAILWAY RATES.

A PUBLIC MEETING of the Trade will be held (by kind permission) at the Horticultural Club, "Hotel Windsor," Victoria Street, Westminster, on TUESDAY, May 14, 1889, at 3.30, to take into consideration the proposed Railway Rates and Charges, with a view to lodging objections thereto with the Board of Trade, in pursuance of the Railway and Canal Traffic Act, 1888. The last day for lodging objections is June 1, 1889, after which date the Rates and Charges (unless altered by the Board of Trade) will have the force of an Act of Parliament. It is hoped that Members of the Nursery and Seed Trades from all parts of the country will attend and protect their interests, which are seriously threatened.

A Meeting of the Committee will be held on the same day at 5 o'Clock, to formulate the objections.

Any information required can be obtained of

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Secretary, Nursery and Seed Trade Association (Limited).
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Conditions of the Competition can be obtained from Mr. O. C. T. Eagleton, of 40, Chancery Lane, London, W.C., the Clerk of the Company.

Leek Improvement Act, 1855.
To LANDSCAPE GARDENERS and OTHERS.
PLANS and ESTIMATES are invited for Ornamentally Laying out and Draining about 4¼ Acres of Land adjoining the Leek Cemetery, and which is intended to form an extension thereof. The date up to which they may be sent in is the 1st of June next.
The Commissioners do not bind themselves to accept the lowest or any Estimate. Rejected Plans and Estimates will not be paid for.
Further particulars may be obtained on application to Mr. JOHN MYATT, Town Surveyor, or the undersigned.
By Order of the Commissioners, C. HENSHAW, Clerk.
Town Hall, Leek, 17th April, 1889.

STOVE PLANTS, GREENHOUSE PLANTS, such as ALLAMANDAS, STEPHANOTIS, BOUGAINVILLEAS, CLERODENDRONS, and other fine CLIMBERS.
CROTONS, DRACÆNAS, and other fine foliage varieties; IXORAS, HIBISCUS, POINSETTIAS, and other flowering bush-habited plants, in finest varieties, clean, healthy, all named; 12 distinct kinds, 12s., 18s., 30s. per dozen.
Attention is specially asked to the very fine and rare OCHNA MULTIFLORA, OXERA PULCHELLA, SCHUBERTIA GRANDIFLORA. For Prices and Descriptions see new CATALOGUE.
GREENHOUSE PLANTS, equally well selected, good and healthy; 12 sorts, 9s., 12s., 18s., half at half-price. New CATALOGUE of these and all you want for a garden free for 3 stamps.
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CORNER'S SWEDE.—For Sale, about 300 bushels. The finest Swede in cultivation. Selected and grown by Advertiser for many years. Noted prize-winner whenever exhibited.
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Orders executed from £5 upwards.
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PELARGONIUMS, the finest flowers, best habits, most robust growers, 12 fine varieties, 6s.; 12 large Plants, 9s. or 12s. All you want for a Garden may be selected from our new CATALOGUE, free for 3 stamps.
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Undernamed, all in 12 sorts:
12 Pyrethrums, 4s.; 12 Potentillas, 5s.; 12 Phloxes, 3s. 6d.; 12 Pentstemons, 3s. 6d.; 12 Pansies, either Show or Fancy, 3s.; 12 Violas, 2s. 6d.; 12 Pæonies, 9s.; 12 Hollyhocks, seedlings, from five named sorts, 4s.; Delphiniums, seedlings, from fine named sorts, 4s.
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20,000 CARNATIONS, PICOTEES, PINKS.—All true from layers; grand double well-marked flowers (not seedlings), splendidly rooted, named, for exhibition or borders. All the good varieties of the most noted raisers.
12 fine sorts, CARNATIONS, 6s.; 12 PICOTEES, 6s.; 12 PINKS, 3s. 6d.; 6 of each, 8s. 3d. Fine Border Carnations, 4s. per dozen. See new CATALOGUE of these and all wanted for a garden, free for 3 stamps
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HARTLAND'S NEW "GOLDEN QUILLED"
DOUBLE SUNFLOWER,
"SOLEIL DOR."
Strong Plants, 1s. 6d. each; Extra Clumps, 2s 6d.; post-free for cash. The clumps can be divided for quantity. It is one of the finest things introduced to English gardens for years. For cutting purposes and harvest festival decorations superb.
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FERNS—FERNS—SUCCULENT PLANTS.—Twelve lovely Greenhouse FERNS, good growers, fine habit for rooms or Greenhouses, 6s. or 9s.; small Ferns for planting in Rockeries, &c., indoors, for fancy pots for table, 4s. per dozen; 12 distinct Stove Ferns, the best sorts for general collection, 9s. and 12s.
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These two Lilies will take the lead in any group and secure prizes. Usually sold at 21s. each—will take 5s. each, to clear, post-free.
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" IRIS, most gorgeous, 4 First-class Certificates.
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GLADIOLI, of which we grow 20 acres.			
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100 Herbaceous and Alpine Plants for 25s.
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Harmless to the most tender foliage.
Easily used and low in price.
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Prices:—Pint, 1s. 6d.; quart, 2s. 9d.; ½ gallon, 5s.; 1 gallon, 9s.; 4 gallons, 34s.
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RICH IN SOLUBLE PHOSPHATES, AMMONIA, POTASH NITRATES, AND PERUVIAN GUANO.
SOLD in 3d., 6d., 1s., and 1s. 6d. CANISTERS.
28 lb., 5s.; 56 lb., 7s. 6d.; 1 cwt., 14s.
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JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL,

at the "ALBION," Aldersgate Street, JUNE 13, 1889.

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Donations and Collections already promised or sent towards the Jubilee Collection of 1889:—

LEOPOLD DE ROTHSCHILD, Esq., Chairman	£105	0	0
The DUKE of WESTMINSTER, K.G., President	100	0	0
The DUKE of BEDFORD, K.G.	100	0	0
The EARL of DERBY, K.G.	21	0	0
Baron HENRY SCHRODER, Vice-President	105	0	0
Messrs. ROTHSCHILD AND SONS	105	0	0
Lord REVELSTOKE	52	10	0
J. S. MORGAN, Esq., Dover House, Roehampton	105	0	0
JAMES McINTOSH, Esq., Vice-President	52	10	0
N. N. SHERWOOD, Esq. (Hurst & Son), Trustee	52	10	0
H. B. MILDMAY, Esq., Berkeley Square	52	10	0
HERBERT J. ADAMS, Esq., Vice-President	26	5	0
HARRY J. VEITCH, Esq., Treasurer	26	5	0
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TO THE

GARDENERS' CHRONICLE

FOR

Next Week, May 11,

WILL BE

Published an Ink Photograph

OF A

VIEW IN THE PLEASURE-GROUNDS,

LUTON HOO PARK, BEDS.



THE

Gardeners' Chronicle.

SATURDAY, MAY 4, 1889.

THE WINTER ON THE GENOESE RIVIERA.

ROSES IN A LIMESTONE SOIL.

THE last three months of the present winter have been unusually cold on the Genoese Riviera, and the retarding influence on vegetation has been very marked. According to my averages for fifteen years, as given in my work on the Mediterranean, neglecting fractions, the minimum for November is 49°, maximum 60°; for December, respectively 44° and 55°; for January, 42° and 53°; for February, 43° and 55°; for March, 45° and 59°; for April, 50° and 66°.

The month of November, 1888, was rather warmer than usual. The months of December and January colder—one, two, or three degrees below the average. February, March, and April so far (21st) have been much colder than the average—several degrees below. The temperatures have been as follow:—February: min. 39°·2, max. 50°·6, instead of min. 43°·5, and max. 55°·7. March: min. 42°·4, max. 52°·7, instead of 43°·5 and 55°·7. April so far has been a cold, windy, rainy month. The rain has often fallen as in Northern Europe, slowly, sparsely—not tropically, in torrents, as usual. Thus, we have had a greater number of cloudy, rainy days than usual. As a necessary result, vegetation has been retarded, and most of our spring flowers and shrubs have been two or three weeks behind hand. This is most evident with the Roses. Generally speaking our Roses are in full spring bloom by the latter part of March and throughout April, especially Teas, climbers, Noisettes, and Bengal. The hybrid perpetuals come last, at the end of April or beginning of May. General Jacquiminot with me is about the first. Bengals continue to flower throughout the winter, as do some Teas, such as Safrano, Madame Falcot, also Lamarque, Noisette, Banksian, Gloire de Dijon, Chromatella, and Maréchal Niel. The latter, however, are only seen sparsely in very sheltered sunny warm corners. The great burst of Rose bloom which covers the Rose bushes with myriads of flowers takes place in the spring, as stated above.

The year Her Majesty was at Mentone, that was 1882, my Grimaldi property was in her possession, and her villa was supplied from it with a profusion of the above Roses during the stay of the royal party, from March 14 to April 16. The Rose season was in full luxuriance at that period all along this coast, in sheltered parts, a fact which seems to establish the date of our Rose-flowering period in a favourable season.

This year, on April 20, the only Roses in full luxuriant bloom in my garden are the Banksian, especially the single Banksian, Lamarque, Noisette, a vigorous climber; and Fortunei, yellow. They quite make amends, however, for the delay of other Roses. They are perfectly magnificent, covering large areas of wall and rock with myriads of flowers. As they are all growing, without the addition of manure of any kind, in a purely limestone soil formed by the break up of the surrounding rocks, with only a very small amount of vegetable mould; these special Roses must like a limestone soil, which the general run of Roses do not. Indeed, lime soil seems to destroy in the long run, most of the Roses planted in it; they dwindle and die unless the soil is constantly renewed and manured. Some years ago I planted 300 hybrid perpetuals from a large Rose nursery at Avignon, but scarcely any of them have survived. Maréchal Niel, Chromatella (Cloth of Gold), and even Gloire de Dijon, do infinitely best grafted on Banksias. The latter flourishing like Ivy, forms stems as thick as one's leg, and runs along 50 feet or more. The Banksia Rose must evidently be a regular lime plant.

Fortune's Yellow grows in this soil with extreme luxuriance, entirely covering rocks, trellises, and Lemon trees, and when in full bloom, as it now is with me, it is a rose of dazzling beauty. Dean (then Canon) Hole, who honoured me with a visit some years ago, told me that he had never seen it so luxuriant before. Unfortunately its season of blooming is soon over, and it only flowers once in spring with me.

The two best winter Roses, setting aside Bengals and Noisettes, are Safrano and Mdlle. Nabonnaud, the latter introduced by a horticulturist at Golfe Juan, Cannes. They flower all winter, and the Safrano is the Rose of commerce, the one which is cultivated everywhere on the Riviera for sale, and which is sent all over Europe in winter by parcel post. The buds are very pretty, travel well, and open out in water several days after being culled, hence its adaptability to commercial purposes. Its epoch of flowering in winter depends on the time at which it is started, pruned, and watered in autumn. Last autumn I pruned several Safrano beds late, in November, and had abundance of bloom in January and February, although these months were unusually dull and cold. All who wish here to make money by Roses in winter, plant and cultivate the Safrano, and little else. Madame Falcot is equally good and tractable, but is much more sparse in blooming, and cannot be relied upon in the same way for a remunerative crop.

The Fortune's Yellow, which Dean Hole admired so much, covered a trellis 30 feet long, and 10 feet broad, erected over a bed of Camellias. Thinking that the shade afforded by this mass of Rose vegetation was too great for the Camellias, my gardener cut it back severely to the stem, thereby nearly killing it. This occurred three years ago, and it is only just beginning to recover, to throw up some vigorous suckers from the lower part of the stem. It has not produced one-twentieth part of the Roses it formerly did. Fortunately, I have others all but equally beautiful, coming on in other parts of the garden and rocks, and do not mean to interfere with them.

I presume this is the case with most climbing plants, the Ivy excepted. I once cut down a Tacsonia ignea (=manicata), which had got to the top of an Olive tree in tropical fashion, and was suffocating it, and extending to other neighbouring trees. I thought that it would grow again from the root on the lower part of the stem, which was as thick as the wrist, but it simply died. The shock was too great for its constitution, and it never rallied. I also cut away three years ago all the branches of an old Bougainvillea, which covered the roof of an outhouse; it was very vigorous, and flowered every winter with extreme luxuriance. It has never recovered, has never sent out a respectable branch since, merely a few twigs. My object was only to regularize the growth, which was very irregular. I expected to be able to again cover the shed roof in a year or two, but I evidently nearly killed my lovely friend. It is a singular fact, if general, that a plant growing with such determined vigour 50 feet or more from the roots, should thus dwindle and die if cut back, should not have the power to throw out new branches and foliage. Is there a botanical explanation, or is it merely an idiosyncracy, a peculiarity of climbing plants? Does it apply to the Chinese Glycine, or Wistaria, which will not grow at all in any lime soil?

I purpose making, on another occasion, some further remarks on vegetation in our lime soil, an interesting and useful subject of study. I believe that the lime-loving Banksia will prove the best Rose stock for us in this lime soil.

Roses have a marvellous pliability of constitution. Although reported delicate, they can take their rest either from cold or frost in the North, or from heat and drought in the South, and thus thrive and flower all over the world. With our dry Mexican, Cape of Good Hope, and Australian summer, it is heat and drought that sends them to rest with only a few terminal leaves. With us, in the autumn, after natural or artificial moisture has been afforded, they at once start into vigorous vegetation, forming buds and flowers in from six to eight weeks freely, but not so freely as in spring. The natural rains come, generally speaking, late in September or early in October, and the autumn Roses flower in November or December. This last year the usual rains did not come, and I did not begin watering until quite the end of October, so our Roses—Nabonnaud, Safrano, Falcot, Gloire de Dijon, Banksia, &c., flowered in January and February, but not as freely as usual. *J. Henry Bennet, Torre di Grimaldi, Ventimiglia, Italy, April* 21.

New or Noteworthy Plants.

SELENIPEDIUM ISABELIANUM, *Rodr.*

Economic Orchids are not at all a numerous class, and perhaps the only one of first-rate rank is the Vanilla. Here is one whose fruits are used in a similar way, though as to its actual value as a cultivated economic plant I can offer no opinion. It was described by Rodriguez, in 1877 (*Genera et Species Orchidearum Novarum*, i., p. 201), and is a native of Para in Brazil, where it is known under the native name of Baumilhasinha, on account of its economic fruits and their uses. The author remarks, that since its discovery the plant has been cultivated for this purpose. Until the other day I only knew it from description, when I received for determination a dried specimen from M. Lucien Linden, de l'Horticulture Internationale, Parc Leopold, Brussels, which precisely agrees with the description, and I have no doubt belongs to the species in question. It was received from Mr. Ed. S. Rand, of Para, Brazil, who furnished the following information respecting it:—This plant is a native of deep woods in sandy loam, near Para, Brazil, but is very rare. The root is a woody corm-like substance, resembling that of a Bletia, with a few scattered rootlets, and increases by horizontal shoots in one direction; but, occasionally, when the plant is very strong, makes a back break. Stem annual, or perhaps biennial, never more than two being found on the same root; slender, but sometimes as large as a good-sized pipe-stem, attaining a height of 1 to 7 feet. If the top is broken the stem branches from near the top, and these axillary branches, which grow about a foot long, flower very freely. Leaves alternate, thin, somewhat hairy, very light green; the whole aspect of the plant being that of a Sobralia. Flowers in long, pendulous, terminal clusters; in shape a perfect Cypripedium, but lip much flattened, about one half to 1 inch in length; colour clear yellow, with a rich orange blotch on each side of lip. Sepals and petals slender, about as long as the lip." As this description was made on the spot, from the living plant, I have thought it desirable to append it.

I may add it belongs to the section Foliosæ, which bears the same relation to the other section, well known in cultivation, that the hardy foliose Cypripediums bear to the tropical ones. There are two other species, S. palmifolium, of Guiana; and S. Chica, of Panama; the latter bearing fruits which are used in the same way as Vanilla—indeed, it is known as Vainilla Chica, or Little Vanilla, according to Seemann. Respecting S. Isabelianum, I am not sure whether living plants have been imported, but we may hope that so interesting a plant may soon be represented in the collections of Europe. *R. A. Rolfe.*

Angræcum polystachys, *P. Th.*; Angræcum Kimballianum, *Hort. Seeg. and Tropp.*

This has appeared simultaneously in several places. Mr. Sander has sent it to me several times. Mr. Franz Kramer, Klein Flottbeker Park, near Altona; Herr Consul Kienast, Zölly, Hrslanden, Zurich; Herr Oberhofgärtner, Wendland, Herrenhausen, have also sent me specimens. The last-named gentleman tells me it was sold by Messrs. Seeger and Tropp under the new name of Angræcum Kimballianum. It is a short plant, with ligulate bilobe leaves and numerous racemes of flowers, comparable to those of a small Brassavola, but spurred. Sepals and petals whitish or greenish, base of the lip green. Small very agreeable. *H. G. Rchb. f.*

SKIMMIAS.

(Concluded from page 521.)

3. Seedling Variations or sexual forms of S. japonica (the oblata of gardens).

Under this heading we include the forms known as fragrans, fragrantissima, ovata, Veitchii, and others, but we must admit that we have not in all cases certain evidence as to their origin, such as we have had in the case of the two species before named. The original oblata, as described by Mr. Moore, was a female plant, but there might have been male flowers even in those days, either on the same bush as the females, or on different plants; or it may well have been that the female flowers of oblata were fertilised with the pollen of Fortunei (the japonica of gardens).

S. fragrans, Carrière in *Revue Horticole*, 1869, p. 258, where it is described as a male plant; *Revue Horticole*, 1880, p. 56, fig. 11, where, however, it is said to be female. Nicholson, *Dictionary of Gardening*, iii., 440, copies Carrière's figure. The male is probably the male of the true japonica (oblata of gardens).

? *S. intermedia.* Carrière, *Rev. Hort.* 1874, p. 311, Nicholson, *loc. cit.* iii., 440 (see S. rubella, p. 553).

S. oblata ovata of Carrière, *Revue Horticole*, 1880,

p. 58, and *S. oblata Veitchii*, Carrière, *loc. cit.* (fig. 13), and Nicholson, *loc. cit.*, are both forms of japonica (the oblata of gardens).

S. fragrantissima, Hort., the male of japonica (oblata).

Foreman's Variety.—S. Foremani, Hort.—This (fig. 94) is the variety whose advent occasioned the discussion as to the sexes and proper nomenclature of these plants. Mr. Foreman was good enough to send us a specimen, raised, as he tells us, from the female form of oblata set by the pollen of S. fragrans. If this be so, and the plants were correctly named, then of course the new seedling is no hybrid, but a form of S. japonica as here understood. When exhibited it was greatly admired for the profusion and brilliancy of its berries, two crops of which were borne on the shrub



Fig. 94.—Foreman's skimmia.

at the same time. Some of the berries sent to us showed embryos germinating while still within the berry, a precocious condition, which is observed sometimes in the nearly allied Orange and Lemon. Foreman's variety, as examined by us had greenish shoots; leaves 3 by $\frac{3}{4}$ inches, yellowish-green, lanceolate or oblanceolate, tapering to each end, slightly turned under at the margin, and like all the Skimmias, thickly dotted with translucent glands containing the oil which gives the leaves their fragrance. Petiole about $\frac{1}{4}$ inch, reddish. Inflorescence a many-flowered-racemose cyme; fruiting pedicels erect or ascending, glabrous or ciliolate. Berries scarlet, about $\frac{1}{4}$ inch long, sub-globose depressed or Pear-shaped in the same inflorescence. Seed oblong roundish, 3-sided, dorsum convex.

We have cited Mr. Foreman's statement as to the origin of his plant, but we think it is open to question whether he may not have been mistaken, and that S. Fortunei (japonica of gardens) had some part in the parentage, the colour of the berries and the occurrence of two forms in the same bunch at least lend probability to such an opinion.

S. macrophylla, Hort. Foreman = (S. japonica var. macrophylla).—This is the form shown quite recently by Mr. Foreman, and is characterised by its very large leaves, almost as large as those of the cherry Laurel, but paler, and with large, much-branched panicles of male flowers.

4. Seedling Forms of S. Fortunei?

Both Mr. Noble and Mr. Rogers tell us that they have raised thousands of plants from the berries of japonica (our Fortunei), but never detected any variation. This looks as if the plant were not only structurally, but functionally, hermaphrodite and close fertilising.

S. rubella, Carrière in *Rev. Hort.* 1874, p. 311, 1880, p. 57, f. 12, and 1885, p. 189, f. 35, said to have been introduced from China. A coloured plate of this is given at the reference first cited, and from which it appears as if it might be a form of the Chinese plant here called Fortunei, but the flowers are unisexual whilst from the want of further information we can only speak with hesitation.

S. Fortunei var. argentea = *S. japonica argentea*, *Nicholson Dict.* iii., 441. A form of S. Fortunei, with leaves bordered with white.

5. Hybrid Forms between japonica (oblata, Hort.) and Fortunei (japonica, Hort.).

We have already indicated our suspicion that Foreman's variety was really of hybrid origin, though not so stated. In the case of some specimens sent by Mr. Rogers, however, there seems to be no doubt. We may here append a letter sent by Mr. Rogers to accompany a series of specimens, and it is right to point out that the letter in question was penned before the writer could have seen the Foreman variety.

"I see that Mr. Foreman, of Eskbank, Dalkeith, states he has raised from seed a new Skimmia, which he has named Skimmia Foremani. He may have done so, but I did the same about twelve years ago, and named it Skimmia Rogersii. I have no doubt the two are identical. [Comparison of the two showed that this was not so. Ed.] We have for many years grown the three Skimmias, japonica [=Fortunei], fragrans, and oblata [japonica] very largely, as they do well here both in pots and the open ground, but only the S. japonica [Fortunei] berried until about twelve years ago, when several plants of fragrans or oblata were discovered, bearing bunches of beautiful scarlet berries the size of large Peas, since which we have propagated and distributed a large number of plants of the same variety. It is doubtless a hybrid between the three [two really] sorts, japonica, fragrans, and oblata, as the blossom resembles more the size and colour of japonica than fragrans or oblata, though the foliage is the same as in the two last. I enclose specimens of all four varieties for inspection. Whatever name the so-called new variety may bear, it is a very valuable addition to our hardy berry-bearing shrubs, and deserves all the encomiums passed upon it. *W. H. Rogers, Red Lodge Nursery, Southampton.*"

Rogers' variety = *S. Rogersii.*—The following is a description of a characteristic specimen, though it will, of course, be remembered that no two are alike in all points. Shoots greenish or purplish. Leaves $3\frac{1}{4}$ inch by 1 deep, green, but not so much so as in Fortunei; lanceolate or oblanceolate, tapering to each end, margin slightly recurved. Petiole $\frac{1}{4}$ inch, greenish. Inflorescence short, simple, many flowered. Bracts shorter than the pedicels, purplish, ciliolate. Pedicels erect or ascending. Buds oblong. Flowers structurally hermaphrodite (as in Fortunei). Berries $\frac{3}{8}$ inch long, squarish, depressed at the top (as in japonica), deep crimson (as in Fortunei). Seed obtuse, curved, 3-sided, dorsum convex. Differs from other forms, especially in its large crimson berries.

Lastly, we cannot bring this notice, long as it is, to a close without strongly commending the true japonica (oblata) and its male form, fragrans, for town gardens. Even in the smokiest localities, and in a north aspect, the shrub not only grows, but thrives and flowers freely. After watching it for some years, and comparing it with several others planted experimentally, we give this the palm for endurance and for keeping its good looks under adverse circumstances.* *M. T. M.*

The Bulb Garden.

SPRING BULBS.

Notwithstanding the wet season of 1888, bulbs have made a very good show in my garden this spring, and I will mention a few which are worthy of general cultivation, though as yet little known except to specialists. Among the new Tulips introduced of late years from Asia there are four of surpassing beauty, all equal or superior in size, colour, and form to the very best of the Dutch early bedding Tulips.

* Specierum supra commemmoratarum synonymia ad usum botanicorum hoc modo exponere licet:—

1. S. japonica, Thunberg, *Flora japonica*, p. 62 (1784), Siebold *et* Zuccarini, *Flora japonica* (1835), t. 63; Franchet *et* Savatier, *Enum. Pl. Japan*, i., 74 (1875), *et auctt. Japon. var.* S. fragrans, Carrière, in *Rev. Hort.* (1874), 311, *et* (1880), 56, f. 11 (mas). S. oblata, Moore, in *Gard. Chron.* (1864), p. 962 feminea; Nicholson, *Dictionary of Gardening*, iii. (1887), 441. [Crescit per totam Japoniam in ins. Sachalin nec non in ins. Luzon.

2. S. Fortunei, Mast. supra = S. japonica, Lindley, in *Gard. Chron.* (1852), *passim*, *et* in Paxton, *Flower Garden*, ii., 163; W. J. Hooker, in *Bot. Mag.*, June 1, 1853), t. 4719; Nicholson, *Dictionary of Gardening*, vol. iii., 1887, p. 441, *et hort plurim*, *haud* Thunberg. Crescit in Imp. S.nense.

Varietates hortenses exstant plurimæ quarum nonnullæ hybridæ inter species supra citatas habendæ, aliæ varietates seminariæ tantum ducendæ.

*

T. Kaufmanni is the earliest of them, and is now out of flower. Of its three varieties, figured in the *Botanical Magazine* from my garden, the yellow is perhaps the finest, and throws up its large flower better than the rose-coloured one, which seems more tender and easily spoilt by bad weather. This is the earliest of all large-flowered species of Tulip, and one of the finest and most distinct.

T. oculus solis var. mervensis is a real giant in flower, more than twice as large as any other form of oculus solis, and a third larger than any Dutch Tulip known to me. It measures over 6 inches in diameter when expanded, and seems quite hardy; but my single bulb has not yet produced offsets. Of its origin I know but little, but it is said to have been brought from Merv by Mr. Donovan.

T. Greigi is better known, but has somewhat degenerated since I first got it, and though quite hardy, does not increase. It remains, however, one of the finest species.

T. suaveolens typica, received from Dr. von Regel also under the name of lanata, is very distinct in its downy leaves, and, when well grown, is an extremely fine Tulip in size, form, and colour. The flower is a pure deep crimson without any eye, the height is variable, but when increased sufficiently I think this will prove one of the best bedding Tulips of the Dutch varieties not commonly used for bedding. I find Wouverman's Joost van Voondel in its white form, Adelaine, and La Remarquable are all very fine sorts. The latter I never had till this year. It is very perfect in form, and reminds me of one that I specially admired in Mr. Van Eeden's nursery at Haarlem some years ago, and which he proposed to call Mrs. H. Elwes. This is ten days' earlier than any of the Van Thol Tulips, very beautiful in colour, bright cerise with yellow centre, and perfect in form. I shall be glad to hear if it has been sent out, and if so under what name.

Of other new or rare bulbous plants I have admired nothing so much as Erythronium Smithi, which seems a form of grandiflorum album. It is by far the finest of the Erythroniums I know, though the yellow Nuttallianum when seen in masses as we saw it in the Yellowstone Park runs it close.

I do not know who called it Smithi, but it is much larger in flower than grandiflorum, with large blotched leaves flat on the ground and a tall flower-stem carrying two or three large white or pale pink flowers. I believe it was introduced by Mr. Ware two years ago.

Of Fritillarias I find that the finest form of Imperialis is not generally known. It is much more robust and taller than the forms usually cultivated, and has flowers about 3 inches long. The form known in Holland as Lord Derby is something like it, but has smaller and more copper-coloured flowers.

The lately introduced form, inodora, though variable in size and colour of flowers, which are usually much smaller than those of the old Crown Imperial, is at least a fortnight earlier and is now quite over. Of other uncommon Fritillarias I think pallidiflora and Moggridgei are the best; the latter is perhaps only a form of the old latifolia.

But when seen in large quantity there is no prettier Fritillary than the white Meleagris, of which there are many thousands in a meadow in this neighbourhood, and which is easily raised from seed, though a few of the seedlings come the usual colour.

With the exception of cyclaminerus, Johnstoni, and a small pretty form of moschatus, the Narcissi collected in Spain by Mr. Barr are disappointing, and I think we have pretty nearly exhausted the variety which exists in this genus, unless something can be done by hybridising with the Glenans variety of triandrus, which is one of the most graceful and best of its tribe, though not hardy enough for a border plant.

Puschkinia libanotica and Chionodoxa luciliæ, though two of the best early spring bulbs, are becoming perfect weeds with me, and seed themselves on the grass and everywhere. Of Muscaris there is none equal for ordinary garden purposes to one which I believe was brought from Rome by the late Mr. Harpur Crewe as M. conicum. It is not so early as several others, and not so pretty in colour as ligulatum, but far better than most of the sorts usually grown, and a perfect weed in the rapidity with which it increases. *H. J. Elwes, Preston, Cirencester.*

CLIVEDEN.

Cliveden is seen under one of its most attractive aspects when tree and underwood are half furnished with the various shades of green found in the budding spring foliage; when the sky is clear overhead, and the sun sinking in the west shines through the partly clothed trees; when the turf is soft, springy, and in its vernal hue of brightest green; when Primrose, Dog Violet, Wood Anemone, and the Bluebell are in blossom—that is the time to see Cliveden. It is rich in much that can appeal to an ardent lover of Nature. As Emerson sings:—

> "What potent blood hath modest May,
> What fiery force the earth renews,
> The wealth of forms, the flush of hues,
> Joy shed in rosy waves abroad
> Flows from the heart of love, the Lord."

In sharp contrast to the budding of deciduous trees, with their branches as yet only partly clothed with the leafy garniture of summer, there are giant Yews, standing up tall and strong like the Spruce Fir—Yews so diversified in character—some erect, and some drooping, as to show how seedlings vary in their development; clumps and specimens of evergreen Oaks, that impart such a charm to the grounds at mid-winter, and are commanding objects in summer; Firs of various types, and other evergreens in plenty.

The admirable order in which the grounds are kept is one of the chief characteristics—paths and stretch of grassy sward are alike suggestive of constant care. The labour of mowing and sweeping is enormous, but the work is done thoroughly, and Nature's carpet is as neatly kept as the most fastidious could well desire. And when the visitor reaches the high ground above the Cliveden woods, below which winds the silvery Thames, what delightful vistas are opened up. One takes in a long stretch of river towards Maidenhead, where the water looks like molten silver as the sunbeams play upon the moving stream. Another peep is away over Cookham Bridge, and the visitor notes in the valley below lines of glistening water like jewels embedded in a groundwork of emerald; another takes in a portion of the Hedsor estate, and still with the water in the far distance. What a change from the noisy city a little over twenty miles eastward, where the ebb and flow of busy human life goes on unceasingly night and day.

Spring gardening is still carried out at Cliveden—the inspirations of John Fleming are recorded in bed and border, and in miles of woodland ways and turfy banks. The serpentine borders below the terrace are becoming gay with Wallflowers, Polyanthus, Daisies, Silene, Forget-me-not, Pansies, &c., as of old, while the large beds in the distance have as occupants thousands of plants — Wallflowers, Silene, Limnanthes, Forget-me-not, and others used for the purpose of a spring display. The beds will be in their glory from the middle of May onwards.

The resources of Cliveden are mainly directed to two objects—the production of cut flowers, and a supply of bedding plants. The larger bed at the extreme end of the flower garden, which is in the form of a huge zone of great breadth, is to be filled with the yellow dwarf Nasturtium, and Mr. Ellam states this bed will require 6000 plants to fill it.

The Vineries, Peach-houses, Fig-houses, and all those devoted to the culture of plants are in active operation; plants of various sorts can be counted by the tens of thousands, and a ceaseless round of production goes on from the beginning to the close of the year. The back wall of a propagating-house is lined with Maiden-hair Fern, growing with the greatest luxuriance. A stretch of galvanised wire is placed in front of some 3 inches of peat, moss, and loam, and in this are planted Adiantum cuneatum a few pieces of Pteris serrulata, and here and there a foliaged Begonia. "I give plenty of water at the roots," states Mr. Ellam, "but, do not suffer it to fall upon the fronds," which grow out in wonderful luxuriance to the extent of 2 feet or more.

Mr. Joseph Ellam, who has filled the important post of gardener at Cliveden for the past five and a half years, is just leaving. During the time he has been at Cliveden, some important alterations have been carried out by him, and especially in what might be termed the bush-fruit garden westward of the gardener's residence. A portion of it is used for early Peas and Beans, and also for beds of hardy flowers for cutting purposes. The remodelling of this garden, and the additions to it are not quite finished; but Mr. Ellam's successor will derive substantial advantages from what has been done by him. *R. D.*

TRANSPLANTATION OF PLANTS.

Most gardeners are called on annually to remove trees, shrubs, &c., from one part of the garden to another, and the operation being one that is so common, it is more or less well understood by all, and differs only in the manner in which it is carried out. Some gardeners lay much stress on getting as much soil with the roots as they can, and often go to great expense in doing so. I think, with the exception of Conifers, some other evergreens, as Hollies, Ivies, Spartiums, Sweet Bays—all of which suffer least in reality and also in appearance when they are moved just as growth is beginning—most trees and shrubs will be found to do just as well if all the roots and small rootlets are secured by careful digging-out, and removing no soil. If this operation be so carried out in autumn and early in the spring—and the sooner in the autumn the better—the new roots made during autumn on growth recommencing, extract nutriment from the soil without there being much break in their continuity of action.

In replanting it would seem to be desirable that the earth immediately in contact with the roots should be at least as good, and as suitable to furnish the food the plant needs as that out of which it was removed, and in certain obvious cases of a better nature.

In late spring transplantation there is always a forcible break in the continuity of root action, and the exciting warmth of the season comes too quickly for the plant, the roots not being in a proper condition to furnish the nourishment demanded by expanding leaf and bloom; hence the stunted growth of these plants the season following late planting, and especially if these be deciduous.

The lesson taught is, that it is only when you plant late that you should remove considerable masses of soil with the plants, a proceeding not difficult with small things, but which when adopted for large trees and shrubs needing a ton or two of soil in the ball, it becomes a serious item of expense, and a heavy addition to the labour wanted.

Who has not seen the ill-effects of removing plants from pots when, on being turned out into the soil, the roots were not disentangled, because, perhaps, they were removed so late that further root disturbance would have been disastrous; or it had been omitted because the ill-effects in after years were, in fact, not foreseen. Sometimes it is a small pot-bound tree, and the roots never seem to go right away from such plants unless the roots at the bottom and sides of the ball are forcibly sundered, and spread in a radiating fashion in the soil. Some windy day, when the plant has reached a height that gives considerable leverage to the stem, it is blown over for want of staying roots, and the hopes of years are destroyed.

Grape Vines are frequently found doing badly the management inside and out is everything that

could be desired, and on making examination the cause of the mischief is found to be that the Vine roots are coiled up in a small compass not wide from the spot where the undisturbed ball was put into the soil. The roots, owing to the twist given them by the pot, become contracted in spirals, and have not travelled much in search of food; the soil just round about them becomes devoid of some essential form of plant food, and the stores in the other parts of the rich border beyond they were unable to make use of. This is no fancy case, and many such are to be found in gardens.

Where Vine planting is done late it can only be done properly in one way, and that the one pursued by Mr. Baillie, of Lutor Hoo Gardens. He grows his Vines from eyes, and when the eye is rooted it is placed on some slight raft of wood covered with a layer of moss and a heap of rich compost. As the roots extend more and more soil is added, until in June the Vine is large enough to put out into the border. In planting it a shallow hole, as large as the raft is taken out, and the raft is drawn from beneath the mass of soil, which is very full of vigorous roots, a little soil is put over it and at the sides, and made firm with the hands, and with that the job is finished. By this method of planting all the roots have an outward direction from the first, and there is no check whatever to growth caused by the act of transferring the plant to the border. This same method would hold good for Figs, young Peaches, and other stone fruits started in heat, and modifications of it as applied to other plants will occur to the cultivator. *M. W.*

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 491.)

(8.) C. CITRINA, Lindl., *Coll. Bot.*, sub t. 37; *Bot. Mag.*, t. 3742; Hook., *Cent. Orch. Pl.*, t. 34; *Pescatorea*, i., t. 12; *Gartenflora*, t. 931; *Flore des Serres*, t. 1689; Warn., *Sel. Orch.*, ser. 3, t. 18; Sander's *Reichenbachia*, i, t. 20; Veitch, *Man. Orch. Pl.*, pt. 2, p. 33, with fig.; *Sobralia citrina*, Llav. et Lex., *Nov. Veg. Descr.*, ii., p. 21; *Epidendrum citrinum*, Rchb. f., in Walp. *Ann. Bot.*, vi., p. 317; *Cattleya Karwinskii*, Mart.. *Auswahl. Merkw. Pfl.* p. 14, t. 10; *C.? sulphurina*, Lem., *Jard. Fleur.*, iv., p. 56, with fig.—Mexico. It was first introduced into England by the Horticultural Society of London about the year 1823 or 1824, but the single plant soon died. In 1838 it was re-introduced from Oaxaca to the Duke of Bedford's collection at Woburn, but again it seems to have disappeared. Some twenty years later it became generally distributed in collections, through a considerable importation by M. Linden, of Brussels. Its remarkable pendulous habit and bright yellow flowers render it one of the most distinct Cattleyas known.

(9.) C. CITRINO-INTERMEDIA×, Rolfe, in *Gard. Chron.*, ser. 3, p. 73; *C. Lamberhurst Hybrid*, *l. c.*, p. 73.—A hybrid, raised by Dr. Harris, of Lamberhurst, between C. intermedia ♀, and C. citrina ♂. A very interesting plant on account of the totally different habits of the two parents.

C. coccinea, Lindl. = SOPHRONITIS COCCINEA.

C. crispa, Lindl. = LÆLIA CRISPA.

C. crocata, Hort. = C. LABIATA var. ELDORADO.

C. Dawsoni, Warn. = C. LABIATA var. LUDDEMANNIANA.

C. Deckeri. Klotzsch = C. SKINNERI.

(10.) C. DOLOSA, Rchb. f., *Xen. Orch.*, ii., p. 224 (in note); *Gard. Chron.*, n. s., v., p. 430, 431, figs. 78, 79; *Belg. Hort.*, 1876, p. 184, t. 12; Puydt, *Les Orch.*, p. 23, fig. 26; *Epidendrum dolosum*, Rchb. f., *Xen. Orch.*, ii., p. 224; *Cattleya Walkeriana* var. *dolosa*, Veitch, *Man. Orch. Pl.*, pt. 2, p. 50.—Brazil. This plant was purchased by Mr. John Day, in 1872, at Stevens' Room, where it was offered as a Cattleya or Lælia from Minas-Geraes. It is closely allied to C. Walkeriana, of which, indeed, Messrs. Veitch made it a variety, but as the peduncles are produced from between the leaves of the fully developed pseudobulbs, not on a small slender shoot from the rhizome (a very important difference), I think it preferable to consider it distinct.

C. domingensis, Lindl. — BROUGHTONIA DOMINGENSIS.

(11). C. DOMINIANA ×, Lindl., in *Gard. Chron.*, 1859, p. 948; *C. Dominiana alba*, *Floral Mag.*, 1867, t. 367; *C. Dominiana lutea*, *Gard. Chron.*, 1870, p. 1476.—A hybrid, raised by Mr. Dominy for Messrs. Veitch, between C. maxima ♀ and C. intermedia ♂. Of the few seedlings raised two forms have received distinctive names, owing to slight variations in colour.

C. Dormaniana ×, Rchb. f. = LÆLIO-CATTLEYA × DORMANIANA.

(12.) C. DOWIANA, Batem., in *Gard. Chron.*, 1866, p. 922; *Bot. Mag.*, t. 5618; *Belg. Hort.*, 1869, t. 13; *Ill. Hort.*, t. 525; *Revue Hort.*, 1869, p. 460, with plate; Jennings, *Orch.*, t. 33; Puydt, *Les Orch.*, t. 7; *Flore des Serres*, t. 1709; *The Garden*, xii., t. 99; Warn., *Sel. Orch.*, ser. 2, t. 27; *Gard. Chron.*, n. s., xxiii., p. 501, fig. 90 (fruit); *C. labiata*, var. *Dowiana*, Veitch, *Man. Orch. Pl.*, pt. 2, p. 16, with fig.; *C. Lawrenceana*, Warscew., ex Rchb. f., in *Gard. Chron.*, n. s., xix., p. 243 (in note).—Costa Rica. Originally discovered by Warscewicz, about 1850, and sent to Messrs. H. Low & Co., of Clapton, but in such bad condition that all the plants eventually died. It was re-discovered in 1865 by Mr. Arce, a native naturalist, when collecting for Mr. G. Ure Skinner, and sent home through Captain Dow, after whom it is named. It first flowered with Messrs. Veitch, in the autumn of 1865. The yellow segments, as well as the remarkable veining of the lip—both so different from what occurs in any form of C. labiata—when taken with other known difference, appear to me sufficient to warrant its retention as a species.

Var. AUREA, T. Moore, in Warn. and Will., *Orch. Alb.*, t. 84; Sander's *Reichenbachia*, i., t. 5; *C. aurea*, Linden, in *Ill. Hort.*, n. s., t. 493; *Lindenia*, t. 28.—New Grenada. Discovered by Gustav Wallis in 1868, in the province of Antioquia, when collecting for M. Linden; and again four years later by Butler, for Messrs. Backhouse, of York. Its occurrence here, some 600 miles distant from the habitat of the typical C. Dowiana, is interesting. *R. A. Rolfe.*

(*To be continued.*)

FLORISTS' FLOWERS.

THE TULIP.

No sooner did the florists of the old school get over their Auricula exhibition than they began to prepare for that of the show Tulip. It is many years since prizes were offered for show Tulips in London; but, considering the fact that many persons are now growing them in the South of England, and that the Great Exhibition to be held in the Temple Gardens, under the auspices of the Royal Horticultural Society, is on May 30, the "Turner Memorial" trustees determined to offer a series of prizes to the value of £10 on that occasion. The judges appointed are Dr. Robert Hogg, of 171, Fleet Street, and Mr. John Ball, of the Royal Nurseries, Slough. The trustees hope that numerous collections will be brought forward in competition for the prizes.

The properties of Tulips are not generally understood in the South of England, but the following main points are what the old florists insisted upon, and they made no hasty decision, but were careful to study minutely the flowers before deciding. Form was of primary importance, and this is the half of a hollow ball, when the flowers are open. Large flowers are preferred if they are perfect in their markings. The base of the cup should be pure. White, if a rose or byblœmen; and a clear bright yellow if a bizarre; a greenish-yellow or dirty white are both serious faults. The feathered flowers ought to be regularly marked round the margin of the petals. Some are more heavily feathered than others; but a medium or light feather is most pleasing. A break in the feathering is an undoubted defect; but it is a common one. In all cases the colour should be bright and decided.

A flamed flower differs from a feathered one in having what is termed a "beam" up the centre of each petal; but the beam itself ought to taper off before it reaches the end of the petal. It should also be of regular form. The beam is sometimes of a paler colour than the feathering, but this is also a fault. A word about "breeder" Tulips. These are self-coloured flowers produced from seeds; but in the course of years they break into the feathered or flamed state. Only those flowers of good form with a pure base should be retained and grown until they are rectified.

I often look into some of the old florists' periodicals, for two reasons—1, To see what they have to say about the weather; and, 2, to see what they have to say about their daily occupations. It is often stated that the seasons have changed considerably for the worse during the last few years; but one has only to read the doleful complaints of the adverse weather of forty or fifty years ago to find it was the same then as now. We have had during the last four or five years very late seasons, but we hope soon to have a change to warm early ones.

Mr. J. Hunt, a great Tulip fancier, writing from High Wycombe in 1848 to the *Florist*, says:—"The present wet season is very unfavourable; the great influx of rain, with the almost constant covering of the beds to prevent their being saturated with water, is very prejudicial. The foliage is of a sickly pale green; the stems weak and drawn, by the frequent covering and absence of the rays of the sun." Next follow elaborate directions for covering and uncovering the beds with canvas, &c. This is still done in the north; Mr. Barlow has an immense canvas tent in his garden at Stakehill House; but Mr. Horner, who grows most beautiful and perfect Tulip blooms, has a light glasshouse for his Tulips. I cover them with glass lights merely to protect the blooms from wet; and if the sun shines too brightly on them a light shading is thrown over the glass. The flowers are mulched over the surface now with decayed stable manure. *J. Douglas.* [These late-flowering garden Tulips have probably sprung from Tulipa Gesneriana, whose natural characteristics have been altered in several ways by many generations of florists. The flower of T. Gesneriana is large, campanulate, the segments of variable colour, broadly rounded at the apex; stigmas ½ inch in diameter, the flower-stalk erect and glabrous. When the flower is red, the basal blotch is obscure. ED.]

APHELANDRA CRISTATA.

IN the *Botanical Register*, t. 1477, a magnificent plant is figured under this name, about which I wish to inquire. Is it still in cultivation? I think not; but some of our older cultivators may remember it; and if it still exists in some quiet corner, it would be well worth bringing into notice. In 1832 it had been cultivated, so the *Botanical Register* says, for a hundred years in our gardens. I will presently endeavour to show how this species may be known from other Aphelandras without the aid of the figure quoted above, but it is first important to point out that a plant is extant under the name without any title to it. This is Pachystachys coccinea of De Candolle's Prodromus, now more properly called Jacobinia coccinea, the former genus having been placed (with sectional rank) under Jacobinia, in the Genera Plantarum. It has done duty for Aphelandra, in two Botanic Gardens at least, for a number of years, and its general appearance is so similar, that a mistake was not suspected, until I came to be questioned about the structure, which led me to look it up, with the result that I made it out as above. The structure is quite different, and, avoiding further detail, I need only mention that Jacobinia has two stamens and two-celled anthers, while Aphelandra has four stamens and one-celled anthers. The application of this is, that any plant supposed to be Aphelandra cristata, but with

the two stamens having two-celled anthers, may have the label corrected to Jacobinia coccinea, with scarcely a risk of error. The plant is not without merit, having a good terminal spike of scarlet flowers. It is figured, poorly, however, in the *Botanical Magazine* as Justicia coccinea, but having referred my identification to Professor Oliver for confirmation with good material, he refers me to a figure, t. 8, in Smith's *Icones Pictæ*, which is quite characteristic of the plant. Returning now to Aphelandra, it should be said that the name A. cristata is consigned to oblivion. Two plants, and I think a third, all inferior, have enjoyed this name, but the only one of present interest is that of the Botanical Register, the A. tetragona of De Candolle, which name must now be kept up, if, as I understand, this last specific title is also the oldest. This plant is well figured in the above work, and also, though not so finely, in Jacq. Hort. Schœub. t. 320, and by these figures it could not be mistaken, but I have proposed to fix it by words. It belongs to a section of the genus which includes only those species that have the lateral divisions of the lower lip much smaller and shorter than the middle one; in this section it belongs to a set with entire bracts in which there are two species only, so far as I can discover, that have the floral rachis densely pubescent or woolly. These two are A. tetragona (our present plant) and A. pulcherrima, which appear to be easily distinguished by an absolute character, if reliance may be placed upon a figure of each, as certified by De Candolle, the bracts of the first being open, so as to show the white pubescence, those of A. pulcherrima being imbricated, even when many flowers have fallen, so that the woolly stems of the inflorescence are hidden. A. tetragona is evidently a stout plant, like A. aurantiaca, with distinctly crenated leaves, while A. pulcherrima is more slender, with longer petioles, and the leaves scarcely crenated at all. I believe we have lost the latter plant, but the one really worth seeing again is A. tetragona. The figure in the *Botanical Register* was drawn from an inflorescence that measured eight or nine inches each way. The flowers are large and very numerous, with corollas two inches long, and of brilliant scarlet colour. When they fall the coloured styles hang down in fringe-like order, and the representation of this gives a remarkable appearance to the figure. *R. Irwin Lynch.*

PLANT NOTES.

KYLLINGIA MONOCEPHALA.

This is a pretty low-growing Cyperaceous plant, very suitable for stove decoration, and only needs to be better known to ensure its general cultivation. It grows some 9 inches in height, and bears small white inflorescences, similar to small pincushions, at the base of three unequal leaves (though it should be mentioned there is a small additional one at the base of the longest). These small oval inflorescences have a striking effect amongst the green foliage, and also are useful for mixing with cut flowers. It is readily increased by division, and thrives in any ordinary soil; loam, leaf-mould, and sand, is a very suitable mixture. Like other members of the tribe, it is perennial. *W. H.*

TETRANEMA MEXICANA (AMERICAN FOXGLOVE).

There is very little likeness between this and the Foxglove of our own native flora, though there is one important point upon which they agree, viz., that of belonging to the same natural order. The plant in question is small and compact, attaining only some few inches in height, and bearing opposite obovate leaves, with rather prominent veins upon the under surface, upon which there are a few hairs. The flower-stalks are axillary, with four slightly winged angles bearing a number of smallish flowers of a purplish-violet, the lower portions of the throat being speckled, on short pedicels. As this flowers very freely, it is well worth cultivating for decorative purposes; and whether grown in pans, pots, or planted out in suitable positions, such as some borders present, it makes a pretty effect. It is a good plan to add a little old mortar-rubble with the loam, leaf-mould, and sand used for potting. In winter it requires the temperature of a warm house for its well-being, but during the summer will thrive almost anywhere under glass. It produces seeds freely, and from this source young plants are best raised. Seeds sown at the beginning of the year (or even now) will come into flower during the autumn or winter, and bloom almost the whole year through. The genus is monotypic, and was figured in the *Bot. Mag.*, 4070. *W. Harrow, Botanic Gardens, Cambridge.*

ANOIGANTHUS BREVIFLORUS.

This is a Cape bulb, occurring also in Natal and the Transvaal, formerly referred to Cyrtanthus, but considered by Mr. Baker to be the representative of a new genus, differing from Cyrtanthus in the perianth. The bulb is ovoid, sending upwards a few broad, strap-shaped leaves with the flowers. This scape is two-edged, varying in length according to circumstances, and bearing eight or ten flowers in a cluster. The flowers are yellow, and their general appearance is shown in the illustration (fig. 95), for which we have to thank Mr. Lynch, of the Cambridge Botanic Garden. The plant is fully described by Mr. Baker in the *Journal of Botany* for 1878, p. 76. The derivation of the name is not given, but we take it to be from *anoigo*, to open, or *anoiktos*, open. It was introduced into gardens by Professor Foster, and as a cool greenhouse plant flowering in spring it may be recommended.

ROSES.

IS MARÉCHAL NIEL AN OUTDOOR ROSE?

What a glorious Rose this is when seen in its full beauty! but is it ever in that condition when grown out-of-doors? It has fallen to my lot to see it grown under the most varied circumstances, and I have long since come to the conclusion that the only place in which it can be seen in its real beauty is under glass.

There are cases in which other conditions, besides power of withstanding frost, have to be taken into account as in the outdoor cultivation of Tea Roses, in which we must include (as they are generally joined together) the Noisettes. As to which section the Maréchal properly belongs may be a moot point. It is mostly classed amongst the Noisettes, and yet there is a great deal of Tea look and perfume about it, its long rampant shoots would proclaim its belonging to the same division as Gloire de Dijon, but there is a delicacy about its foliage which leads one to regard it as a Tea-scented Noisette; of its history little is known, it is supposed to have been a seedling from Cloth of Gold, or Isabella Grey, most probably the latter, and was raised by Pradel; it was seen in the same year by Mr. George Paul and myself in different hands before it was let out, and although we both thought very highly of it, yet commercially it did not realize what it ought to have done, owing to this joint-ownership, although since that time no Rose, whether in plants or as cut blooms, has had so large a sale.

When I question its capabilities as an outdoor Rose, it is not because I believe its constitution to be defective, although the late Mr. Ellwanger thus wrote of it, "The finest of all yellow Roses, it is of delicate constitution, and requires very careful treatment to produce satisfactory results; it is only adapted for culture under glass, and even then the inexperienced would do better not to attempt its culture, but use in its stead Madame Marie Beston, Solfaterre, or for non-climbers Perle des Jardins." This is a statement which we cannot, at any rate in England, endorse; we look upon any of these as far inferior to the Maréchal, which we regard unrivalled as an indoor Rose, although it is very apt to die off after a few years. I am not sure, however, whether this is only when worked as a standard, it is then apt to become "gouty" at the point of junction between the scion and stock. I have known many plants of it which have thus succumbed, and no treatment seems to be able to save them; it is true wherever I have seen this take place they have been worked as standards, and am inclined to think that where worked as dwarfs on the Seedling Brier that this would be obviated; at least, my own limited experience tends to confirm this view. Some seven or eight years ago I planted in a pot a Maréchal Niel, and placed it at the back of a small lean-to about 12 × 8, there it has pushed its roots through the pot into the ground, while it has covered the back of the house, and would, if I allowed it, usurp the whole; but there are as yet no signs of the gouty swelling, and it makes every year long vigorous shoots. I am obliged to cut out large quantities of the wood, and obtain between 300 and 400 blooms (not of large size) annually.

But this is a digression. I return now to the question first started—Is Maréchal Niel an outdoor Rose? As a standard in the open I have never seen it do well after a year or two, and if it is to be grown outside, a wall is the proper place for it; but to me its one fatal defect for this purpose is its habit of drooping its blooms—the footstalks are not sufficiently strong to bear it up, as on that magnificent but rarely seen yellow Rose, Cloth of Gold or Chromatella; and as the outer petals are always discoloured, you see nothing but what seems to you half-dead blooms.

I have in my mind two which I have seen in this neighbourhood, both on a wall facing south-west; one of them fell a victim to mildew; year after year it was terribly crippled, and at last its owner cut it down, but its blooms at its best days were, as I have said, poor things to look at from a distance, and you had to cut a flower before you found out its beauty; the other was a fine example, which flourished for several years, but at last fell a victim to that gouty tendency to which I have alluded; but here, too, if a stranger came up to it with its luxuriant foliage, he might have wondered what had happened to it that its flowers were so faded. On approaching it he finds that he has only been looking at the outside petals, and that he must gather the flower to see its beauty. How different this is from Cloth of Gold all who have been able to grow that lovely but capricious Rose can tell. What a sight, for instance, was a fine specimen that was in its perfection some twenty years ago in this parish, covering the front of a dwelling-house facing south-west on a light sandy soil. I have seen it with 200 blooms, some single, others in clusters; but all standing up well, certainly not as deep in colour as the Maréchal, but withal very beautiful. Dr. Bennet and Mr. A. Hall Gray have described in the *Rosarian's Year Book* how beautiful it is on the Riviera and in the Azores.

I see that in a contemporary it is stated that in a garden near Taunton—the very garden, I believe, where the same writer described the Tea Roses as not hardy—he saw a bed of Maréchal Niel. He rightly says he has never heard of such a bed before, nor do I think he is likely to gain many converts to his plan; he describes the growth as most luxuriant the whole bed forming a thicket of strong shoots, some as thick as a man's thumb, and from 5 to 7 feet in length. The bed was planted in the autumn of 1887, and before they commenced to make new wood last spring, many of the strongest shoots were pegged down on the surface, and they are seen to have formed roots. Certainly all this sounds well; he adds, however, that a few flowers were produced last year, but the weather was not very favourable for them. This, too, I can quite believe, and I think, moreover, that there can be nothing but disappointment in store for such a bed with its beautiful foliage and all its flowers hanging their heads, and showing the discoloured outsides

which is neither a "thing of beauty, or a joy for ever."

My verdict is, that as an outdoor Rose Maréchal Niel had better be left alone, and that the proper place for it is the roof of a greenhouse, where its beautiful golden cups can be seen from underneath. Your correspondent in last week's paper would seem to upset my ideas; but while I can quite believe (though I am much surprised) his account of its behaviour in the Midlands, it is very probable that I should find the same fault with it.

As to its colour, that is a very uncertain matter. Sometimes I have been told that its paleness is owing to its being too much in the shade, and sometimes to its being too much in the sun; but there is one thing noticeable about it, that it is much richer in colour after it has been cut a day or two; and I believe that many of the highest coloured flowers we see owe their deep yellow to this cause, and not to any secret of growth. *Wild Rose.*



Fig. 95.—Anoigánthus breviflorus: flowers yellow. (see p. 556.)

Rose Reine Marie Henriette.

I have grown this fine climbing Rose for some time, and find it to be singularly robust and free. My plants are on their own roots, and of my own striking. They grow against a south wall, and in that position the flowers come, for outdoor Roses, very early. Last year the plants made shoots from 6 feet to 7 feet long, and very stout and firm. These, cut back to about 4 feet, have now broken very strong, and at almost every bud, so that only some severe late frosts, or other disaster, can prevent the plants from blooming both early and profusely. This Rose is a real climber, and makes a growth which gives a wall or pillar a creditable aspect. Too often we see walls covered with Teas and some other climbing Roses, the wood presenting the most wretched starved appearance, the leaves eaten up with mildew and maggots whilst the blooms are young. Now Reine Marie Henriette, if the plants be on their own roots, breaks up freely from the base, and thus keeps for the plants a good foundation, and if this wood be preserved, the wall may always be clothed with respectable shoots. The flower-buds resemble those of General Jacqueminot, but the petals assume a soft rosy tint as the flowers open. These are in brilliant contrast to the white buds of Niphetos, or the sulphur-yellow bloom of Maréchal Niel. Niphetos is so loose-petalled the moment the flowers are slightly expanded that I think its merits are somewhat over-rated. A good pure white of the character and stamina of Reine Marie Henriette has yet to be found. *A. D.*

Orchid Notes and Gleanings.

Oncidium Widgreni, *Lindl.*

Some time ago a very handsome little Oncidium was sent to Kew by Mr. R. Draper, gr. to the Marquis of Londonderry, Seaham Hall Gardens, near Sutherland, for name. I did not at first recognise it, but some little time afterwards, when looking through Lindley's Herbarium, in order to identify another species, I saw it was identical with a specimen collected in Brazil by Widgren, and which is the type of the above-named species. Mr. Draper states that his plant was collected on trees in the neighbourhood of Rio Janeiro. It is placed by Lindley in the group Tetrapetala macropetala, and is allied to O. cornigerum, Lindl., but with far brighter colours. The panicle apparently reaches about a foot high, and has several slender branches, with numerous flowers, rather larger than those of O. cornigerum. The sepals are light yellow, with narrow transverse bars of light reddish brown, the petals, which are but very little broader, of a dark reddish-brown, and the lip a combination of the same colours. The crest of the lip is very remarkable, and may be described as consisting of a large number of small tubercles running down its centre, from the base to near the apex; while the side lobes are small, linear, and incurved, and the front lobe small, rounded, and emarginate. I have not seen a living plant before, and think it must be either rare or very local. The colours are very brilliant, and I was particularly struck with the elegant contrast they afford. *R. A. R.*

Vanda gigantea.

A fine plant of this majestic Vanda is now in flower in the warm house of M. Lemoinier. I counted sixteen leaves, all in healthy condition and of an enormous size. The flower-scape had fourteen flowers. The ground colour of these is clear yellow, with many large brown spots. When in such good condition as it is here, the plant has a very pleasing effect. *Nils Nilsson Emitslof.*

Odontioglossum Andersonianum lobatum var. Lemoinierianum, *H. G. Rchb. f.*

It is M. A. Lemoinier, the well-known Orchid amateur, of Lille, who had the good fortune to find this remarkable variety packed amongst some other plants imported by Messrs. F. Sander & Co., St. Albans. It was named and described by Professor Reichenbach in No. 93, vol. iv., October 6, 1888, and is now in flower for the second time in the cool house of the above-mentioned amateur. The last pseudobulb made is of extraordinary size, and its

scape bears thirty-five well-formed flowers. The sepals and petals are bordered with fine yellow, there is some yellow on the base of the unbordered lip, a very light mauve hue spreads over the white disc of two of the sepals, and the whole has a striking appearance. *Nils Nilsson.*

Cypripedium Lemoinierianum, *n. hybr., H. G., Rchb. f.* (see the *Gardeners' Chronicle*, No. 76, vol. iii., n.s.)

A plant of this new hybrid is now in flower with its raiser, M. A. Lemoinier. It is a cross between Sedeni and Roezli. I think this hybrid is one of the most vigorous of all Selenipediums. The plant in question has fourteen strong growths, and is equal to if not surpassing in size that exhibited at the Ghent show last year, and which took the 1st prize. Its flowers are similar to those described by Professor Reichenbach, the purple on the petals and on the lip being of a very deep shade, but the petals are not, like the others, curved as in Sedeni, but straight, like those of C. Roezli. *Nils Nilsson.*

Cypripedium cardinale.

All the Cypripediums of this section are characterised by their free growth, and when well grown they make fine handsome large specimens, which produce flowers in abundance from the young growths, so that they may be almost accorded the title of perpetual bloomers. They are free-rooting plants, and consequently require adequate pot-room. The soil we have found the most suitable for them is a mixture of about equal parts of good fibrous peat, turfy loam, and good leaf-mould. The drainage must be good; indeed, we usually half fill the pots with drainage material. In potting, the plant should be slightly raised above the rim of the pot, and the whole made firm and compact. These plants require a large amount of water about their roots during the growing season, and even when they are not active they should never be allowed to become dry, as they have no thick or fleshy pseudobulbs to assist in supplying the deficiency. It will be found, however, that nearly all the year round these plants are more or less active, and during warm and sunny days a slight syringing with tepid-water will be found highly beneficial; but this should not be performed in a heavy drenching manner as it will cause a quantity of water to gather in the sheaths and in the young leaves, a state of things which is not conducive to health, neither should the flowers be wetted at any time. Water also should be freely used about the pots, and upon the stages, as it tends to keep a genial moist atmosphere which the plants enjoy, and it also prevents the attacks of thrips, red-spider, and other insects. The East India-house is the most suitable position for C. cardinale, in the winter fully exposed to sun and light; but during the summer months we find these plants thrive best when shaded from the sun during the hotter portion of the day. Propagation is effected by division, the young growths being taken off with roots; these should be put into small pots at first, and kept in a somewhat close position until they are established. *The "Orchid Album," March*, 1889.

Cultural Memoranda.

TORENIA FOURNIERI.

It is not yet too late to sow seeds of this pretty flowering plant, doing so in light sandy soil. It is useful for filling small vases about the room, and as a basket plant, the pleasing colour and pretty markings of the flower being greatly admired. Nice sized plants can be grown in 4-inch pots in the following manner:—As soon as the seedlings are large enough to handle, they should be pricked out thinly in pots or pans, and kept well up to the glass to maintain stocky growth. In two or three weeks they should be strong enough to pass on into the pots they are required to bloom in; water must be carefully afforded them at first. They do well in a frame when established, and must be kept close to the lights. *W. Kirk.*

Treatment of Deutzia gracilis after flowering.

This useful forcing plant is often treated in a very hap-hazard way after it has done flowering, often being put in some out-of-the-way place, or even at once placed out-of-doors, where the growth becomes stunted. Any that may require repotting should be at once attended to, and after cutting off the dead flowers, be put into a warm pit or house, and syringed twice daily. Mine are in the same house with those Azaleas which are making their growth. The plants are benefited by an occasional watering with weak manure-water. Any which may have become stunted and mis-shapen may be cut down close to the soil, and after starting into new growth should be shaken out and repotted; and when the shoots have completed their growth the plants should be placed outside in an open position to mature, the pots being sunk in beds of coal ashes to ensure an uniform state of moisture and lessen the amount of watering. *W. Kirk, Blackmoor.*

Androsace coronopifolia as a Pot Plant.

Some charming plants of this in 48-size pots, grown by Mr. Odell at Barrow Point, Pinner, seem to indicate that, when it is grown in a manner similar to that practised by him, it would add another to our telling market plants. The seeds are sown when ripe, and the young plants pricked off several together in a 48-pot, wintered in a cold frame to the early part of the spring, and then brought into the greenhouse to flower. The plants, about a foot high, are densely set with the pretty pure white flowers, which will endure for a long time. *J. O'B.*

Wallflowers.

This is the time to raise young plants for transplanting to beds and borders next October, and for pot culture, these latter being eligible for forcing at the beginning of the new year. Harbinger (dark) and Belvoir Castle (yellow) are two excellent varieties. The seed should be sown in boxes or pans filled with light soil, covering the seed with the same kind of soil; afterwards water the soil gently but thoroughly, and place in a frame. Prick off about 6 inches apart when the seedlings make a few true leaves, choosing for the purpose a situation that is sunny and open; gently water, and afford a little shade until established. They will grow and lift better if about 2 inches thick of short dung is placed on a hard bottom, and followed by a like thickness of fine loam. *H. W. Ward.*

Plants and Their Culture.

The Greenhouse in May.—The Cliveas now showing their flowers will be improved in size and colour by giving them liquid manure frequently. The later Roses, in pots, which have been kept in cold pits or houses will be benefited by liquid manure plentifully applied. The H.P.'s should get decayed manure as a top-dressing. Green-fly will now begin to be troublesome, and ought to be kept in check by frequent fumigation, followed by syringing, and mildew may be kept down by the use of advertised remedies, or with sulphur.

Tuberous-rooted Begonias should now be growing freely, and may be propagated when the shoots reach a length of 2 inches, inserting them, when made, in small pots—singly. The compost should be light, and contain a considerable portion of silver sand. Place the pots in a brisk bottom-heat, giving water with a sparing hand. Plumbago capensis may now be propagated if small plants are wished for. The cuttings of young wood strike readily, and, when rooted, they should be frequently stopped. The Bouvardias which were struck early, should now be potted off, using small pots for the first potting, and shifting them into larger ones as it becomes necessary.

Cuttings of Bouvardias may still be propagated, following previous directions. Do not keep old plants when young ones are in sufficient numbers, but one year old plants should be cut back severely, kept close, and syringed twice daily, watering carefully until new growth is made, when the plants should be shaken out of the soil, placed in small pots, and if they can be planted out on a spent hotbed early in June, bloom in abundance will be obtained from them in the autumn. Cuttings, about 2 or 3 inches long, taken from the larger roots of the old plants, and potted singly in small 60's, and put into a brisk bottom-heat, will make plants in a short time, being planted out as above directed. They may be repotted in September and housed in the usual manner. Cuttings of the strongest points of Hydrangeas should be taken off and struck in small pots singly.

Tender Annuals.—The early sown Cockscombs, Celosias, and Balsams must not be allowed to get pot-bound in the early stages of their growth, or small heads of bloom will result. Most of them grow satisfactorily in a dung-frame, plunging the pots and syringing the plants daily, air being afforded on every fine day. A sowing of Globe Amaranths, according to demand, if made now, will be found of great service late in the summer. The treatment of the plants is similar to that afforded the Celosias as to heat and moisture, but less root-space is needed, and three plants in a 6-inch pot or one in a 4-inch, are effective. A sowing of Rhodanthes in variety may be made with the same intent. Salvias should be repotted, as they may seem to require it, and more cuttings made if small plants are wanted. Chrysanthemums should be repotted before the plants get pot-bound, keeping the plants in the frames until established. Intermediate Stocks will now be found of much use, and the bloom may be prolonged by application of weak liquid manure. The succession plants may be placed under a wall facing north, to be retarded; they also will take plenty of liquid manure when well rooted. Autumn-sown Schizanthus, should be potted, and placed in a cold frame, close to the glass, and another sowing may be made for a succession, using small pots, and sowing thinly, the plants being reduced to three or four in a pot. Campanulas, which were sown early should be pricked off and placed in a cool frame. Plants sown last season to bloom this autumn should be shifted finally, if large plants are wanted. *G. Wythes, Syon House, Brentford.*

The Flower Garden.

Methods of Bedding-out.—In order that this work may be done in the best manner both as to general arrangements and planting, it is first necessary that every detail should have been well thought out; this is of special importance to young men; and even in the case of experienced men, notes should be made in regard to any intended new features. As regards my method of procedure beyond mentally deciding as to what form the general arrangements shall take, I rarely make any notes except with refereuce to the preparation of the needful plants. As regards arrangement, designs and arrangement of colour, the most important point to aim at is, perhaps, that of trying to have each year's planting as distinct from the preceding as thought and labour can make them—for instance, supposing that last year there was a preponderance of flowers over foliage, that order should this year be reversed; or, provided the beds were somewhat flat, as they are when Pelargoniums are used freely, the change should this year partake of a more irregular form, by a more general use of, say, Fuchsias and Abutilons. The same in regard to colour and design. If the beds were last year rather formal in the arrangement of their contents, let them this year partake of a bolder pattern; and as regards colour, high or gaudy colours are generally to be eschewed. Pink, white, grey, blue, rose, and cerise never fail to please, and are colours that one can look on without tiring; and every year these colours should rule. Of the higher tones—viz., scarlet and yellow—a very little of either goes a long way with me in more ways than one, and I strive to relegate them to those parts of the garden more distant from the dwelling, this being their rightful position, as no other colours look so well when seen from a distance.

As to the merits of flowers or foliage in bedding arrangements, I consider them to be of equal merit; flower-beds, however quiet the colour, are too gay without their neighbours, the foliage-beds, and the latter are never more effective than when surrounded by beds of flowers.

Planting.—It is yet full early to plant out other than those plants which will bear without injury from 5° to 6° of frost, and of these only such as have been

well inured by having been gradually hardened off for some weeks. Verbenas, Lobelias, Pyrethrum Gold Feather, Calceolarias, Gnaphalium lanatum, Echeverias, and the more robust of the Pelargoniums may, if hardened, be safely planted; Violas and all hardy plants will, as a matter of course, all have been planted some time since. The dull, wet weather, though favourable to planting in soils of a light nature, is unfavourable in regard to growth; the constant drip, drip, seals over, as it were, the surface of the soil, which in dry weather will crack, to the destruction of plant-roots, and checking growth. This may be counteracted by mulching with cocoa-fibre directly the planting is finished, thereby also doing away with the need for artificial watering should the weather afterwards prove dry.

Herbaceous Plants.—These are growing apace, and some few of them are, till the growth gets firmer, liable to be injured by frost. Of this class are Tree and Chinese Pæonies, whose flower-buds are susceptible of injury if frost be followed immediately by rain; but when the plants are dry a few degrees of frost does them no harm. A few evergreen branches should be stuck in the ground about their stems as protection. The same should be done to Gladiolus, Hyacinthus, candicans, and Ranunculuses. If the latter are planted in beds, Tiffany stretched over bent sticks is the best form of protection, as it is also for beds of Tulips, and other flowers. Fill up vacant spaces in the borders with any kinds of flowers that may be on hand. I like to see plenty of Sweet Peas, and a few Sunflowers, Giant Hemp, and such like plants at the back part of the borders, and in the front small, round plots of Mignonette, Violas, tufty Sedums (Stonecrops), Veronicas, and dwarf annuals of a close-growing habit, as Silene, Saponaria, Limnanthus, and Nemophila.

General Kinds of Work.—This will consist of the potting of sub-tropical plants, the propagation of Alternantheras, the transplanting of variegated Mesembryanthemum from the cutting pans into shallow boxes of leaf soil, getting tender plants out of strong heat into cooler frames, and placing Pelargoniums and other bedding plants of a similar degree of hardiness out of doors, under the shelter of trees, walls, and hedges. Asters, Stocks, Scabiouses, and Everlastings, that are now in cold frames, are noted for final planting out at the first convenient time. Sowings of seeds of the following should be made:—Wallflowers, Antirrhinums, Penstemons, Canterbury Bells, Aquelegias, Pinks and Carnations, in shallow drills, on the open border, and to plant out all plants of the same which may have survived the winter. *W. Wildsmith, Heckfield, Winchfield.*

The Orchid Houses.

The work for the month of May entails much diligence in carrying it out, and one thing which is very necessary in the early part of the month is the making a careful inspection of every house to see that the plants are standing in quarters suitable to their condition of growth, and that those plants which were kept a bit warmer in winter are now removed to the quarters which they will occupy in the summer. Miltonia vexillaria is one of those which if kept too warm and close in summer will get unhealthy; on the other hand, Miltonia Roezlii, which is allied to it, does not object to a warm, moist, shady quarter the year round. The Masdevallias of the chimæra section, and others which have been wintered in a house rather warmer than the cool-house, should now be returned to the cool one. These are grown best in suspended baskets or boats, being kept wet, always. All Oncidiums of the O. crispum section, O. Marshallianum, O. concolor, O. dasystyle, O. Forbesii, O. varicosum, O. bifolium, O. tigrinum, O. unguiculatum, &c., are strictly cool-house plants, and however well they may grow in the intermediate-house in winter, they resent being kept close in summer. The cool-house is best for them always, but where they have been kept warmer up to the present time they may be kept sound by putting them now into the cool-house. Baskets or rafts are best for all of these, but they may also be grown in pots. Carefully keep down the temperature at night, and carefully but judiciously afford shade in the day time. Where roller blinds cannot be used, Williams' Eureka shading for painting the glass is a good substitute. Should the weather prove warm, artificial heat should be discontinued in the cool-house.

The temperatures for the month of May should be:—For the warmest house, 70° to 75° by day, 65° by night; intermediate-house, 65° to 70° by day, 60° by night; cool-house, 60° to 65° by day, 55° by night. *J. O'Brien.*

Fruits Under Glass.

Strawberries for Forcing.—Examine these carefully for any signs of mildew, with which the dull and cold weather is very apt to affect them—the cure is flowers of sulphur dusted on the foliage before the mildew has time to reach the fruit. Expose those that are colouring to the air and light so as to assure good flavour, and continue to put in more plants for successional, and water copiously with manure-water. Do not maintain too many fruits on a plant; all plants ready to be put out should be gradually inured to the open air. I may mention in passing that a gentleman visiting these gardens the other day, said that he found it was a capital plan in a dull season like the last to get some empty glass bottles, and put them round the plants in the open garden, thereby supporting the fruit and keeping it free of the ground, and the slugs were prevented from eating it, and moreover the bottles acted as conservers of sun-heat, a row so treated was far superior to others.

Tomatos.—Such of those as were planted in the autumn will now be bearing freely; therefore stop and tie out the shoots, cutting out such of the foliage as would lead to overcrowding; water the soil with manure-water, damp down the borders and paths of the house in the morning, and again at shutting-up time; the night temperature should range from 60° to 65°, air being afforded the plants when the warmth reaches 70° in the morning, avoiding cold draughts. Keep the side shoots pinched off the plants intended to be planted out in the open air, and also from those fruiting in the houses; use Calvert's carbolic soap in solution with the syringe if any white fly should appear on the plants.

Melons.—Give fruit which is ripening more air than formerly, also a drier atmosphere; do not water too heavily or syringe overhead, else the thin-skinned varieties may "crack." Top-dress the roots as they appear on the surface with decayed dung and loam; stop the shoots at the first leaf beyond the fruit, and when a proper number have been set, keep the atmosphere in a moist growing condition—syringing the plants lightly at shutting up time. The night temperature may be 70° to 75°, and by day with sunheat, 80° to 85°, closing with the thermometer at about 90°. Keep the foliage and shoots of plants in frames well thinned out, impregnating the blooms, exposing the fruits, and putting pieces of glass underneath to keep them clear of the soil. Sow for successional batches in single pots. *W. Bennett, Rangemore, Burton-on-Trent.*

The Hardy Fruit Garden.

Work on the Wall-fruit Trees.—Now is a good time to go carefully over the Apricot trees, disbudding the branches, and especially is this needful for young trees, the growth on these being several inches long. Cut out all shoots not needed to build up the tree, and pinch back to a few eyes those intended to form the fruit-bearing spurs next year. The branches of the Apricot are liable to die off at any season of the year, so that the better to fill up gaps so caused fan-training is desirable, and careful attention should be paid to disbudding and pruning. The shoots which will form the framework of young trees should be by preference those which spring from the upper side of the branches, all others being removed, and those standing at right angles to the wall, the earliest. Bearing trees should have all shoots not required cut away or pinched back, reserving young shoots at intervals all over the trees, especially at the lower part, for fruit-bearing, and filling up blank spaces as they arise—pinching the shoots on the upper and lower sides of branches. In fastening the tender shoots of fruit trees to the wall it is better to pull them with matting or long shreds to their required places, so as to avoid the danger of nails or wire touching them, and to leave space in the fastenings for them to increase in diameter. Where the fruit has set in clusters leave those which are best placed, thinning off the remainder by degrees. The quantity to be finally left on any one tree to mature will depend greatly on the variety, whether it is small or large fruiting, and also the vigour of the tree. A sharp look-out should be kept for the leaf-grub, and on its first appearance care must be taken to destroy it; for no matter how well all other details are carried out, this, if unchecked, will spoil all.

Sweet Cherries.—The shoots on young trees not likely to be wanted to build up the tree and fruiting spurs should at once be rubbed off. The fan-shape is that generally adopted for the Cherry, and although this form admits of much wood being laid in, this should not be done too lavishly, about 10 inches apart being sufficiently close, more shoots being laid in when needed. The finest Cherries are mostly those at the base of the previous season's shoots and on shoots of two years' old. The Cherry is subject to gumming and loss of branches, and it becomes, therefore, a matter of economy to maintain a number of shoots at intervals all over the trees, for filling up gaps so caused. Trees which are planted on southerly aspects, be these Cherries, Apricots, Peaches, or Nectarines, are all the better if some kind of protection against the sun be employed during the warmest part of the summer, this protection being mainly used on the stem and larger branches up to 18 inches from the soil. For the stem, drain-pipes, tiles, or sheets of bark, answer the purpose well, whilst the young shoots may be fastened over the branches.

Morello Cherries.—The branches may be trained rather more closely than in other varieties, and as the fruit is generally borne on the shoots of the previous year, disbudding should be done in a similar manner to that practised on the Peach, but too many young shoots must not be retained. Black aphis may be expected to make its appearance at any time now. The best remedy for this is dusting the shoots with tobacco-powder; or dipping them in diluted tobacco-water, syringing the latter off in the morning. Quassia-water, made by boiling 8 ozs. of chips of Quassia in 2 gallons of water for 20 minutes, and adding to it 6 ozs. of soft-soap, is an old but good remedy for the black aphis. Soap-suds is another destroyer of both black and greenfly. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

General Directions about Crops.—Put sticks to Peas in good time, and do not allow them to fall over first. Thin out Spinach from 4 to 6 inches apart in the rows; also Turnips, Radishes, and every other crop which requires thinning to allow of free play of air. Spring sown Broccoli, Cabbages, Cauliflowers, &c., should be pricked out from the seed-beds or rows as soon as fit to handle. Some cultivators hold that better fibry roots are obtained, and success is more certain by drawing direct from the seed-bed when planting; but I fail to see how that can be, as transplanting has the effect to produce additional fibres, and if the plants be carefully lifted with a trowel good balls can be secured at the final planting, whereas the plants drawn from the beds are divested of many fibres. Keep the hoe busy amongst crops after heavy rains.

Seeds.—Asparagus may now be sown where it has not been done, and new plantations made, when the plants are about 1 inch in height, and according to previous instructions.

Tomatos intended for planting out-of-doors should be repotted as they increase in size, and have abundance of air in fine weather. Seed may be sown for autumn fruiting indoors. Pot Capsicum and Egg plants, and keep them in a genial temperature.

French and Scarlet Runner Beans may now be sown out-of-doors in warm situations, and where the soil is of a heavy nature the best plan is to open a pretty large drill, and put a good quantity of old potting-shed soil and charred rubbish into it, and cover the seed with the same. French Beans may be planted from 2 to 3 feet betwixt the rows; Scarlet Runners from 8 to 10 feet; but they are better employed as dividing lines amongst dwarfer crops, the yield being then nearly double what it is from close standing rows. If the ground intended for Celery be vacant, the trenches may be thrown out and the compost wheeled in, and everything got in readiness for planting. On light soils the best manure for Celery is that of cows and pigs; but on those that are heavy the larger proportion of the manure should be leaf-mould, trust being placed in liquid manure during the summer. Cauliflower plants under hand-glasses, *cloches*, or other protectors must have plenty of water and air afforded them whenever it can be done with safety, only placing the covers over when frost threatens or cold rains prevail. *W.M. Baillie, Luton Hoo, Beds.*

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APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

WEDNESDAY, May 8—Scottish Primula and Auricula.
SATURDAY, May 11—Crystal Palace.

SALES.

MONDAY, May 6 { Imported Orchids, at Protheroe & Morris' Rooms.

TUESDAY, May 7 { Second Portion of the Collection of Orchids formed by the late Mr. J. H. Bath, at Protheroe & Morris' Rooms.

WEDNESDAY, May 8 { Remaining Portion of the Collection of Orchids formed by Mr. H. J. Buchan, of Southampton, at Stevens' Rooms. Greenhouse Plants, at Protheroe & Morris' Rooms. Clearance of Stove and Greenhouse Plants, at Conduit Lodge, Blackheath, by Protheroe & Morris.

FRIDAY, May 10 { Established and Imported Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—52°.7

Railway and Canal Traffic.

It is satisfactory that some members of the horticultural community are at length rousing themselves on this most important question. Naturally the Covent Garden salesmen are among the foremost, but why the nurserymen and seedsmen, why even their humblest customer should remain quiescent when their interests are so much at stake seems rather anomalous. We gave in a former number a table, prepared by Mr. Goodchild, showing the general effect of the proposed changes, and we now revert to the subject for the purpose of calling attention to a correspondence that has been reprinted from the *Times*, between Mr. W. N. White, of Covent Garden, and Henry Oakley, Esq., Hon. Sec. to the Railway Association. That correspondence is interesting and suggestive. It is like a duel carried on by two combatants as courteously as the "rules of the game" permit. The salesman is fighting against what is practically a great monopoly, and it is interesting to watch the combat between the representative of one great branch of trade, which is popularly supposed to be particularly well able to take care of its own interests, and the official authority of another great branch of commerce, in which the interests of the producers and consumers are certainly not more studied than those of the shareholder. Mr. White points out the variation between the new and old classifications, and then gives a table, showing the proposed new rates, together with the rates as now charged, and showing the difference per ton, &c., traders, farmers, and gardeners will have to pay in the event of these proposed charges being allowed to come into operation.

—	Return of Acreage in Cultivation, 1888.	Estimated Production per Acre.	Proposed Increase. Average Rate per Ton.	Actual extra Amount Proposed to be Imposed.
Potatos	590,160	5 tons	9*s.* 4½*d.*	£1,383,187 10
Small Fruit ...	36,724	4 tons	20*s.*	146,896 0
Orchards ...	199,178	10 tons (low average)	15*s.*	1,493,835 0
		Total		£3,023,918 10

"That the proposed charges of the various railways should not become law," says Mr. White, "will, I think, be apparent from my schedule of charges, and on applying these increased charges to three articles only affected thereby I find the following result. The number of acres under cultivation for Potatos, and small fruit, and orchards, I have taken from the agricultural returns for England and Scotland for 1888.

"Thus it is proposed to take from the farmers and traders of this country the amount of £3,023,918 10*s.* on the extra carriage of three articles of production alone to swell the revenues of the various railway companies. What is required is, that the railways shall be compelled to accept the classification of goods as issued by the railway clearing-house, January, 1888, as the classification for future use, and be bound by the lowest rates now existing. Such rates should be made uniform, *i.e.*, people sending goods by any of the various lines should have them carried at the same rate per ton from one county as those who live in the adjoining county, but whose goods are carried by another railway at a different or lower rate. Referring to my tabulated schedule, I notice the southern lines of railway range from 15 to 50 per cent. higher in their proposed new charges than the Northern, Midland, and Western lines; while the North-Western are even higher. I cannot see any reason for these variations, and I do not know why the whole of these nine lines should not be compelled to adopt one uniform rate."

Mr. White then proceeds to discuss the absurd terminal and station charges, into which we need not follow him.

Mr. Oakley's reply is to the effect that the companies do not intend to enforce the maximum rates, but to keep them by them for future use it may be presumed, when considered desirable—and that terminal as well as mileage rates are preferable in the interests of traders to a system based on mileage rates alone. The public would like to know why this should be so, and why, if as alleged, private traders can unload Potatos at their destination at 3*d.* per ton, the companies should estimate the charge for this service at 3*s.* 6*d.* per ton?

Only specialists and experts can hope to grasp all the complicated details of the subject, but it requires no special knowledge to know when

Class.	100 Miles. Proposed Rates for New Classification. Midland. G.E.R. G.W.R. G.N.R.	100 Miles. L.B. & S.C. L. & S.W. L.C. & Dover. S.E.R.	100 Miles. L. & N.W.R.	Present Rates according to Old Classification.	150 Miles. Midland. G.E.R. G.W.R. G.N.R.	150 Miles. L.B. & S.C. L. & S.W. L.C. & Dover. S.E.R.	150 Miles. L. & N.W.R.	Present Rates according to Old Classification.	200 Miles. Midland G.E.R. G.W.R. G.N.R.	200 Miles. L.B. & S.C. L. & S.W. L.C. & Dover. S.E.R.	200 Miles. L. & N.W.R.	Present rates according to Old Classification.	Any further Distance per Ton per Mile. Midland. G.E.R. G.W.R. G.N.R.	Any further Distance per Ton per Mile. L.B. & S.C. L. & S.W. L.C. & Dover. S.E.R.	Any further Distance per Ton per Mile. L. & N.W.R.	Old Classification.	Station and Service Terminal Charges for all lines under proposed New Classification.	Average extra charge per ton as compared with Old Classification.
	s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*d.*	*d.*	*d.*		*s. d.*	*s. d.*
C. Carrots ... ... Potatos (in bulk or sacks) Turnips	15 7	17 8	18 1	8 9	19 9	23 11	23 3½	13 4	23 11	30 2	28 6	16 8	1	1½	1¼	...	3 6 ton	9 4½
I. Cabbage ... ... Chestnuts ... ... Onions	20 4½	25 9½	23 6	8 9	25 7	35 2	29 9	13 4	30 9½	41 6½	36 0	16 8	1¼	2¼	1½	...	8 0 ton	17 3
II. Apples ... ... Pears... ... ... Walnuts	22 11½	30 6½	(50miles 13*s*) 27 4	16 8	29 2½	42 0	35 8	.....	35 5½	53 5½	44 0	22 6	1½	2¾	2	...	6 6 ton	15 0
III. Nuts	25 6½	35 1½	31 7	.....	32 10	48 8	42 0	25 0	40 1½	62 2½	52 5	.....	1¾	3¼	2½	...	7 0 ton	16 2
IV. Fruit ... ... Raspberries ... ... Strawberries ... Tomatos	*30 9	42 5	(50miles 15*s*) 37 0	.....	39 1	59 1	49 6	.....	47 5	75 9	Fruit, 32 6 Tomatos, 27 6 62 0	.....	2	4	3	...	8 3 ton	...
V. Apricots ... ... Cut flowers ... ... Hothouse fruit ... Grapes ... ... Nectarines ... ... Peaches ... ... Pine-apples	*38 8	49 8½	43 8	.....	50 2	69 6	58 3	.....	62 8	89 3½	72 10	.....	3	4¾	3½	...	9 6 ton	...

* Lots of 560 lb. and under, at such reasonable sum as the Company may think fit. I have not gone into these rates, as the 560 lb. limit will keep eight of every ten growers out of the scale rate.

Dendrobium nobile.—Our engraving (fig. 96, p. 561), represents an excellent specimen of this favourite Orchid, the opportunity of figuring which we owe to the kindness of Grose Smith, Esq., Priory Gardens, St. Helens, Ryde, Isle of Wight. Cultivators have found Dendrobium nobile amenable to various modes of cultivation resulting in varying

degrees of floriferousness. There is the close cutting-back of every pseudobulb, practised successfully by Mr. Smythe, the gardener at Basing Park, Alton, and Mr. Blandford, gardener at Moorhill, Bitterne. This method when well carried out by means of a high, moist temperature, and finished off by gradually inuring the plants to one somewhat cooler, ending with perfect rest brought about by withholding water by degrees, has, as a result, the production of a mass of bloom over the whole plant. The other and commoner method consists in removing annually, when blooming is past, the older pseudobulbs in their entirety. These growths having become withered, sapless, and leafless, are no longer storehouses of nourishment, and for appearance-sake ought to be cut away. In this manner the plant figured has apparently been treated by Mr. Smith's gardener, Mr. Earl, and with results in every way satisfactory. Dendrobium nobile and its several varieties, like many other Orchids, needs no great amount of skill for its successful cultivation; and it is found in most gardens where the accommodation of a stove or a warm pit can be given it. In the resting period the temperature of a cool vinery is sufficient for its needs.



Fig. 96.—Dendrobium nobile, grown by Mr. Earl, The Priory, St. Helen's, Ryde, Isle of Wight. (see p. 560.)

The Gardeners' Orphan Fund.—The usual monthly meeting of the committee took place at the Caledonian Hotel on Friday, the 26th ult., Mr. George Deal presiding. It was announced that the sum of £573 12*s.* 9*d.* was standing to the credit of the Fund at the bank, when it was resolved that the sum of £500 be invested. A list of special receipts received since the last meeting were handed in, including £8 17*s.*, by means of a collecting-card, from Mr. H. Allan, Gardener, Brook Hill, Kingswear, South Devon; a donation of £5 from Mr. M. Dunn, The Gardens, Dalkeith; and a similar sum from Mr. Elliott, Fulham Fields; a second donation of 2 guineas from Mr. W. Warren, Isleworth; and one of 1 guinea from Messrs. B. K. Bliss & Sons, of New York. A sum of £5 was received as an amount realised from the sale of tickets by the members of the committee for one of the entertainments given by the Moore & Burgess Minstrels, St. James's Hall. The Secretary reported that a large number of annual subscriptions remained unpaid, which it is desirable should be sent in before the next election, or the privilege of voting will be lost. Mr. John Lemon, Dyke Road, Brighton, was appointed Hon. Local Secretary for Brighton and district. There are fourteen children awaiting election as recipients of the benefits of the fund. Subsequently a meeting of the Covent Garden *Fête* Committee, which includes a number of the stand-holders in the Flower Market, was held, Mr. George Deal again presiding. It was reported that the Lady Mayoress has consented to become a

patron of the *fête;* also that the Baroness Burdett Coutts had expressed her willingness to open the *fête* at 8 o'clock on May 22. This will be one of the great floral events of the season, and held under the immediate patronage of H.R.H. the Duchess of Teck, Her Grace the Duchess of Bedford, the Marchioness of Salisbury, Countess Spencer, Baroness Bolsover, Lady George Hamilton, Lady Goldsmid, Lady Dorothy Nevill, and the Lady Mayoress. Tickets, 5*s.* each (limited to 2000) will be supplied by Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, and Mr. J. Assbee, Market Office, Covent Garden. The band of Her Majesty's Royal Horse Guards, to be conducted by Mr. Charles Godfrey, has been engaged for the occasion. All the details of the proceedings were considered fully, and the meeting closed with a vote of thanks to the Chairman.

To our Masonic Readers.—We are glad to hear that the exertions of Mr. E. Roger Cutler and other gentlemen have been successful in securing the admission of Percy Court to the benefits of the Royal Masonic Institution for Boys.

Railway Rates.—It will be seen from a letter in another column that a meeting is to be held at the rooms of the Horticultural Club, Windsor Hotel, Victoria Street, on Tuesday, May 14, at 3.30 p.m., to consider this question. It is specially requested that nurserymen and others will immediately supply Mr. Goodchild with particulars as to the rate per ton per mile they now pay on the several railways mentioned in the table at p. 560, and so enable him to prepare a comparative statement for the use of the meeting in question.

Myosotis Rehsteineri.—Mr. Smith, of Daisy Hill Nursery, Newry, sends us a specimen of a charming dwarf Forget-me-Not under this name. Mr. Smith informs us that it is a true perennial of free growth, and not in the least "miffy." It forms a dense carpet an inch or more in depth, remaining for a long time in bloom. The individual flowers are small, cobalt-blue, with a yellow eye. According to Nyman, the plant is a form of cæspitosa found near the lake of Geneva.

Rhododendron grande.—We have to thank Mr. S. Cossar, gardener to Mrs. Shrub, Boldre Grange, Lymington, for a photograph of a specimen of Rhododendron grande syn. argenteum, which exhibits a plant 12 feet in height and proportionately broad. In his communication accompanying the picture he states that the plant stands in a cool Peach-house the year throughout, excepting when it is in flower, which, in Hampshire, does not occur every year. The flowers come in fair-sized corymbs, and are sulphur-coloured. The foliage is of a silvery hue, hence its sometime name. It is a distinct and showy plant, and one that should be found in the most select collections of these plants. Like some other species of Rhododendrons, it is of straggling growth, and in order to make it somewhat bushier it is necessary to cut back the leading shoots in those years when the bloom buds are few in number.

"**The Uses of Plants,**" by Professor G. S. Boulger, which will be published next week by Messrs. Roper & Drowley, is a manual of Economic Botany, having special references to vegetable products introduced during the last fifty years. It gives a concise enumeration, with a systematic index, of all vegetable substances in use in England as food, materia medica, oils, gums, rubbers, dyeing, tanning and paper-making materials, fibres, timber, &c., both home-grown and imported; together with short essays on the recent progress of vegetable technology in its various branches.

A New Rafflesia.—"In the farthest south-eastern island of the Phillippine group, Mindanao, upon one of its mountains, in the neighbourhood of the highest peak in the island, a party of botanical and ethnographical explorers found recently, at a height of 2500 feet above the sea-level, a colossal flower. The discoverer, Dr. Alexander Schadenberg, was still more astonished when he found a specimen in full bloom, a five-petalled flower, nearly a yard in diameter—as large as a carriage-wheel, in fact. This enormous blossom was borne on a sort of Vine, creeping on the ground. It was known by the native who accompanied Dr. Schadenberg, who called it Bo-o. The party had no scale by which the weight of the flower could be ascertained, but they improvised a swinging scale, using their boxes and specimens as weights. Weighing these when opportunity served, it was found that a single flower weighed over 22 lb." Baron von Mueller, in communicating to us this intelligence, says, "Evidently a Rafflesia allied to R. Arnoldi. Only the much smaller R. Cumingi was known before from the Phillippines."

Botanical Stations in the West Indies.—The chain of botanical stations in course of formation in the smaller West India islands is being gradually extended. The first to be established was a station at Grenada. This has since developed into a Botanic Garden, and forms one of the most attractive, as well as one of the most interesting, features of the town of St. George. The botanical station at Dodds, in the island of Barbados, has done most valuable work, chiefly in connection with the experimental cultivation of new varieties of Sugar-canes. Indeed, this station has won the credit of being the first to raise Sugar-canes from seed. A very successful botanical station is in full operation at St. Lucia, where numerous economic plants have been distributed amongst the people. We hear now that the Secretary of State for the Colonies has approved of the establishment of botanic stations at Dominica, Antigua, and St. Kitts and Nevis. These will be worked with such assistance as can be rendered by the Botanical Department at Jamaica, and the indications clearly are that the smaller islands in the West Indies will now be able to avail themselves of both the valuable nurseries of plants, and the knowledge respecting their culture accumulated in Jamaica during many years. By these means also the vast resources of Kew, which is in direct communication with centres like Jamaica, will be made available to remote parts of the empire.

The Lombardy Poplar.—According to M. Vuillemin the premature decay and death of this tree, which has been observed in many countries of late years, is due to the attacks of a fungus, Didymosphæria populina. As the lower branches are attacked first, the spread of the disease may be checked by their removal. A solution of copper sulphate is also stated to be efficacious.

The Isle of Man.—Its temperature, says Mr. A. W. Moore, in the *Journal of the Scottish Meteorological Society*, is more equable than that of the surrounding coast, being somewhat higher in autumn and winter, similar in spring, and lower in summer. There is comparatively little frost and snow, but a considerable amount of "raw" damp weather, which, to certain constitutions, is more trying than a lower temperature in combination with a drier atmosphere. Its sunshine is much greater than in any surrounding district. Its winds appear to be much the same in strength and frequency; but as the island is more exposed, they are felt more than on the mainland. The question of its rainfall is a more complex one, as the fall in the various parts of the island varies so considerably. Generally speaking, however, the rainfall is rather larger and more frequent than on the adjacent coasts, but much less than in the mountainous districts beyond those coasts. Its humidity, as far as can be ascertained from limited observations, is rather in excess. We may say, then, that the Manx climate is equable and sunny, and, though humid, decidedly invigorating; that its rainfall, though never excessive, varies considerably in its different districts; and that it is much exposed to winds which are, for the most part, mild and damp.

THE PHILOSOPHY OF THE AURICULA.

On April 23 I had the pleasure of going to the Drill Hall to see the Auricula show, and the other beautiful things that were there exhibited at the Royal Horticultural Society's meeting. At 3 o'clock a paper was read by the Rev. F. D. Horner on the Auricula, to which I listened with much interest. Mr. Hibberd, in making some remarks afterwards, stated that Mr. Horner knew a thousand times more about the Auricula than any other person; nevertheless, with all this thousandfold knowledge, I inwardly felt that the paper was very much like a sermon. Curiously enough, another gentleman, who rose to second a vote of thanks to Mr. Horner, spoke of it as a "sermonic" paper. Now, why was it so much like a sermon? Was it because Mr. Horner is a clergyman, or because there is still so much dogma clinging to the cultivation of this pretty plant? The very language of it sounded as if this creature did not belong to this busy world. The flower (the pip, I ought to say, because in the Auricula vernacular the flower is not called a flower but a pip) has not only an edge but a body, a paste, and a tube. It is either thrum-eyed, or pin-eyed. Its unfortunate stigma must be kept well out of view, down in the tube, as a protruding stigma would be a blemish, and exclude it from a prize! All this restriction about the stigma is quite regardless of Darwin's discovery that there are two or more variations with regard to the position of the sexual organs, and that they probably play some not unimportant part in crossing. Be that as it may, however, we were told that the Auricula has been under cultivation for about 300 years. Now this is a long time for a plant that can seed every year. We were shown the original, so dear to botanists, from which the florist's Auricula is said to have been evolved. And the difference is certainly very great.

We were told that the art of the horticulturist was to take up the botanist's darlings, and make ship-shape things out of them—things that are more pleasing to look at than the wild originals! That the horticulturist's art consists in taking up any natural or artificial variation and working it up into his ideal of beauty and perfection. He thus endeavours to make it vary by all the means in his power till he works it up into what he calls perfection—that is, in the case of the Auricula, a clean edge, a body as cleanly defined as the tire of a wheel, a paste without angles, a tube of a certain shape and colour, and the stigma down in the well of the tube. The head must moreover have an odd number of pips. All this is very well in its way.

What we quarrel with is not the production of a button-like flower, with markings as regular as if they were cut out with rule and square and compasses, but the fanaticism that tells you "every variation from this standard should be exterminated as an abominable heresy." Why should not all these perfect flowers be kept to the delight of florists, and at the same time the Auricula be allowed to vary also in any direction it likes or can? Has the limit of variation been reached? If so, what is that limit? and why is any variation from that limit to be mercilessly exterminated? Seeing that the modern horse has been elaborated out of a five-toed animal of the size of a fox, one feels rather sceptical about the limits of variation in the Auricula. Then if one looks at the sides of the hall with the banks of Daffodils and other varieties of that genus, one sees a totally different thing. There the flower is allowed free play, and although some specimens are straggling, there are many pleasing variations, without being limited to rule and square, hard and fast shapes.

With all this care and straightlacing, the Auricula is said to be anything but a strong plant. It has one great merit, it appears—it does not mind the smoke of great cities. It grows well in Sheffield; and St. Paul's churchyard, it is said, would be a paradise for it.

The effect of crossing ought in time to make it a very hardy vigorous plant, but still it is kept circling within certain limits, making only microscopic variations. Is this because it is bred so much in and in?

Once upon a time there was a race of men known as ancient Egyptians. They evidently bred too much in and in. A large part of their country was overrun and conquered, without a struggle, by the hardier Hyksôs. Then one of the remaining Egyptian kings, for some reason, took to himself a black Ethiopian wife. This cross gave rise to a marvellous line of heroes—conquerors and hunters—who not only drove out the Hyksôs, but carried war into Mesopotamia, and raised Egypt to the position of the principal military power of the time.

One never knows what vigour a cross may lead to. If every little variation from the orthodox type is looked upon as heresy, and is mercilessly exterminated, it will never be possible to ascertain what the Auricula is really capable of. The different individuals kept within the limits of an ideal and artificially restricted type might probably not afford differentiation enough for the evolution of all that plant may be capable of. Nothing can be known without trying. Auricula fanciers may tell you that if they kept heretical variations, and did not exterminate them, they would spoil the others. How can this be? Selected varieties are propagated by offsets. Then others say—no good can come of these abominations. How do they know what would come of their progeny if they exterminate them? An abomination to-day may form a new combination to-morrow, which may lead to something astonishing. Perhaps the society of five-toed horses looked upon the generation of their three-toed descendants as heretics, out of which no good could come. Then, when these again produced the monstrous form of the one-toed horse, the ancestral orthodox horses might have said—"here is our race actually going to the devil." It is losing all its toes by degrees! They will end by becoming cripples; nevertheless, the one-toed horse has won the battle of life!

How I should like someone to take up the Auricula and cross it with anything with which it can cross, and create heresy after heresy, and from these create more heresies, and give this pretty flower its head, so that we may really know whether, having obtained a certain improvement over the original, it is not possible to keep this improvement, and at the same time branch off into some totally fresh line. The person who would do this must not belong to any Auricula Society, and must not care about prizes. He must be a thorough heretic, and go his way! The secretary at the meeting said he could not make any remarks about the Auricula because he did not understand it; and I am sure Auricula fanciers will say, "The writer may know something about ancient horses and Egyptians, but about Auriculas he knows nothing." *E. B.* [Good catholics, not sectarians, will think differently on this point. Ed.]

PLANTS IN FLOWER AT KEW.

Amorphophallus virosus.—A plant of this is now in flower in the Victoria-house, where the gigantic Godwinia lately expanded its huge inflorescence. The figure in the *Botanical Magazine* of the former (t. 6978) represents a much smaller and duller-coloured example than that now in flower. In it the spathe is a foot in diameter, distinctly trumpet-like in shape, 8 inches deep in the tube, and the huge spadix has an irregular conical head, 5 inches in diameter. In size, in its extraordinary structure, and in colour, this Aroid is at least as remarkable as the Godwinia, whilst it surpasses its near relative, A. campanulatus, of which some very strong tubers are rapidly coming into flower in the Water-Lily House. A. virosus was introduced about five years ago from Siam, and was bought for Kew at Stevens' Auction Rooms.

In the porch adjoining the Victoria-house there is a large collection of Arisæmas in flower, some examples of A. speciosum being especially fine; Amorphophallus dubius is also flowering there. If the name of the last-mentioned plant is correct, it is difficult to understand the statement in the *Botanical Magazine* to the effect that it and A. virosus are doubtfully the same species.

Cabomba aquatica.—This pretty little aquatic has lately been introduced through seeds from British Guiana, and is now in flower for the first time. The genus is related to Brasenia, and is included in the natural order Nymphæaceæ. It has numerous branching submerged stems, thin and herbaceous, and densely covered with finely divided leaves, very delicate in texture and arrangement, and about 2 inches across. These leaves are all submerged, but there are also floating leaves which have longer petioles and an entire peltate blade, oval-shaped, and 1½ inch long. The flowers are borne on erect peduncles 4 inches high, and are half an inch across, yellow, and structurally not unlike a small Buttercup; they last only a day or so. As a subject for small aquaria this little plant ought to find much favour, because of the prettiness and dimorphic character of its leaves. It does not appear to differ much, if at all, from C. caroliniana, a common plant in the stagnant waters of some of the North American States.

Oxalis cernua var. flore-plena is in flower in the Alpine-house. It is worth noting only as a curiosity, and because it has attracted some attention lately. As an ornamental plant it is very much inferior to the single-flowered form, of which there are still some good flowering examples at Kew.

Befaria glauca promises to be a useful flowering plant for the greenhouse. The Kew plants, having been raised from seeds, did not flower till they were seven years' old, but they have flowered annually since, and are better every year. Several plants, 2 feet or so high, are in flower in the greenhouse. The flowers are deeper in colour than those figured in the *Botanical Magazine*. The genus is related to Ledum and Rhododendron, and is confined to the Andes and the Southern States of North America. B. glauca was collected by Mr. Thomson, late of the Jamaica Botanic Gardens. The flowers are in large, erect, terminal racemes, and are 2½ inches across, the seven oblong, obtuse segments spreading like a star, with the sheaf-like cluster of stamens projecting from the middle. The colour is purplish-rose.

Bossiæa linophylla. — The exceptionally large example of this pretty flowered Australian Legume is also in flower in the temperate-house. A bush such as this is would be a prominent feature in any conservatory, it is so graceful in growth, and the flowers are jewel-like. They are crowded on the thin drooping branches, deep yellow, with a brownish-red eye, and they remain on the plant several weeks. Although a very old garden plant yet this does not appear to be grown in any save a few specialist's collections. Several other species of Bossiæa are grown at Kew, but this is the best and freest flowered.

Agapetes buxifolia is a first-rate plant for a cool greenhouse, and it thrives just as well in a shady corner as in lighter positions. Several bushes in the temperate-house have been covered with flowers several weeks, and are still fresh. The flowers are 1 inch long, tubular, with spreading segments, and coloured bright scarlet. It is a native of Bhotan where it is said to be epiphytic; but, like the Himalayan Rhododendrons, it grows best in the ground, or in a pot of soil under cultivation here.

Goodia latifolia.—A well-flowered bush of this pretty Legume is in the temperate-house, where, planted in one of the borders, it appears to be happier than such plants usually are. It has numerous semipendent branches with trifoliate leaves and terminal racemes of Pea-shaped flowers, larger than those of Chorozima, and bright yellow, with a blotch of brownish-crimson at the base of the standard. A peculiarity in these flowers is that of being deliciously fragrant when cut, whereas on the plant they are only faintly so. As a flowering greenhouse plant this is well worth growing. It would thrive if treated along with the popular Cytisus racemosus (Genista fragrans). The Goodia is a native of Australia, from whence it was sent to Kew at the beginning of this century by Peter Good, after whom the genus is named. *W.*

PLANT PORTRAITS.

Aërides expansum, *Gartenflora*, April 15.

Anoectochilus sesquipedale, *Lindenia*, t. 175.

Cirrhopetalum ornatissimum, *Orchid Album*, t. 369.

Cœlogyne cristata alba, *Lindenia*, t. 173.

Cypripedium cardinale ×, *Orchid Album*, t. 370.

Cypripedium caudatum var. Albertianum, *Lindenia*, t. 174.

Lælia Gouldiana, *Orchid Album*, t. 371.

Lælia majalis, *Orchid Album*, t. 372.

Luculia gratissima, *Bull. Soc. Tosc. di Ortic.*, April, 1889.

Miltonia Bleuana, *Lindenia*, t. 176.—Hybrid from M. vexillaria pollinated with M. Roezlii.

Miltonia Regnelli purpurea, *Orchidophile*, April, 1889.

Odontoglossum crispum var. President Zhaldua, *Illustration Horticole*, t. 79, April 15.

Phalænopsis gloriosa, *Garden*, April 20.

Picea Alcockiana, *Gartenflora*, April 15.

Picea ajanensis, *Gartenflora*, April 15.

Salpichroma rhomboideum, *Garden*, April 20.

VEGETABLES.

PARSLEY.

My experience of this herb is that it withstands frost best when cut down in the autumn in time for a crop of young leaves to push up before the cold weather sets in. I may say that only once in six years has ours suffered severely, and that was when the cutting down was not done. Our soil being light, deep digging and heavy manuring are important points; and previous to drawing the drills, which are 1 foot apart, the ground is well trampled, to give it firmness—the firmer, in my opinion, the better—and the seed when sown is covered up with burnt garden refuse, together with a liberal allowance of soot; and when the plants are large enough they are singled out to distances of from 8 to 10 inches from plant to plant. *H. Markham.*

Diver's Purple Sprouting Broccoli.

My opinion of this useful vegetable quite coincides with Mr. Markham's (see p. 372, March 23 last). I have a large piece of it just now coming in, the large leaves of which quite cover the stems—which in my opinion is the grand secret of successful Broccoli culture. How often do we see large plants with not a particle of foliage where it ought to be, viz., clothing and protecting the stem, which in garden parlance is said to be "between wind and water." The reason for this, is that gardeners sow the seed too early, consequently the plants grow to a large size, become bare at the bottom, and thus are unprotected. A few days back a neighbouring gardener called in and looking over our Broccoli quarters was surprised to see them looking so well, while, as he remarked "Mine are twice the height and eighteen out of every twenty are dead"—the variety being Leamington. I always sow our spring Broccoli the first week in May and as the wood crow-bar story has become threadbare in your columns I will forbear detailing it, nevertheless I always use it *R. Gilbert, Burghley.*

FRUIT REGISTER.

THE CRANDALL CURRANT.

This is alleged to be a hybrid between the Red Currant (Ribes rubrum) and the Yellow Currant (Ribes aureum). It is figured in the April number of the *Canadian Horticulturist*, and is said to bear black fruit, like a ripe Gooseberry in flavour, with something of the sub-acid quality of the Red Currant, and as a market fruit "it seems almost without

a rival." Is anything known of it on this side of the Atlantic?

Pear President Mas.

M. Baltet speaks of this as a large fruit with a green rind, melting flesh of delicate flavour, while the tree is freely productive. It is figured in the *Bulletin d'Arboriculture* for February.

PLANTS FOR HANGING-BASKETS.

The beauty of a greenhouse or conservatory is greatly heightened by the employment of well-furnished hanging-baskets. When the roof is not much decked with climbers, the baskets take off the bare appearance, and afford objects of beauty to admire. One of the best plants to set in baskets is Pelargonium Rollisson's Unique, which has the misfortune to be an old variety, or its merits would not be so often ignored, as it is now seldom seen, and is only to be met with in a few gardens. In habit it is very free, and forms long trailing growths, which send out large compact trusses of bright-coloured flowers continuously, making a fine show.

Of late years many new Ivy-leaved Pelargoniums have been raised, both single and double, and all of these make splendid plants, grown either singly or mixed if judiciously selected as to shades that will blend or contrast properly, those with light or white flowers associate well with Unique referred to above. Excepting just giving a tie here and there to lead the shoots up the supporting chains, or to regulate them, and give a start over the baskets, it is best to let the plants take their own course, and grow naturally, as then there is no stiffness in appearance, and they show off to the greatest advantage.

Tropæolums also form excellent basket plants, either used alone or with others, as, being light and spare, they ramble and depend without interfering with the other occupants, and their branches hang down and form most elegant streamers. There are many sorts of Fuchsias that have a persistent habit of drooping, and send out long pendulous shoots, whose flowers can only be seen when elevated, and these varieties are very desirable for baskets, and go well with Tropæolums. For summer and autumn work in shady houses Achimenes are very effective, as at Chatsworth, but to have these, baskets must be specially prepared to grow them in, and they look best made globular or balloon-shaped, when the Achimenes may be made to clothe them all over. The way to do this is to line the baskets with moss and fill with soil, such as peat or leaf-mould, for the sake of lightness, the young plants of Achimenes may then be dibbled or placed in between the wires and allowed to grow and fill up till they flower. This they will soon do if treated in the ordinary way, and encouraged by syringing and a moist warm temperature, but just before coming into bloom they should have small stakes to support the main shoots, leaving the laterals to take their own course. Some Ferns are simply charming for baskets, and one or two that have fast-creeping rhizomes soon cover up the wires and send out fronds everywhere—above, around, and below—and form objects of beauty. One of the best of this class is Nephrolepis tuberosa, and a smaller growing kind, N. pectinata, is also desirable. Asplenium flaccidum looks well suspended, and Woodwardia radicans is a noble looking object grown in the same way. For a warm house nothing equals Goniophlebium subauriculatum, which makes fronds 5 or 6 feet long. Gleichenias, too, are fine for the same purpose, and Lygodium scandens is exceedingly graceful depending from a height, as is likewise L. lævigatum; but the last named requires a good deal of heat.

For windows or quite small houses Nemophila insignis looks very pretty; and Mimulus is showy, and well adapted for shaded positions. The list might be greatly extended, as there are Saxifrages, Campanulas, Lobelias, Violas, and hosts of other things, which are suitable for growing thus, but enough has been said to bring these neglected basket plants under notice. *J. S.* [The illustrations, figs. 97 and 98, taken from plants grown at Chatsworth, well illustrate the use to which these baskets may be put.]



Fig. 97.—Basket of Ferns.

HOME CORRESPONDENCE.

☞ *Correspondents will greatly oblige by sending early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

RAILWAY RATES.—Will you allow me, through the medium of your columns, to thank those members of the trade who have sent me particulars asked for in my letter published in your issue of the 20th ult. I must, however, confess to a sense of disappointment at not having received more communications. Do the trade fully realise the importance of the matter? I fear they do not, otherwise they would not be so neglectful of their interests as they appear to be. After June 1 next the proposed rates will (unless qualified by the Board of Trade) have the effect of an Act of Parliament, and no effort, however great, will be able to alter them. When, in future years, the trade find themselves groaning under the imposition of unjust and excessive rates, they will doubtless cry aloud for redress, but that cry will then be of no avail. Unless steps are taken at once to remedy the impending evil it will be too late. In consequence of the small number of communications I received in response to my letter, I was enabled to place before the committee comparatively little information to enable them to form a judgment; but the information which I did receive was sufficient to justify the opinion already expressed with regard to the rates. For instance, in one case, the rate for trees, for a given distance, is now a fraction under 5¾*d.* per ton per mile, whereas under the proposed rates the company would be entitled to charge at the rate of 8¾*d.* per ton per mile, in addition to which the terminal charges would amount to 3*s.* 6*d.* The schedules of maximum charges issued by the railway companies are so prepared that in distances over 50 miles (taking the average of all the companies) it will be necessary (in order to check the charges made by the companies) to make four calculations instead of one. The result of this complication will be that many traders (through ignorance of this) will be incessantly squabbling with the companies. In many instances traders will be entirely at the mercy of the companies, as no fixed rate is named. In other instances the companies can insist on payment of double the amount of rates authorised by the schedules. Are the trade prepared tamely to submit to this? If not let them bestir themselves whilst they have the opportunity. In thoroughly investigating the numerous questions in connection with the matter, my sole object has been the interest and welfare of the trade, but if they are so blind to their own interests it will be no fault of the Association or of any one else if the movement fails to be successful. Other trades are putting forth efforts to obtain reductions and alterations in the schedules, and they will doubtless be successful, but nothing can be done for horticulturists unless the traders are prepared to take a little trouble in the matter. May I again ask them to send me particulars as to the rate per ton per mile now paid by them on the various lines mentioned in my statement, so that I may be in a position to prepare a comparative statement in time for the public meeting, to be held at the Horticultural Club on May 14 next. This information should reach me on or before May 7, as the preparation of such comparative statement will occupy a considerable time. *F. C. Goodchild, Secretary, The Nursery and Seed Trade Association (Limited), 25, Old Jewry, E.C., April* 30, 1889.

SKIMMIA JAPONICA VAR. FOREMANI.—One of the most interesting plants of the Spring Flower Show held in the Waverley Market, Edinburgh, was the above-mentioned. It was a beautiful plant covered with berries. It is quite a new variety of Skimmia, raised at Esbank Nursery, Midlothian, N.B., the principal feature of this novelty lies in its great usefulness "as an all-the-year-round decorative plant." It is quite hardy, having been exposed to 32° of frost without sustaining the least injury. The fruit remain on the plant from eighteen months to two years; thus the shrub bears at the same time the berries of two successive years, together with the

flower for the third year. The foliage is of a pleasing dark green and neat compact habit of growth. *J. K. Budde, Edinburgh.*

COLOUR IN AURICULAS.—The query as to the origin of other than yellow colour in Auriculas, assuming Mr. Shirley Hibberd's theory as to P. auricula being the sole parent of our ordinary Auriculas, may well be followed by the further query as to the parentage of the Polyanthus and the Primrose, which in gardens give to us such wonderful colour in such great profusion. It is impossible to believe that P. elatior, in the one case, or P. vulgaris, in the other, are the only progenitors of our garden forms; it is no more possible to assume that all the deep rich purples, blues, reds, maroons, and crimsons found in Auriculas have come out of the yellow Primula auricula. But assuming that these deep hues in Auriculas have grown from out of Primula pubescens, there still remains the mystery surrounding the evolution of garden Polyanthuses. If these have come from the Oxlip purely by the process of selection, that process must have been spread over a long period of time. In Nature it is rare, indeed, to find either wild Primroses or Oxlips giving colour, but in some cases deeper, though still washy hues, come from cultivation. Now, of course, that we have so many coloured Polyanthuses and Primroses in gardens, development of colour in wild or original forms or species may be rapid enough, but what we have to remember is the time when only wild forms existed, though how long since that was, and to what people is due the credit of the floral evolution now seen, it is difficult to say. The origin of garden Primroses and Polyanthuses—plants now so wondrously rich in colour and beauty as to surprise even gardeners themselves—seems to be as interesting as is the origin of Auriculas, and the discovery of the one may well help the realisation of the other. *A. D.*

BORDER CARNATIONS FROM CUTTINGS. — During the last few years I have increased my stock of the above by cuttings only, and I find that the system has at least a decided advantage over the almost universal method of propagating them by "layering," in so far as they can be put in any time from November to January with equal success, whereas layering has to be attended to at a time when other work is pressing; and it must also be admitted that the average gardener gives but a sorry account of himself at that operation. I shall try in a few words to make my method understood. This season's stock of cuttings was put in about the middle of December last, and a nice healthy, well-rooted lot they are. I choose a rainy day—snow, if you like, for I have had to remove 6 inches of snow to get at them—take off the desired quantity, choosing the strongest of the side shoots—they are full grown by this time—and prepare them for planting in boxes. I prefer short cuttings—in fact, they look, when made, like small bundles of leaves—cut them right across between two joints, immediately below where next year's "grass" will by this time be showing itself. After having cut the shoot to the desired length, make a slit with the knife three-quarters of an inch or so long from the base of the cutting upwards, separating the lower pair of leaves; and I may here mention that I do not trim off any of the leaves whatever; in fact, the more leaves there are left the better the cutting will root. For obvious reasons I use shallow boxes for rooting them in, as these, when the cuttings are nicely rooted, and have begun to grow, can be turned out-of-doors and arranged anywhere, where most convenient—I place mine along the margin of a walk—and at planting time they can be conveyed, box and all, to the side of the bed or border where they are to be planted. The boxes are about 3½ inches deep; these I fill to rather less than an inch from the top with a compost of loam, leaf-mould, and sand, packing it firmly, and on the surface is put a light coating of sharp sand. When putting the cuttings in, grasp the points of the leaves between the two fore-fingers and thumb of the left-hand; this gripping the leaves together at the points causes the slit to open; and when inserting see that it "bites" the sand, thus keeping it open, and consequently more rooting surface is gained than by the ordinary cut across. When inserting them, see that they are made firm. I put them in about 2 inches apart each way, and then give them one good watering, which is all that the cuttings require until rooted. Arrange the boxes in a cool pit, or in any light structure where frost is excluded, and where the atmosphere is moist rather than dry, and when the above details have been attended to, the cultivator may be satisfied that they will give no further trouble till—say, the middle or end of March, when they can by that time be turned out-of-doors without being subjected to the usual gradual hardening off so necessary to the general run of bedding stuff. A box 16×20 inches will hold eighty plants. I have been planting out cuttings of this year's stock, and in removing them from the boxes almost every particle of soil adhered to their roots, every plant having a nice square block of earth attached to it. Out of about two dozen varieties which I grow only two or three do not succeed quite satisfactorily in this way, the majority doing splendidly. I grow the crimson Clove, William IV., &c., in quantity. *W. Harper, Tulliebelton, Perthshire.* [The sample pair of Cloves sent were stocky well-rooted plants. Ed.]



Fig. 98.—Basket of ferns. (see p. 564.)

FRUIT AND FLOWERS FOR THE GROSVENOR HOSPITAL FOR WOMEN AND CHILDREN, VINCENT SQUARE, S.W.—There are many people who cannot give money but who would willingly spare fruit, flowers, evergreens, shrubs, &c., from their gardens if it would help the Grosvenor Hospital for Women and Children. Will you permit me to say to them that we need a plentiful supply of such things for sale or decoration at the Al Fresco Fayre and Floral Fête which is to be held in the South Kensington Conservatory and Royal Albert Hall at the end of May for the benefit of the hospital. Promises of assistance in this way will be accepted quite as thankfully as money contributions, so that I trust I may receive many letters from your readers to whom I will send full particulars. *F. C. Howard, Honorary Secretary.*

A PRECOCIOUS RHODODENDRON.—On the roadside leading from Taplow Station on the Great Western Railway to Cliveden, there can be seen just within the grounds of Taplow Court a good-sized bush of Rhododendron ponticum in full bloom. It by no means occupies a favourable position, for it is somewhat shaded, and open to the north and east. This bush stood by itself, the only one among many near, leading the way by a long advance of the Rhododendron bloom. In the domain of Cliveden not a plant of Rhododendron could be seen showing anything in the way of colour, much less with the blossoms fully expanded, as in the case of this solitary example. It is a kind of floral apparition, but one of a decidedly welcome character. *R. D.*

SNOWDROP DISEASE.—At the end of last February my attention was directed by Mr. Whitton, gardener to the Earl of Strathmore, at Glamis Castle, to a diseased state of Snowdrops. On examination it proved to result from the presence of a fungus—Polyactis galanthina, B. and Br. On opening the *Gardeners' Chronicle* of March 2, I found that Mr. Worthington Smith had already sent a communication on the subject, accompanied by an admirable figure. My object in writing now is simply to state that recent examination of the diseased plants shows that, while the leaves, and especially the flower-buds, were destroyed, the bulbs did not show any sign of having suffered — they appeared to be perfectly sound. In one or two instances a narrow line of decay is visible immediately within the external coat of the bulb; but it is doubtful whether this is owing to the presence of the fungus. Mr. Whitton has carefully preserved portions of the diseased clump in order to ascertain next year whether the bulbs have been in any degreee weakened, and whether the fungus will reappear. It may be added that Polyactis galanthina has not hitherto been recorded for Scotland. *J. S.*

CHERRY EARLY PURPLE GEAN.—In Mr. Dean's interesting report of the Cherry-house at Gunnersbury, p. 532, there is a mistake, I fancy, which ought to be corrected at once; the earliest is spoken of as Early Purple *Jean;* it should be Gean. It was introduced from Switzerland by the Royal Horticultural Society in 1822, and is much esteemed for its earliness and flavour. This word is sometimes spelled Gean, Geen, or Guigne, and the word is derived from Guienne. Although I have given 1822 as the year of its introduction, this word Gean has been known in Scotland for centuries, and memory carries me back to the banks of the Dee, where the trees grew so high, that we had annually to lop off the lower boughs to let the hay and harvest-carts pass under them, and the crops and flavour was all that could be desired, and excellent jam was

often made from the fruit. I have a paper-weight made from one tree, which was so large that the men used to cut scythe-handles from the branches, and bees occupied the hollow trunk for years. *J. Rust, Eridge Castle.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

April 23.—W. T. Thiselton Dyer, Esq., C.M.G., in the chair.

Scales of Oxalis.—Adverting to the specimens shown at the last meeting, Mr. D. Morris mentioned that he had since forwarded some of the scales of the species of Oxalis to Professor Hildebrand, of Freiburg, in Baden, the monographer of the genus Oxalis. Professor Hildebrand's opinion was as follows:—"The larger scales you have sent me have the appearance and anatomical structure of those of Oxalis Bowiei. The curled filaments have the same structure, but I cannot imagine to what part of the bulb they were attached. Perhaps they are a means of dispersion for the bulbs. Besides the scales I found two bits of stems that are very like those of Oxalis variabilis. So it seems likely to me that the bulbs belong to some species of Oxalis, but I never saw in any cultivated or dried specimens any scales like the curled ones." Mr. Morris exhibited a complete bulb, showing the exact position occupied by the curled filaments which was immediately beneath the larger outer scales and closely investing the bulb.

Camellia Soil.—A Fellow of the Society sent a sample of soil from a bed in which the Camellias were not doing well. The soil was a mass of fungous spawn, derived, probably, from imperfectly rotted manure or rotten leaves or twigs.

Galls on Eucalyptus.—From Baron Sir Ferdinand von Mueller came further specimens of the extraordinary horned galls, such as were formerly figured in the *Gardeners' Chronicle*. Mr. McLachlan referred to a paper of Mr. Schrader in the *Transactions of the Entomological Society of New South Wales*, and stated that the galls in question were probably the work of an insect allied to Coccus, and belonging to the Brachyscelidæ. The four horns appeared to be outgrowths from the margin of the receptacular tube, the overgrowth being the result of the irritation caused by the insect in depositing her eggs.

Baron Von Mueller also sent an extraordinary specimen of Banksia, on which Dr. Masters undertook to report at the next meeting.

Mr. Dyer alluded to the peculiar polymorphic condition of the leaves in Acacia armata in cultivation at Kew. Dr. Masters stated that such outgrowths were not uncommon in Acacias. He had described and figured some specimens received at various times from Baron Von Mueller.

The Season.—Mr. Dyer presented a note from Mr. Scott, the Director of the Meteorological Office, relating to the "useful" temperature as reckoned in "day degrees," and to the amount of sunshine since January 1 of the present year, as compared with recent years:—

Results from the Weekly Weather Report. Totals since January 1.

	Accumulated Temperature in Day Degrees.		Sunshine: Total Hours.
	Above 42°.	Below 42°.	
Up to April 7, 1884...	394°	119°	218
,, 6, 1885...	238°	368°	234
,, 5, 1886...	141°	557°	207
,, 11 1887...	208°	468°	300
,, 9, 1888...	88°	556°	195
,, 8, 1889...	180°	435°	210

This shows that the present season has been much better than the last, except as regards the amount of sunshine, in which there is not much improvement.

The figures are not rigidly comparable, because the weeks of different years, do not end on the same day.

The Effects of Fog on Plants.—A further discussion took place on this subject, and it was agreed to postpone the issue of the proposed circular till the autumn.

LINNEAN.

April 18.—W. Carruthers, Esq., F.R.S., President, in the chair.

Mr. J. R. Jackson, Curator of the Museum, Kew Gardens, exhibited specimens illustrating the mode of collecting at Ichang, China, the varnish obtained from Rhus vernicifera, so largely used by the Chinese and Japanese for lacquering. He also exhibited some Chinese candles made from varnish-seed oil.

On behalf of Mr. Henry Hutton, of Kimberley, some photographs were exhibited, showing the singular parasitic growth of Cuscuta appendiculata on Nicotiana glauca.

Dr. Cogswell exhibited specimens of roots belonging to four different families of plants, to illustrate the symmetrical development of their rootlets.

Professor Martin Duncan exhibited under the microscope, and made some remarks upon the Sphœridia of an Echinoderm.

Dr. Masters gave a summary of his paper "On the Comparative Morphology and Life History of the Coniferæ:" a review of the general morphology of the order, based upon the comparative examination of living specimens in various stages of development. These observations, made in various public and private "pineta," supplemented by an examination of herbarium specimens, furnished an example of the utility of gardens in aid of botanical research, advantages much too lightly considered even by professed botanists. The mode of germination, the polymorphic foliage, its isolation or "concrescence," its internal structure, the arrangement of the buds, the direction and movements of the shoots, were all discussed. In reference to the male and female flowers, the author traced them from their simplest to their most complex or most highly differentiated condition, and showed that, so far as known, the histological structure and mode of development were essentially the same throughout all the genera of the order. Various special forms, such as the secondary leaves of Pinus, the phylloid shoots of Sciadopitys, and the seed-scales of Abietineæ were described, and an explanation of their structure offered. The phenomenon of enation with the co-relative inversion of the elements of the fibro-vascular bundles in such outgrowths was considered in relation to the light it throws upon certain contested points in the morphology of the order, such as the seed scale. The chief teratological appearances noted in the order were detailed, and their significance discussed. The various modifications of structure were shown to be purely hereditary, or partly adaptive, and dependent on permanent or intermittent arrest, excess, or perversion of growth and development, and to various correlative changes. Lastly, whilst the polymorphic forms of some of the genera seemed to give an insight into past history, the so-called genus Retinospora suggested that in studying them we might possibly be watching the development and fixation of new specific types.

The meeting adjourned until May 2.

ROYAL BOTANICAL AND HORTICULTURAL OF MANCHESTER.

At this meeting, which took place in the Town Hall on the 30th ult., was also held the annual exhibition of the National Auricula Society (Northern Section), which afforded the means of bringing together a fine display of this popular flower, the change in the weather since the London meeting having materially assisted the development of the flowers, though not a few of the pips were only partially developed. The grey and white-edged varieties, of which there were so few seen in the show of the Southern section at the Drill Hall, were here in excellent character, while the green-edges and selfs were seen to good advantage. Though exhibiting signs of roughness in some instances the character of the flowers was generally much better than in London, and the flowers were also much more numerous. One feature was the number of new varieties—greys and selfs predominating. The Gold-laced Polyanthus was also very prominent, both in numbers and quality, and it is only in the North that opportunity seems to be afforded to see the varieties of the Gold-laced section in their best character.

Of the collections of plants and flowers furnished for the Society's meeting, conspicuous was a large group of Rhododendrons, Palms, Azaleas, Deutzias, mingled with Japanese Maples, sent by Mr. Findlay from the gardens of the Society. A Silver Medal, was awarded to Messrs. Ryder & Son, nurserymen, Sale, for a remarkable collection of new varieties of Primula Sieboldi, there being forty-two pans in all set up with Ferns; the leading varieties were Purple King, Brilliant, Bruce Findlay, Harry Leigh, Polly, Alba magnifica, Miss Nellie Barnard, Victor, Mrs. Ryder, and General Gordon, all being better developed than when seen in London.

Certificates of Merit were awarded to Messrs. Dickson, Brown, & Tait, seedsmen, Manchester, who had a large and showy collection of cut blooms of Daffodils, Hyacinths, Tulips, Anemones, and other spring flowers; to Messrs. Dickson and Brown, seedsmen, Manchester, who had the same; Messrs. Dicksons (Limited), seedsmen, of Chester, for a fine and varied collection of Daffodils; to Thomas Slatter, Esq., Stand Hall, Whitefield, for a delightful group of Orchids, having in fine character varieties of Odontoglossum Alexandræ, O. Andersonianum, O. mulus, a bright form of the foregoing; O. odoratum, O. sceptrum, O. Wardianum, O. Rossii majus, &c.; Oncidium fuscatum, O. Cervantesii, Cypripedium hirsutissimum, Cattleya Lawrenceana, &c.; to W. Brockbank, Esq., Didsbury, for a basket of Narcissus calathinus Redoutei; and to Joseph Broome, Esq., Llandudno, for a basket of very fine Giant Primroses grown in the garden there.

Mr. W. Owen, Hartford Nursery, Northwich, had a group consisting of Orchids, Primroses, &c., including, in the latter, some plants of the old crimson velvet, in fine condition; Mr. S. Barlow, a basket of cut blooms of Primroses; and Mrs. Eliza Mellor, florist, Charlton, a basket of white hybrid Primrose, and cut blooms of a large white fancy Pansy named Champion.

The Exhibition of Auriculas.

Turner Memorial Prizes.—The sum of £5 from the Turner Memorial Fund, divided into two sets of prizes, was offered for four show Auriculas, and also for four alpine Auriculas. The best four show Auriculas came from the Rev. F. D. Horner, Kirkby Lonsdale, who had—Green edge: The Rev. F. D. Horner; grey edge: George Lightbody; white edge: Magpie; and Self Dimple: in the way of Heroine, but a little redder. Miss Woodhead, Halifax, was 2nd, with green edge: Prince of Greens; grey edge: George Rudd; white edge: Acme Bell; and Self: Black Bess. 3rd, W. B. Simonite.

Mr. J. Beswick, Middleton, had the best four alpine varieties, staging Diadem, Racer, a pretty light variety; Queen Victoria, and Seedling. 2nd, Mr. Samuel Barlow, with Charles Needham, one of his fine seedlings; Vesuvius, Mrs. Dodwell, and a seedling. 3rd, Mr. W. Brockbank, Didsbury.

Show Auriculas.—In the class for six varieties there were ten competitors, and the Rev. F. D. Horner was again 1st, with green edge, The Rev. F. D. Horner, Attraction, and Green Plover; grey, George Lightbody; white edge, Mrs. Dodwell; and self, Mrs. Potts, very fine. 2nd, Mrs. Kyrke-Penson, Ludlow, with green edge, Rev. F. D. Horner; grey edge, George Lightbody; white edge, Heather Bell, Conservative, and John Simonite; self, Sapphire 3rd, Mr. W. Brockbank.

There were also ten collections of four varieties, Mr. R. Lord, Todmorden, being 1st, with green edges, Prince of Greens, in superb character, having ten expanded pips; grey edge, George Lightbody; white edge, Acme, and self, Mr. Potts; 2nd, Miss Woodhead, with green edge, Prince of Greens; grey edge, George Rudd, white edge, Conservative, and self, Black Bess; 3rd, Mr. H. Wilson, Halifax.

There were thirteen competitors in the class for two varieties, and Mr. E. Shaw, Mostyn, Meddleton, was 1st with grey edge, George Lightbody, and white, edge, Acme; 2nd, name unknown, with grey edge George Lightbody, and white edge, Acme; 3rd, Mr. J. Beswick, with green edge, Old Lovely Ann, in excellent character, and white edge, Acme.

There was a class also for a pair, the competition confined to maiden growers; here Mr. G. Middleton was 1st with self Lord of Lorne, and white edge Beauty; 2nd, Mr. E. Walker, with green edge, Rev. F. D. Horner; and white edge, Beauty.

Single Specimens.—The premier green edge was Orion, a very fine new green of great promise, from the Rev. F. D. Horner; Mr. Samuel Barlow being 1st, with President Royds; Mr. W. Taylor 2nd, with Mayflower; and the Rev. F. D. Horner 3rd, with Green Globe.

The premier grey edge was George Lightbody, from Mrs. Kyrke-Penson; Miss Woodhead being 1st, with George Rudd; the Rev. F. D. Horner

2nd, with Rachel, and 3rd, with George Lightbody; Mr. W. Brockbank being 4th, with Tom Mellor.

The premier white edge was Miranda, from the Rev. F. D. Horner; 1st, Mrs. Kyrke-Penson, with John Simonite, and 2nd, with Conservative; Miss Woodhead 3rd, with Acme; and Mrs. Kyrke-Penson 4th, with Traill's Beauty.

The premier self was Heroine, from Mr. W. Clements; the Rev. F. B. Horner coming 1st with Dulcie; Mr. W. Brockbank being 2nd with a seedling; 3rd, Mr. H. Wilson, with Black Bess; and Mr. B. Simonite 4th, with Sir W. Hewett.

Premier Auricula.—This was the fine example of Prince of Greens, shown by Mr. T. Lord in the class for varieties.

Alpine Auriculas.—At Manchester the alpines that compete must all have shaded margins, and so self flowers are not admissible as in London. There were seven competitors with four plants, Mr. T. Butterworth, Middleton, being 1st with Unique, Mr. Dodwell, very fine; John Leech, very fine; and Mrs. Ball. 2nd, Mr. J. Beswick, Middleton, with Diadem, Emir, very fine, and two seedlings; 3rd, Mr. W. Brockbank, with Diadem, Mr. Dodwell, and two seedlings.

Single Specimens.—The judges had to select the best golden-centred alpines from a large number. The premier flower was Diadem, from Mr. W. Brockbank. 1st, Mr. T. Clements; and 2nd, Mr. S. Barlow, with the same: 3rd, Mr. W. Brockbank, with Mrs. Ball; there was a much smaller number of white-centred flowers to select from; the premier was Queen Victoria, from Mr. J. Beswick; and he was 1st and 2nd with two promising seedlings; Mr. W. Bolton being 3rd, with Charles Needham.

Fancy Auriculas.—Mr. Samuel Barlow was the only exhibitor of twelve varieties, having a very good lot, yellow varieties being prominent.

Polyanthus, Gold-laced.—Mr. T. Butterworth, Middleton, had the best three black ground varieties, staging well-finished examples of Cheshire Favourite, Exile, and George IV.; Mr. J. Beswick was 2nd, with Cheshire Favourite, Exile, and a seedling; Mr. W. Brockbank being 3rd, with Black Knight, Jubilee, and Cheshire Favourite.

Mr. T. Butterworth had the best three red ground varieties, staging George IV., Prince Regent, and Lancer; 2nd, Mr. George Thornley, Middleton, with Prince Regent, Sidney Smith, and George IV.; 3rd, Mr. G. Middleton, Prestwich, with Lancer, President, and Cox's Regent.

Single Specimen, Red Grounds.—The premier red ground was Ensign, from Mr. W. Brockbank; 1st, Mr. Barlow, with William IV.; 2nd, Mr. Brockbank, with Regina; 3rd, Mr. Thornley, with Sidney Smith. The premier Black Ground was Cheshire Favourite, from Mr. J. Beswick; Mr. Butterworth being 1st with the same; Mr. Beswick 2nd, with Exile; and Mr. W. Brockbank 3rd and 4th, with Black Knight.

Fancy Polyanthuses.—Mr. S. Barlow was placed 1st with a tray of twelve varieties; Mr. W. Brockbank being 2nd.

Primroses.—Mr. Barlow was also 1st with twelve varieties of these, a patch of the old double crimson being very attractive; Mr. W. Brockbank being 2nd.

Seedling Auriculas.—First-class Certificates of Merit were awarded to the Rev. F. D. Horner, for green edge, Orion; and to Mr. S. Barlow, for green edge, President Royds, both fine additions to their class.

LAW NOTES.

OWNER'S RISK.

At the Richmond County Court, on Thursday, before His Honour Judge Turner, the case of Lucas *v.* the North-Eastern Railway Co., one of great interest to wholesale nurserymen, came on for hearing. Mr. E. Wooler, of Darlington, appeared for the plaintiff, who is a nurseryman at Poulton-le-Fylde, Lancashire. The plaintiff sought to recover £18 15*s.* 3*d.*, damages for breach of duty in the carriage of a quantity of nursery stock, consisting of Rose trees, &c., delivered by Messrs. Mack & Son, of Catterick, for carriage to the plaintiff at Fleetwood Station. The goods were ordered to be forwarded *viâ* Leeds, as being the most direct route. Instead of the goods being sent *viâ* Leeds they were forwarded *viâ* Tebay, and it also appeared that the way bill got lost on the way, and in consequence plaintiff was not advised of the arrival of the goods until late on Saturday, the 24th. Although the goods arrived on Wednesday, the plaintiff knew nothing of their arrival till Saturday night, too late to go for them that night, so he went for them on Monday, the 26th, when he found them a total loss, owing to the long time they had been in transit, and therefore he refused to accept them. The goods had been consigned to be sent at owner's risk at the reduced rate of carriage, and under the written contract the plaintiff was precluded from recovering damages, unless he could show that the loss arose from wilful misconduct. Mr. Wooler contended that the defendants were guilty of wilful misconduct in forwarding the goods *viâ* Tebay instead of Leeds, as ordered; that the defendants had also been guilty of misconduct in not advising the plaintiff earlier of the arrival of the goods; that the defendants having lost the way-bill of the goods, which defendants contended was the cause of the delay in advising the plaintiff, was also wilful misconduct; that wilful conduct was the doing of an unusual thing without care, regardless whether it would or would not cause injury to the goods; that the contract did not exempt the defendants from using reasonable care.

Mr. Meek, of York, who appeared for the Company, argued that the onus of proving wilful misconduct was on the plaintiff, and that the act which the plaintiff relied upon did not amount to wilful misconduct within the meaning of the contract.

After a protracted hearing, extending over five hours, His Honour gave judgment in favour of the defendants, with costs, holding that the acts complained of did not amount to wilful misconduct within the terms of the contract.

Mr. Wooler asked for leave to appeal, but the Judge refused.

Among the conditions laid down by the Railway Company is this:—"1. That the Company . . . . shall not be liable for the loss or delay of, or for damage or injury to the goods, except upon proof that such loss, delay, or damage arose from wilful misconduct in the receiving, carrying, or delivering of the goods."

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending April 30.	Accumulated Temperature. Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1889.	Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1889.	Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1889.
	Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.			
1	1 —	28	11	— 28	+ 37	1 —	94	16.3	41	20
2	2 —	33	13	— 32	+ 28	3 +	72	7.5	26	23
3	2 —	36	8	— 55	+ 24	1 —	65	6.9	38	22
4	4 —	42	9	— 104	+ 131	3 +	67	5.6	35	22
5	3 —	49	11	— 103	+ 81	2 +	61	9.3	41	22
6	3 —	41	4	— 115	+ 34	3 +	65	7.3	36	22
7	1 —	35	7	— 52	— 8	1 +	73	13.5	42	25
8	3 —	40	7	— 85	+ 9	1 +	68	8.7	41	23
9	4 —	38	6	— 101	+ 93	2 +	63	11.5	46	29
10	4 —	39	7	— 41	— 40	4 +	84	11.6	38	21
11	3 —	38	4	— 43	— 7	7 +	73	11.0	41	29
12	2 —	49	0	— 45	— 16	4 +	73	8.1	42	34

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending April 30, is furnished from the Meteorological Office:—

"The *weather* has been in an unsettled and changeable condition; fine bright intervals have alternated with overcast skies and heavy showers, accompanied by occasional thunder and lightning.

"The *temperature* has been below the mean in all districts, the deficit having been greatest (4°) in 'England, E.,' 'England, S.W.,' and 'Ireland, N.,' and least (1°) in the north and west of Scotland. The highest of the maxima were generally recorded on the 27th, when they ranged from 57° in 'Ireland, S.,' and the 'Channel Islands,' to 63° over Eastern and Central England. The lowest of the minima, which were registered either on the 23rd or 26th, varied from 28° in the East and West of Scotland, to 34° in 'Ireland, S.,' and to 42° in the 'Channel Islands.'

"The *rainfall* has been a little less than the mean in 'Scotland, N.' and 'England, N.E.,' but rather more in all other districts.

"*Bright sunshine* shows a further increase in most places, the percentage of the possible duration having ranged from 38 to 41 in Ireland, from 26 to 42 in Scotland, and from 35 to 46 over England."

MARKETS.

COVENT GARDEN, May 2.

Market still very quiet, with prices unaltered.
James Webber, Wholesale Apple Market.

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Ficus elastica, each	1 6	7 0
Arum Lilies, p. doz.	6 0	12 0	Genista, dozen	8 0	12 0
Azaleas, dozen	24 0	30 0	Hyacinths, dozen	6 0	9 0
Cineraria, per dozen	6 0	12 0	Lily-of-Val., per doz. pots	10 0	18 0
Cyperus, per dozen	4 0	12 0	Marguerites, doz.	6 0	12 0
Dracæna terminalis, per dozen	30 0	60 0	Mignonette, doz.	6 0	12 0
— viridis, per doz.	12 0	24 0	Musk, dozen	4 0	6 0
Erica, various, doz.	12 0	30 0	Palms in var., each	2 6	21 0
Euonymus, in var., per dozen	6 0	18 0	Pelargoniums, dozen	9 0	15 0
Evergreens, in var., per dozen	6 0	24 0	— scarlet, doz.	4 0	6 0
Ferns, in var., doz.	4 0	18 0	Roses, H.P., doz.	12 0	24 0
Foliage plants, various, each	2 0	10 0	— Fairy, doz.	9 0	12 0
			Spiræa, doz.	9 0	15 0
			Stocks, dozen	4 0	...

Bedding Plants in variety from 1*s.* per doz.; per box, 1*s.* 6*d.* to 2*s.* 6*d.*

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutillons, 12 bun.	3 0	6 0	Narcis., white, 12 bun.	2 0	6 0
Anemone, Fr., 12 bun.	1 0	3 0	— double, 12 bun.	4 0	6 0
Arum Lilies, 12 blooms	2 0	4 0	Pelargoniums, 12 spr.	1 0	1 6
Azaleas, 12 sprays	0 6	1 0	— scarlet, 12 spr.	0 4	0 6
Bouvardias, per bun.	0 9	1 0	Polyanthus, 12 bun.	2 0	4 0
Camellias, white, 12 blooms	2 0	4 0	Primroses, 12 bun.	0 6	1 0
— red, 12 blooms	0 9	2 0	— dbl. white, 12 bun.	0 6	1 0
Carnations, 12 blms.	1 0	2 0	Primulas, dbl., 12 sp.	1 0	1 6
Cowslips, 12 bun.	0 9	1 0	Ranunculus, 12 bun.	1 6	3 0
Daffodils, dbl. 12 bun.	2 0	4 0	Roses, Tea, per doz.	1 0	3 0
— single, 12 bun.	1 6	3 0	— coloured, dozen	2 0	4 0
— various, 12 bun.	4 0	9 0	— red, per dozen	2 0	6 0
Eucharis, per dozen	3 0	6 0	— Safrano, dozen	1 0	2 0
Gardenias, 12 blooms	2 0	4 0	— do., (Fr.), doz.	1 0	1 6
Heliotropes, 12 spr.	0 6	1 0	Spiræa, 12 bun.	6 0	8 0
Hyacinth (Dutch), in quantity, box	1 0	4 0	Stephanotis, 12 spr.	3 0	4 0
Lilac, white Fr., bun.	3 0	5 0	Tuberoses, 12 blms.	1 6	2 0
— lilac-coloured, p. bunch	3 0	5 0	Tulips, 12 bun.	3 0	4 0
Lily-of-Val., 12 spr.	0 6	1 0	Violets, 12 bunches	0 6	1 0
Marguerites, 12 bun.	3 0	6 0	— dark, Fr., bunch	1 0	2 0
Mignonette, 12 bun.	3 0	6 0	— Parme, Fr., bun.	3 0	4 0
			Wallflowers, 12 bun.	2 0	4 0

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	12 0	...	Mustard and Cress, punnet	0	4 ...
— French, bundle	21 0	...	Onions, per bunch	0	5 ...
Beans, Jersey French, per lb.	3 6	...	Parsley, per lb.	1	0 ...
Beet, red, per dozen	1 0	2 0	Peas, French, per qt.	4	0 ...
Carrots, per bunch	0 6	...	Potatos, per cwt.	4	0 5 0
Cauliflowers, each	0 3	...	— kidney, per cwt.	4	0 5 0
Celery, per bundle	1 6	2 0	— new French, lb.	0	6 ...
Cucumbers, each	1 0	...	Rhubarb, bundle	0	6 ...
Endive, per dozen	3 0	...	Seakale, punnet	2	6 ...
Green Mint, bunch	1 0	...	Shallots, per lb.	0	6 ...
Herbs, per bunch	0 6	...	Spinach, per bushel	5	0 ...
Leeks, per bunch	0 4	...	Tomatos, per lb.	2	0 ...
Lettuce, per dozen	1 6	...	Turnips, per bunch, new	0	5 ...
Mushrooms, punnet	1 6	...			

Potatos.—Beauty of Hebron, 70*s.* to 80*s.*; Imperators, 60*s.* to 65*s.*; Dunbar Magnums, 130*s.*; Lincoln, do., 70*s.*; and Dunbar Regents, 110*s.* to 120*s.* per ton. Large supplies of new Potatos from Malta, St. Michael's, and the Canaries.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, half-sieve...	2 0– 4 0	Lemons, per case	...12 0–21 0
— Canada and Nova Scotia, per barrel	7 0– 17 0	Peaches, per doz.	...12 0–24 0
Grapes, per lb.	... 2 6– 6 0	Pine-apples, Eng., lb.	1 6– 2 0
— new, per lb.	... 4 0–7 0	— St. Michael, each	2 0– 8 0
		Strawberries, per lb.	2 0– 4 0

SEEDS.

LONDON: *May* 1.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, E.C., report a continued sowing demand for field seeds. American red Clover seed of fine quality is now very cheap. Alsike and white are also exceedingly moderate. Of Trefoil the supply is as nearly as possible exhausted. For Rye grasses there is a fair consumptive inquiry. Reds are now very low. Tares move off slowly. For large blue Peas there is a good request. No change in either Lucerne or Sanfoin. Bird seeds meet a meagre sale. Haricots still neglected. Linseed tends downwards.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended April 27:—Wheat, 29*s.* 7*d.*; Barley, 24*s.* 6*d.*; Oats, 17*s.* 8*d.* For the corresponding week in 1888:—Wheat, 30*s.* 9*d.*; Barley, 31*s.* 5*d.*; Oats, 16*s.* 3*d.*

FRUITS AND VEGETABLES.

STRATFORD: *April* 30.—Quotations: Cabbages, 2*s.* to 3*s.* per tally; Greens, 1*s.* to 1*s.* 6*d.* per dozen bunches; Cauliflowers, 1*s.* to 1*s.* 9*d.* per dozen; Turnips, 2*s.* 6*d.* to 3*s.* per dozen bunches, 26*s.* to 30*s.* per ton; Carrots, household, 23*s.* to 25*s.* do.; do., cattle feeding, 18*s.* to 22*s.* do.; Mangels, 14*s.* to 18*s.* do.; Swedes, 15*s.* to 18*s.* do.; Onions, Dutch, 3*s.* 6*d.* to 4*s.* 6*d.* per bag; ditto Bordeaux, 4*s.* to 4*s.* 6*d.* per case; Apples, English, 3*s.* to 7*s.* per bushel; do., American, 12*s.* to 15*s.* per barrel; Watercress, 6*d.* per dozen; Spring Onions, 3*s.* to 4*s.* per dozen bunches; Cucumbers, 4*s.* to 6*s.* per dozen; Rhubarb, 2*s.* to 2*s.* 6*d.* per dozen bunches; Cress, 1*s.* 9*d.* to 2*s.* per dozen baskets; Radishes, 1*s.* to 1*s.* 3*d.* per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: *April* 30.—Moderate demand for best qualities; other sorts very dull. Scotch Regents, 80*s.* to 130*s.*; English, 60*s.* to 105*s.*; Magnum Bonums, 60*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.*; other varieties, 60*s.* to 80*s.* per ton.

STRATFORD: *April* 30. — Quotations: — Scotch Regents, 80*s.* to 110*s.*; do., Magnums, 90*s.* to 120*s.*; light English, 65*s.* to 90*s.*; dark do., 55*s.* to 65*s.* per ton.

SPITALFIELDS: *May* 1. — Quotations:—Magnums, 60*s.* to 80*s.*; Scotch do., 75*s.* to 110*s.*; Hebrons, 80*s.* to 110*s.*; Champions, 55*s.* to 65*s.* per ton.

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

"GANGES VALLEY GRASS."—Can any correspondent oblige by stating what this is likely to be? The ordinary reference books have been consulted, and inquiry made of leading Indian botanists, without avail. *Down with popular names!*

NOTICES TO CORRESPONDENTS.

BOOKS: *W. J. E.* For account of British wild flowers, with time of flowering, consult *Handbook of the British Flora*, by G. Bentham and Sir J. D. Hooker, 5th edition. (Reeve & Co., 5, Henrietta Street, Covent Garden, W.C.).—*Sandgrounder.* The price of the little work on the Tomato is 1*s.*—*M. B. British Grasses*, by M. Plues, price 10*s.* 6*d.* (London: Reeve & Co., 5, Henrietta Street, Covent Garden), is the only one.

BOTANICAL CERTIFICATE, ROYAL HORTICULTURAL SOCIETY: *A. D. W.* We suppose that the certificate was awarded because the committee thought the plant deserved it; and the plant you mention would get one also, if thought deserving.

COOL ORCHIDS IN ITALY: *Mrs. H.* There is a difficulty in managing these species during the summer; but much may be done by having the houses at least 3 feet underground, and for summer culture they should face the north. What shading is needed may be constructed of red wooden splints, or split Bamboo, and it should rest on a light trellis 1 foot above the glass. The paths are better made of sand, or fine gravel, as the evaporation of water sprinkled on them is more rapid than from water-tanks. Give much ventilation in hot weather—especially leave open the ventilators during the evening. Some of the Orchids may be stood on the soil under trees, or hung in them; but this is desirable only when it is possible to irrigate the lawns around. A letter addressed to the gardener at the place you name would possibly elicit information on these points. The flowering climbers mentioned will not flower unless they get much more sunshine than is possible in the Orchid-house.

CORRECTION. — In our last issue, at top of col. *a*, p. 532, for "Countess of Annesley" read Countess of Desmond; and "W. B. H." for "Bott."

DOUBLE DAFFODIL: *R. B. & Co.* Rightly named, but checked in its development, from what precise cause you should be able to judge better than we. It is not uncommon.

DUTCH PERIODICALS: *Hyacinth. Sempervirens*, Gronewegen, Amsterdam; *Het Neederlandsche Tuinboublad*, Editor, Dr. Cattle, Arnheim.

GARDENIAS: *J. T. S.* Your plants are doubtless suffering from an attack of the root-worm. Destroy and start afresh in new soil.

HERBS: *Sandgrounder.* Goose-tongue is the vernacular in Yorkshire, Northamptonshire, and Warwickshire, for Achillea ptarmica. We were not previously aware of the fact that the plant Tarragon was called Nutmeg. Anise is used as a flavouring agent and as a carminative.

NAMES OF DUTCH BULB GROWERS: *Hyacinth.* Buy the *Horticultural Directory and Year Book* for the present year. London, 171, Fleet Street, E.C. In this publication are to be found the names of the chief growers.

NAMES OF PLANTS: *G. W.* 1, Dielytra eximia; 2, Fumaria solida, *alias* bulbosa; 3, Scopalia atropoides; 4, Anchusa italica.—*W. K.* Probably a Symphytum, or some allied plant. Send again when in flower. —*T. & P.* Leucodendron argenteum, the Silver Tree of the Cape of Good Hope.—*W. M.* 1, Thuia orientalis var.; 2, Andromeda floribunda; 3, Berberis sp., not recognised; 4, B. Darwinii; 5, B. dulcis; 6, Mahonia nepalensis.—*E. D.* Metica ciliata.—*No name.* 3, Epimedium alpinum; 4, E. pinnatum; 5, E. rubrum; 9, Allium triquetrum.—*E. C.* 1, Trichopilia suavis; 2, Odontoglossum Ruckerianum; 3, Bletia verecunda; 4, Oncidium variegatum; 5, Gymnogramma ochracea.—*Eversfield.* 1, Brassia caudata, a poor form; 2, Dendrobium Dalhousianum; 3, D. thyrsiflorum.—*W. Hobby.* 1, Lomaria procera; 2, Pteris flabellata; 3, Asplenium marinum; Aspidium coriaceum capense; 5, Asplenium præmorsum; 6, Lastræa glabella.—*W. P. B.* 1, Echium fruticosum; 2, Psoralea pinnata; 3, Lastrea frondosa. You should send a fertile frond; 4, Selaginella flabellata; 5, S. filicina; 6, S. caulescens; 7, Adiantum concinnum latum; 8, Callipteris malabarica.—*Poole.* 1, Helleborus fœtidus; 2, Megasea Crassifolia.—*W. Reid.* Sobralia macrantha.—*C. B.* 1, specimen insufficient: send fertile frond; 2, Centradenia grandiflora; 3, Epidendrum elipticum; 4, Tradescantia discolor; 5, Artocarpus Cannoni: 6, Centranthus ruber; 7, Begonia discolor.—*B. J. P.* Please send again.—*F. R.* Apparently Rhododendron Sesterianum.

NECTARINE TREE IN ORCHARD-HOUSE EATEN BY WATER-RATS: *W. Hesler.* The bark of the Nectarine tree below the point of union of stock and scion was entirely denuded of the bark down to the wood, and to a point some inches below the ground-line. The roots have been severed by the rats, and not by a knife, the marks of the animal's teeth being distinctly visible. The rats must be caught or poisoned, and a dipstone trap put into the drain to intercept the rats in their passage upwards from the pond. As a precaution, thick brown-paper smeared with tar might be placed round the stems of the other trees, and some carbolic-acid thrown into the drain.

NEW POTATOS: *G. F. B.* Nice eating, good flavour, and the skin fairly set. Would have certainly been better in a week.

NOTICE TO LEAVE: *J. M.* If there is no agreement, domestics can claim one month's notice, or money in lieu of it if paid monthly, unless there are criminal grounds for making the change, when no notice is required.

PEACH TREES IN HOUSE WITH FRUIT SET: *J. M.* If the trees are old, and the border is dry, a thorough soaking of weak manure water would benefit the trees; but if these are young, clear water is better. Do not apply either unless you are sure that the soil is in need of water.

SEEDS: *Hardy Perennial.* Auricula of the alpine kinds are best sown in the open as soon as the seed is ripe, say in September. Sow on the surface on very firm soil. Sprinkle just a little sandy soil over it, and leave the rest to nature. If sown on the north side of wall, large trees, &c., the plants will not be so frequently frozen and thawed in winter. Keep the bed clear of all weeds. Transplant when large enough to handle the next year. Lychnis Chalcedonica: Sow now and onwards to June in pans of sandy soil in a cold frame. Prick off into boxes or pans, and finally into beds. Gaillardia: Sow now in pans of sandy soil, prick off when large enough, finally putting the plants singly into pots, and winter them in a cold pit, protecting from frost; plant out in the late spring the following year. Phlox Perennial: This is best sown late in the autumn in pans or boxes, keeping these in cold pits or frames, and near the glass when the plants appear. The seeds are sometimes sown in heat in February, and then grown in a greenhouse temperature till April. It is a good way, but gives a deal of trouble; the other is better. Seeds may be sown now. Polyanthus, Delphinium nudicaule, and Pyrethrum carneum: Sow in cold frames, and treat like Gaillardia. Anemone japonica Honorine Joubert: Treat like Phlox, but there is no need to winter the plants under glass, although the plants should be plunged in coal ashes up to the rim of the pots; a little mulching of the same would make the young plants quite safe. The usual mode of increase is from root cuttings.

SPIRÆAS NOT GROWING: *E. H.* These plants often refuse to grow because they are not assisted by a mild bottom-heat, also when the top-heat is far in excess of that afforded the roots. Imported roots are sometimes spoiled by being left out of the ground for long periods, often during hard frost, as will occur in transit.

STEPHANOTIS FRUIT: *R. M.* The fruit is rarely seen. It was figured in the *Gardeners' Chronicle* for December 26, 1885, p. 817. The fruit must not be eaten, it being poisonous.

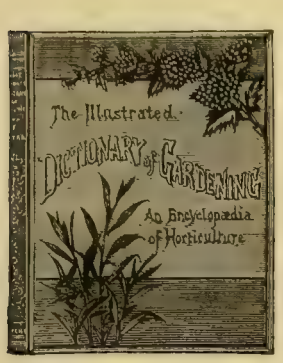
STOCKS: *T. C. W.* Among rows of double stocks many may always be found single, and by starving the plants the number of singles may be increased. See our article on the production of double Stocks, Oct. 13, 1888, p. 415.

VINES: *T. B.* The injury to the leaves of your Vines is caused through a too damp atmosphere, the spots being formed by a settlement of damp on the leaves and possibly a low temperature. Give more air and secure a more bracing atmosphere.—*Subscribers.* The Vines from which the leaves were taken is dying, but from what cause it is not possible to judge from your letter; perhaps the horn-dust may have been in excess.

WILD SEAKALE: *E. W.* An excellent sample, sweet-tasted, and well blanched; but the plants, not having been cut over the year previously, produce largely flowering stalks.

COMMUNICATIONS RECEIVED. — H. Correvon, Geneva. — H. H. D'O.—The Director, Royal Gardens, Kew.—Nils Nilsson, Sweden. — J. H. B., Ventimiglia. — H. J. R., Florence.—F. R., Dr. King, Calcutta.—D. M.—C. B. C.—F. F.—H. T.—J. W. (many thanks).—G. C.—T. S.—R. A. R.—Querist.—Medico.—*Nature.*—J. C. (next week).—R. P. G.—G. Corbett.—W. H.—J. D.—D. T. D.—W. B.—W. Roberts.—A. D.—C. W. D.—W. B. H.—M. F.—J. M.—Bones.

MARRIAGE.—At St. Margaret's, Westminster, on April 25, by the Dean of Rochester (the Rev. S. Reynolds Hole), father of the bridegroom, assisted by the Rev. Canon Cottingham, cousin of the bride, and the Ven. Archdeacon Farrar, D.D., Mr. S. H. Francklin Hole, only son of the Dean of Rochester, to Miss Geraldine Markham, elder daughter of the late Mr. Charles Markham and Mrs. Markham, of Tapton House, Chesterfield, and granddaughter of the late Sir Joseph Paxton.



IMPORTANT NOTICE.

In consequence of the CONTINUED DEMAND for the early Parts, it has been decided to make

A RE-ISSUE

OF THE

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A Practical and Scientific

ENCYCLOPÆDIA * OF * HORTICULTURE,

Edited by G. NICHOLSON,

Curator of the Royal Botanic Gardens, Kew;

Assisted by PROFESSOR J. W. H. TRAIL, A.M., M.D., F.L.S.; REV. P. MYLES, B.A., F.L.S.; and MESSRS. W. B. HEMSLEY, W. WATSON (*Assistant Curator of Kew*), A. F. BARRON, J. DOUGLAS, J. GARRETT, JAMES VEITCH, PETER BARR, and other Specialists.

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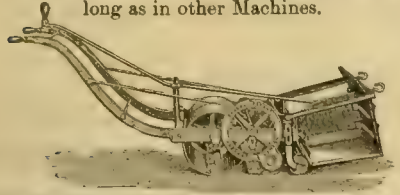


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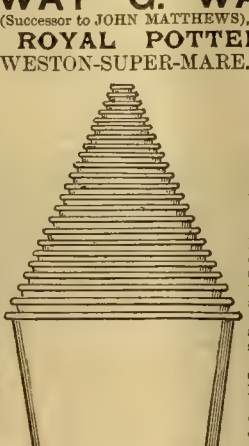
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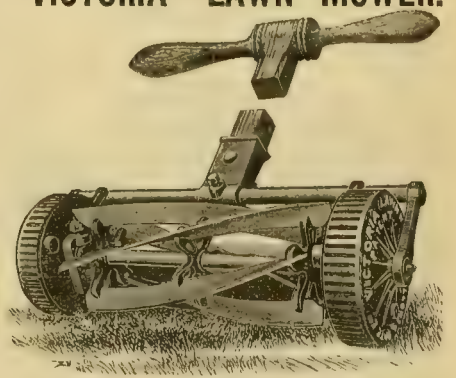
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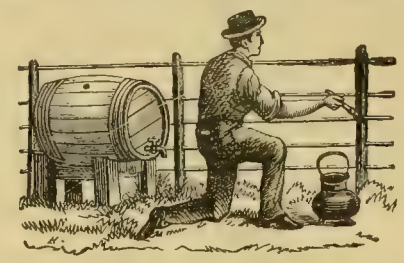
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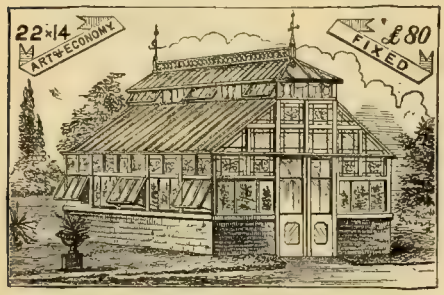
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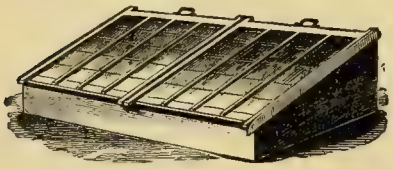
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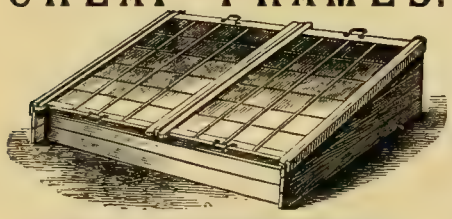
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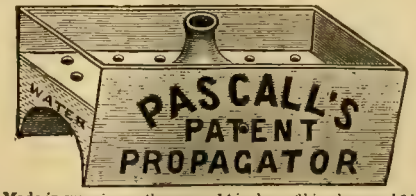
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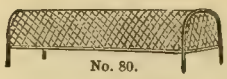
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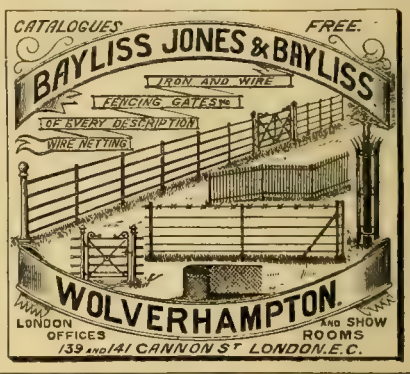


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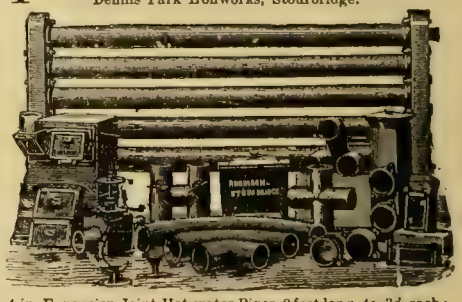
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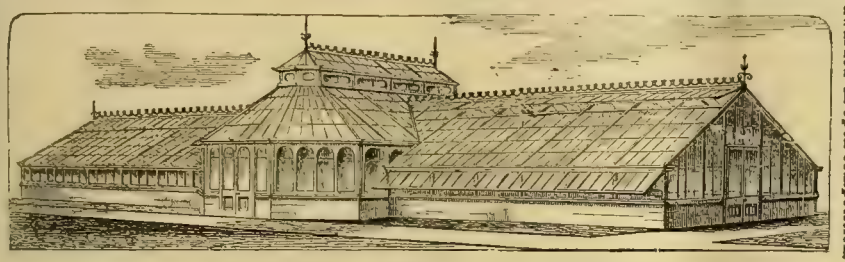
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WANTED, a trustworthy young MAN, for the Glass Department. Must thoroughly understand Grapes, Peaches, Melons, &c. £1 per week.—Write age, reference, and full particulars, to GEORGE HAWKINS, Gardener, Ewenny Priory, Bridgend, Glamorganshire.

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WANTED, FOREMAN, for a Market Nursery. Cucumbers, Tomatos, Roses, Camellias, Eucharis, Ferns, and General Market Stuff.—State full particulars to BEN. MATTHEWS, Whitton Nurseries, Hounslow.

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WANTED, a First-class WORKING FOREMAN and PROPAGATOR, Soft-wooded Stuff.—J. B. BUTTERFIELD, Freezywater, Waltham Cross.

WANTED, a good WORKING FOREMAN and PROPAGATOR of all kinds of Nursery Stock, chiefly Outdoor. Single man preferred.—Apply, with references, to W. SHAND, Nurseryman, Lancaster.

WANTED AT ONCE, an experienced FOREMAN and PROPAGATOR, to take charge of Houses and Grow Stove Plants, Eucharis, Ferns, and Palms. Must be good hand at Wreaths and Cut Flowers.—Apply, stating experience, references, and wages expected to W. FROMOW AND SONS, Sutton Court Nurseries, Chiswick.

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MR. CHARLES WOOLFORD, for the last thirteen years gardener to W. LEE, Esq., Downside, Leatherhead, has been engaged as Orchid-grower by the Right Hon. J. CHAMBERLAIN, M.P., Highbury, Birmingham.

Mr. J. W. ODELL, formerly Gardener to W. BARBER, Esq., Q.C., Barrow Point, Pinner, has been appointed as Gardener to Mrs. BRIGHTWEN, The Grove, Stanmore.

Mr. LEONARD COLE has been appointed Head Gardener to J. MACKUSICK, Esq., Lyttel Hall, Nutfield, Surrey.

Mr. A. J. POPE, late Foreman at Harlaxton Manor, Grantham, Lincolnshire, has been engaged as Head Gardener to Sir CHARLES DE HOGHTON, Bart., Hoghton Towers, Preston, Lancashire.

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GARDENER (HEAD WORKING), where two or more are kept.—Well up in the work. Sixteen years' experience in all branches. Understands Forcing Vines, Peaches, Strawberries, &c. Understands Stove, Greenhouse, Orchids, Flower, and Kitchen Garden. Good character.—F. ENAL, 5, Warren Road, Reigate, Surrey.

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GARDENER.—Age 45, married, no family; experienced in Stove and Greenhouse Plants, Flower, Fruit, and Kitchen Garden. Good recommendation.—J. D., 192, Fairbridge Road, Upper Holloway, N.

GARDENER, where two or three are kept.—Age 26, married; abstainer. Experienced in all branches. Good testimonials.—H. G., Wellington Road Nursery, Forest Gate, E.

GARDENER, where two or more are kept.—Age 33, married, three children; nineteen years' experience—Vines, Greenhouse, Flower and Kitchen Garden. Four and a half years' good reference.—H. COURSE, Ashcroft, Kingston-by-Sea, Brighton.

GARDENER, where one or more are kept.—Age 30, married, two children; thoroughly competent in all branches. Strongly recommended.—R. ROWE, Callow Hill, Virginia Water, Staines.

GARDENER (WORKING).—Age 39, married; experienced. Understands Vines, Melons, Cucumbers, Stove and Greenhouse Plants, Flower and Kitchen Gardens. Good character.—WRIGHT, 22, Goal Cottages, Little Ilford.

GARDENER (SINGLE-HANDED), or where two or three are kept.—Married, no family; two years' good character.—P., 1, Alexandra Road, Walthamstow, E.

GARDENER (SINGLE-HANDED), or where help is given.—Age 26; thorough experience in all branches. Good references from past employers.—W. B., Thornton House, Moffatt Road, Thornton Heath, Surrey.

GARDENER (SINGLE-HANDED).—Age 33, married; seventeen years' experience. Two and a half years' character.—GARDENER, 2, Sydenham Cottages, Burnt Ash Lane, Lee, Kent.

GARDENER (SINGLE-HANDED), or another kept.—Fifteen years' experience in all branches. Four years' good character from last employer.—THOMAS HARRISON, 15, Archdale Road, East Dulwich, S.E.

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GARDENER (SECOND, or SINGLE-HANDED).—Age 25; nine years' experience, Inside and Out, in good establishments. Good character.—A. MAPPLEBECK, Rawcliffe, Selby.

GARDENER (SECOND).—Age 24; nine years' experience, Inside and Out. Good character.—W. OLDER, 6, Half Moon Lane, Dulwich, London, S.E.

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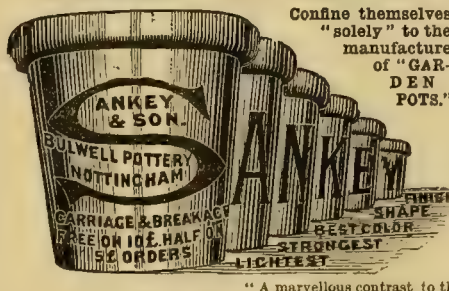
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See large Advertisement, p. 579.

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THOMAS, Covent Garden Market.
Telegraph Address, "THOMASES, London."
Telephone, No. 2822. See large Advertisement, p. 583.

SALES BY AUCTION.

Wednesday and Thursday Next.

Eleven Cases of Brazilian ORCHIDS, just received direct, comprising Cattleya labiata, Oncidium crispum, O. Marshallianum, O. Rogersi, Sophronites, O. Forbesi grandiflorum, Cattleya crispa, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY NEXT, May 15 and 16, at half-past 12 o'Clock precisely each day.

On view morning of Sales, and Catalogues had.

Wednesday and Thursday Next.

The First Portion of the Paragon House COLLECTION of ORCHIDS (largely without Reserve),

MR. J. C. STEVENS has received instructions from F. Briesemann, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Stret, Covent Garden, W.C., on WEDNESDAY and THURSDAY NEXT, May 15 and 16, at half-past 12 o'Clock precisely each day, the First Portion of his well-known COLLECTION of ORCHIDS, comprising—

Cypripedium grande, 6 growths	Cypripedium Danthieri
,, Morganæ, 4 growths	Vanda tricolor Patersoni
,, Veitchii Demidoffi var., in bud	Cattleya labiata, autumn-flowering
,, marmorophyllum, 4 growths	Lælia anceps alba
,, Leeanum superbum, 5 growths	,, ,, Sanderiana
,, politum, 4 growths	,, ,, Stella
	Oncidium macranthum
	,, lamelligerum, in flower

Sobralia macrantha nana, with about 50 growths.
Nanodes medusæ, supposed to be the finest specimen in existence, with about 100 growths.
On view mornings of Sale, and Catalogues had.

Wednesday and Thursday Next.—(Sale Nos. 7926-7.)

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY NEXT, May 15 and 16, at half-past 12 o'Clock precisely, a Grand Collection of ORCHIDS in FLOWER and BUD, comprising splendid forms of Cattleya Mendelii, C. Skinneri, C. Mossiæ, Lælia elegans, L. purpurata, Odontoglossum Alexandræ, O. vexillarum, O. sceptrum, O. Roezlii alba, Dendrobium Ainsworthii (12 plants), D. suavissimum, &c.

On view morning of Sales, and Catalogues had.

Thursday Next.—(Sale No. 7927.)

50 CHOICE MASDEVALLIAS in FLOWER and BUD, from the well-known Collection of W. C. Stobart, Esq., of Leeds.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 16.

On view morning of Sale, and Catalogues had.

Preliminary Announcement.

THE CRAWFORD COLLECTION OF ORCHIDS.

MR. J. C. STEVENS has received instructions from W. H. S. Crawford, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY, June 12 and 13, at half-past 12 o'Clock precisely each day, without the least reserve, the COLLECTION of ORCHIDS formed by the late W. H. Crawford, Esq., of Lakelands, Cork, comprising about 700 specimens, some being fine exhibition plants, all in the best possible health, and many of great rarity and value.

Further particulars in future Advertisements.

Greenhouse Plants.

By direction of Mr. Wm. Fisher, of Wright Street, Small Heath, and Market Hall, Birmingham, who is giving up growing.

MESSRS. POPE AND SONS, HORTICULTURAL AUCTIONEERS, will SELL by AUCTION, on WEDNESDAY, May 15, 1889, and on WEDNESDAY, May 22, 1889, at 12 o'Clock in Phillip Street, the well-known Rooms adjoining the Market Hall, Birmingham, a choice COLLECTION of PLANTS, including Palms, Ferns, India-Rubbers, Eucharis, Stephanotis, &c.

Catalogues may be had from the Auctioneers the day prior to Sale, and Plants on view the morning of Sale.

Monday Next, and Four following Days.

THE FAR-FAMED SUDBURY HOUSE COLLECTION OF ESTABLISHED ORCHIDS,
formed by the late J. T. Peacock, Esq.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the executors of the late J. T. Peacock, Esq., to SELL by AUCTION, without reserve, on the Premises, Sudbury House, Hammersmith, W., on MONDAY NEXT, May 13, and four following days, at half-past 12 o'Clock precisely each day, the ENTIRE COLLECTION of ESTABLISHED ORCHIDS, being the contents of twenty-three Greenhouses, comprising 308 Odontoglossums vexillarium (mostly specimen plants), in splendid health; 102 Cypripedium Spicerianum, mostly large healthy plants; 100 Cœlogyne cristata, chiefly specimens; 50 Cymbidium eburneum, fine pieces; 350 Phalænopsis Schilleriana, amabilis, Stuartiana, grandiflora and tetraspis; 120 Oncidium macranthum and Edwardii, including several grand pieces; 5300 Odontoglossum Alexandræ and Pescatorei, 1000 Cattleyas, and 8000 other ORCHIDS in great variety.

No Plants will be sold privately prior to the Auction. The Collection may be inspected at any time by cards, to be obtained of the Auctioneers. Catalogues may be had on the Premises, and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

Wednesday Next.

GREENHOUSE PLANTS and FERNS in great variety; BEDDING PLANTS, LILIUM AURATUM; and a quantity of other Bulbs; also an importation of BULBS from the Cape.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, May 15, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Walthamstow.

Five minutes' walk from St. James' Street Station, a small and compact FREEHOLD PROPERTY, known as Markhouse Road Nursery, Walthamstow, with an important frontage of 49 feet 6 inches to the Markhouse Road, by a depth of about 180 feet, with a convenient Dwelling, capital Greenhouses, Stable, and Sheds; part of the frontage could be utilised for the erection of Shop Property.

MESSRS. PROTHEROE AND MORRIS will SELL the above Property by AUCTION, at the Mart, Tokenhouse Yard, London, E.C., on WEDNESDAY, May 15, at 2 o'Clock.

May be viewed. Particulars had at the Mart; of Messrs. R. AND A. RUSSELL, Solicitors, 59, Coleman Street, E.C.; and of the Auctioneers, 67 and 68, Cheapside, E.C.

Walthamstow. Castle House.

CLEARANCE SALE, by order of D. Maclean, Esq., who is leaving the neighbourhood, of the whole of the Valuable Collection of STOVE and GREENHOUSE PLANTS, a large number of Specimen CAMELLIAS and AZALEAS, Specimen PALMS and FERNS, a quantity of ORCHIDS, a large number of BEDDING PLANTS, ALDERNEY COW in Calf, GARDEN UTENSILS, and numerous other effects.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, on the Premises, at Castle House, Forest Rise, Walthamstow, close to Wood Street Station, on SATURDAY, May 18, at 12 o'Clock precisely, in consequence of the large number of lots.

May be viewed the day prior and morning of Sale. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and Leytonstone.

Bexley. North Cray Place.

IMPORTANT SALE of the valuable CONTENTS of the MANSION, HORSES, pedigree Jersey COWS, CARRIAGES, GREENHOUSE PLANTS, &c.

MESSRS. THOMAS FOX AND Co. (in conjunction with MESSRS. PROTHEROE AND MORRIS), are instructed by C. C. CAPEL, Esq., to SELL by AUCTION on the Premises, North Cray Place, Bexley, about a mile and a half from Bexley Railway Station, on MONDAY, May 20, and five following days, the valuable CONTENTS of the MANSION, 2 powerful cart HORSES, 12 pure bred Jersey COWS and HEIFERS, 4 CARRIAGES, FARM IMPLEMENTS, also the extensive COLLECTION of well-grown STOVE and GREENHOUSE PLANTS, Specimen Azaleas, a quantity of well-grown Orchids, &c.

May be viewed 2 days prior to the sale. Catalogues may be had 6d. each, of Mr. WINDSOR, on the premises of Messrs. THOMAS FOX AND Co., 77, Bishopsgate Street Within, E.C., and of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C., and Leytonstone.

N.B. The MANSION, with Ornamental GROUNDS of about 150 acres, TO BE LET on Lease.

The Valuable Collection of Established Orchids

formed by the late Edwin Wright, Esq., of Gravelly Hill, Birmingham. UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Executors to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, May 21, at half-past 12 o'Clock precisely, the whole of the valuable COLLECTION of ESTABLISHED ORCHIDS, comprising—

Lælia elegans Wolstenholmiæ	Cymbidium eburneum
,, ,, Schilleriana	Cattleya Skinneri ocullata, 7 leads
Dendrobium Wardianum Wrighti	Aërides Leonii expansum
Vanda Sanderiana	Cattleya gigas, several fine varieties
Lælia purpurata Nellissii	,, Warneri, several fine varieties
,, Russeliana	Cypripedium Stonei grandiflora, specimen plant
Aërides Lawrenceana, fine plant, and splendid variety	Tricopilia crispa marginata, fine variety
,, Shrœderi	Vanda Amesiana and Kimbaliana
Cattleya Mendeli, several fine varieties	
Dendrobium Brymerianum, grand plant and variety	

Odontoglossums and Oncidiums in great variety.
On view morning of Sale, and Catalogues had.

Barnes, S.W.

A few minutes' walk from Barnes Railway Station, and Hammersmith omnibuses passing every twenty minutes.
ANNUAL SALE.—Important to Gentlemen, Florists, and others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Barnes Nursery, High Street, Barnes, S.W., on WEDNESDAY, May 22, 1889, at 1 o'Clock precisely, by order of Messrs. E. Bristow & Son, without reserve, 15,000 well-grown BEDDING PLANTS.

May be viewed the day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, Estate Agents, and Valuers, 67 and 68, Cheapside, E.C.; and Leytonstone.

Blackheath, Kent, S.E.

The St. James' Park Road Nursery, adjoining "Royal Standard Hotel," Third ANNUAL SALE of 30,000 of BEDDING and other PLANTS, including 10,000 GERANIUMS of the best sorts; 1000 CHRYSANTHEMUMS; 500 Double and Single DAHLIAS, PELARGONIUMS, Climbing and other ROSES; 3000 LOBELIAS, COLEUS, CALCEOLARIAS, PALMS, AZALEAS, CAMELIAS; 3000 HERBACEOUS PLANTS, and other Stock.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, on the Premises as above, on FRIDAY, May 24, at 2 o'Clock precisely.

On view day prior, and morning of Sale. Catalogues had on the Premises; and of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday, May 24.—Second Portion.

The justly celebrated COLLECTION of ESTABLISHED ORCHIDS, formed by C. Dorman, Esq., The Firs, Laurie Park, Sydenham. The whole for Sale, without reserve.

MESSRS. PROTHEROE AND MORRIS have received instructions to OFFER by PUBLIC AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, May 24, at half-past 12 o'Clock precisely, the Second Portion of the above justly celebrated COLLECTION of ORCHIDS. The plants are in splendid form, and include many fine specimens, further particulars of which will appear.

The plants will be on view the morning of Sale. Catalogues forwarded, post-free, on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

The Downside Collection of Orchids.

Highly important TWO DAYS' SALE of the remaining portion of this renowned Collection of ESTABLISHED ORCHIDS, including many plants matchless in point of rarity; the whole being remarkable for culture and condition. By order of Wm. Lee, Esq., who has sold the Estate, and is relinquishing the cultivation of Orchids. Absolutely without reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, May 28 and 29, 1889, at half-past 12 o'Clock precisely each day, absolutely without the least reserve, by order of Wm. Lee, Esq., who has sold the Estate of Downside, and is relinquishing the cultivation of Orchids, the remaining portion of this extremely valuable and celebrated COLLECTION of ESTABLISHED ORCHIDS. A list of the principal plants will be found in the *Gardeners' Chronicle* for April 27 last.

The Plants can be inspected by appointment at Downside prior to the Auction, and will be on view in the Sale Rooms on the morning of Sale. Catalogues may be had on application to Messrs. PROTHEROE AND MORRIS, Auctioneers, Estate Agents, and Valuers, 67 and 68, Cheapside, London, E.C.

Orchids in Flower.—Special Sale, Friday, May 31.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be glad to receive NOTICE OF ENTRIES AS SOON AS POSSIBLE.

Sale of the Toston Hall Collection of Orchids,

by order of H. J. Cummings, Esq.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at the Central Sale Rooms, on TUESDAY, June 4, at half-past 12 o'Clock precisely, the whole of the above valuable COLLECTION of ESTABLISHED ORCHIDS.

Further particulars will appear.

To Nurserymen, Gardeners, and Florists.

THE LEASE and GOODWILL of the compact BUSINESS PREMISES, situated at 18, Finchley Road, St. John's Wood, N.W.; also WAVERLEY NURSERY, containing 11 Greenhouses, well heated, with good Stabling and Sheds; also the CONSERVATORIES, Queen's Terrace, containing 3 good Greenhouses and 1 large Glass Show House, well heated; also ALEXANDRA NURSERY, adjoining Loudoun Road Railway Station, well planted with Trees and Shrubs, will be SOLD together, or separately. First-class Jobbing Connection. Valuation Low, and on Easy Terms.

Apply to Messrs. PROTHEROE AND MORRIS, 68, Cheapside, E.C.; or on the Premises.

TO BE SOLD, by Private Treaty, as a going concern, a large and well-equipped NURSERY, situate about seven miles from Manchester. There are 11 Houses, varying in length from 20 to 60 yards, and the stock inside comprises Adiantum cuneatum, Double White Primula, Lomaria gilba, Palms, Dracænas, Azaleas, Pancratium, Spiræa japonica, mixed Ferns, Eucharis amazonica, &c. The outside of the Nursery is stocked with Rhododendrons and Rose Trees. There is ample plant and working utensils.

Particulars can be obtained on application to Messrs. BOOTE AND EDGAR, 18 and 20, Booth Street, Manchester.

FOR DISPOSAL, a NURSERY, SEED, and FLORIST BUSINESS—one of the most lucrative to be found near London, 10 miles out. Reason for selling, proprietor having several other branches cannot give necessary time. Seven large Greenhouses and a number of Frames—all efficiently Heated, and in excellent repair. Good Dwelling-house and attractive Shop, fitted with every convenience for a busy trade. Clean, healthy, valuable Stock; beautiful neighbourhood. Price for Stock, Lease, &c., £900.

Apply, HORTUS, 41, Wellington Street, W.C.

Kew Gardens (close to).

TO BE SOLD or LET, a DETACHED HOUSE, on low terms, by order of the Mortgagee. About 17 good Rooms and Garden. Well suited for a gentleman fond of horticultural pursuits, being close to the Royal Gardens.

Messrs. DEBENHAM, TEWSON, FARMER, AND BRIDGEWATER, 80, Cheapside, E.C. (41,962).

NURSERY (London West), within 8 miles of Covent Garden, about 1 Acre of Glass, consisting of Eight large Greenhouses and Pits, well stocked, Heated with Hot-water. Lease 16 years, with two Cottages. Rent £58.

Particulars of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

TO BE LET, or SOLD, a fine opening for Florist, Seed, and Jobbing Business. Corner situation, central position, chief thoroughfares, 2 miles from Southampton, half mile from station. New detached, superior built 6-room COTTAGE. About half an acre of fine deep loamy LAND. Immediate possession. Land planted with Vegetables.

Apply, N. BLANDFORD, Moor Hill, Westend, near Southampton.

TO BE LET, a NURSERY and FLORIST BUSINESS, with extensive frontage to Main Road.—About 7000 feet of Glass, comprising Vinery, Peach, Cucumber, and Tomato-houses, all in full bearing order.

Apply to Mr. A. ROGERS, Auctioneer and Estate Agent, Walton-on-Thames.

FIRST-CLASS WEST-END PREMISES, one door from Piccadilly, of the net annual value of £610, and held direct from the Freeholder for a long unexpired term, together with or without the Goodwill of the Old-established Seed Business of Thomas Gibbs & Co., or Offers for the Trade and Use of the Name, apart from the Lease, might be entertained.

Apply on the Premises, 26, Down Street, Piccadilly, W.; or to Messrs. EDWIN FOX AND BOUSFIELD, 99, Gresham Street, Bank, E.C.

GRAND FLORAL FÊTE

AND PROMENADE

IN AID OF

The Gardeners' Orphan Fund,

ON

WEDNESDAY, MAY 22nd, 1889, *from* 8 *to* 12 *p.m.*,

IN THE

WHOLESALE FLOWER MARKET, COVENT GARDEN,

SPECIALLY GRANTED FOR THE OCCASION BY

HIS GRACE THE DUKE OF BEDFORD, K.G.

Under the immediate Patronage of

H.R.H. PRINCESS MARY ADELAIDE DUCHESS OF TECK.

HER GRACE THE DUCHESS OF BEDFORD . THE MARCHIONESS OF SALISBURY.

THE BARONESS BURDETT-COUTTS . . . . THE BARONESS BOLSOVER.

THE COUNTESS SPENCER . . . . . LADY GOLDSMID.

LADY GEORGE HAMILTON . . . . . LADY DOROTHY NEVILL.

THE LADY MAYORESS.

THE BARONESS BURDETT-COUTTS

Has kindly consented to open the Fete at 8 *o'Clock.*

BAND OF HER MAJESTY'S ROYAL HORSE GUARDS.

(By permission of Col. the Hon. Oliver Montagu.)

Conductor .. .. Mr. CHAS. GODFREY, R.A.M.

ADMISSION:

By Ticket, price Five Shillings (limited to 2,000). To be obtained of Mr. ASSBEE, Market Office, Covent Garden; and of the Hon. Secretary, A. F. BARRON, Royal Horticultural Society's Gardens, Chiswick; or of Mr. W. RICHARDS, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand.

CARRIAGE ENTRANCE IN TAVISTOCK STREET.

[*See next column.*

See previous column.]

THE

WHOLESALE

Flower Market,

COVENT GARDEN, W.C.

THE Wholesale Flower Market in Covent Garden, in which the *Fête* will be held, is perfectly distinct from the well-known "Central Avenue," and may be fairly described as the Greatest Plant and Flower Emporium in the World.

Though in the centre of the Metropolis, it is practically unknown, except to the skilled cultivators, who furnish it so richly every morning, and the busy workers who distribute its floral treasures to adorn the mansions of the rich, and brighten the homes of the poor, in the chief cities and towns of the kingdom.

It is the headquarters of Domestic Floriculture, and represents the magnitude of an industry on which thousands depend for subsistence, and by which tens of thousands derive pleasure of the most delightful kind.

There, arranged on nearly 400 stands, are all the Plants and Flowers in Season, each bearing the stamp of the highest culture, and the whole arranged in the most effective manner for appealing to the tastes of those who inspect them for possession.

On every morning, at this season, the display is such as cannot be seen elsewhere, either in private gardens or at public exhibitions; but on the evening of the Floral *Fête*, for the benefit of the Orphans of Gardeners, it will excel both in magnitude and diversified splendour, for the expert growers will put forth their full strength for the occasion.

The extent of this unique Floral Spectacle may be indicated. It will occupy an **area of nearly three-quarters of an acre, and a frontage of flowers, tier above tier, extending over a length of 700 yards, with 1000 square yards of promenade** between the beautiful avenues, for visitors.

In the ordinary routine of this great floral industry, the stands are furnished at night and the market is not opened to the public till 4 o'Clock in the morning, and closed at 9 o'Clock. It is only by special privilege, kindly accorded in the cause of charity, and by willing efforts of the numerous cultivators, in completing their arrangements some hours earlier than usual, that the public can inspect and enjoy the extraordinary assortment of plants, as they are temptingly disposed in readiness for purchasers who often clamour for their acquisition before the dawn of day.

"What choice to choose for delicacy best:

. . . . . .

Taste after taste upheld with kindliest change."

MILTON.

Channel Islands.

TO LET, the charming RESIDENCE, Highfield, St. Saviour's, Jersey, with Conservatory, Green and Hothouses, fitted with every convenience for saving labour. Magnificent Land and Sea Views. Situation high, subsoil gravelly; abundant water supply. The DWELLING-HOUSE contains Drawing, Dining, and Reception Rooms, Bedrooms, with necessary Offices, Stabling, &c.

The GLASSHOUSES consist of Conservatory, 26 by 17 feet; 2 Cruciform Houses, 98 by 32 by 22 feet, 124 by 46 by 22 feet; 1 Span, 70 by 15 feet; 2 Lean-to, 57 by 13 feet, 180 by 10 feet. All communicating. The whole heated by Horizontal Boiler; water laid on all over the houses. Surrounded by Ornamental Gardens, Avenues, Kitchen and Flower Gardens.

100 yards from above on same estate, 4 Span-roofed Houses, 68 by 11 feet; 5 Spans, 74 by 12 feet; heated by 1 Boiler, and water laid on. The whole water system supplied by Hot-air Engine and Forcing Pump in Engine-house.

The above combines the advantages of a charming residence, in a most genial climate, with adaptability for carrying on a lucrative business, it having been specially constructed for Growing Forced Fruits, Vegetables and Flowers, for supplying Covent Garden and other markets.

The reason for letting being the recent death of the proprietor.

Apply, Mrs. BRAYN, Highfield, Lower Trinity, St. Saviour's, Jersey.

FARM TO BE LET, 6 miles from London, close to two stations; 68 acres Arable, 36 Pasture. Good modern double-fronted House; both convenient and modern Outbuildings. Abuts on good roads.

Rent, £225 a year.

Apply to Mr. ALFRED RICHARDS, Land Agent, Tottenham, Middlesex.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Expect to receive in a day or two large Importations of East Indian and Mexican ORCHIDS, including a fine lot of VANDA KIMBALLIANA, V. CŒRULESCENS, V. CŒRULEA, CYPRIPEDIUM BELLATULUM, DENDROBES in variety, ODONTOGLOSSUM ROSSI MAJUS, LÆLIA FURFURACEA, EPIDENDRUM VITELLINUM MAJUS, &c.

Lists, with Prices and Full Particulars, on application.

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

To the Trade.

Choice Home-grown VEGETABLE and FIELD SEEDS.

H. AND F. SHARPE are prepared to make special low offers of their exceptionally fine Stocks of VEGETABLE and FIELD SEEDS of 1888 growth, and all carefully selected. Prices and further particulars may be had on application.

Seed Growing Establishment, Wisbech.

GERANIUMS — PELARGONIUMS — GERANIUMS.—All the finest sorts, from English and Continental raisers, for Pot Culture for Summer or Winter, bought in every spring, tried and inferior kinds discarded. 12 fine Single Zonals, 4*s.*; 12 fine Doubles, 4*s.*; 12 beautiful Ivy-leaf varieties, 4*s.*

PELARGONIUMS, the finest flowers, best habits, most robust growers, 12 fine varieties, 6*s.*; 12 large Plants, 9*s.* or 12*s.* All you want for a Garden may be selected from our new CATALOGUE, free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

KELLY AND WALSH (Limited), Exporters of ORCHIDS, Singapore, Straits Settlements. Orders executed from £5 upwards.
CATALOGUES free on application.

ENCLOSE Post-Office Order for 2*s.*, and by return you will get 1 packet of MELON, 1 packet of MARROW, and 1 packet of TOMATO SEED. Warranted best extant.—R. GILBERT, High Park, Stamford.

A few Large Healthy Palms.

FOR IMMEDIATE DISPOSAL, LATANIA BORBONICA, CHAMÆROPS EXCELSA and PHŒNIX RECLINATA, 3 to 6 feet high, from 10*s.* per pair.
GARDENER, Holly Lodge, Stamford Hill, London, N.

AN ACRE of PYRETHRUMS, POTENTILLAS, PÆONIES, PHLOXES, PENTSTEMONS, PANSIES, VIOLAS, propagated from cuttings or divisions from the finest-named sorts gathered from all raisers, not inferior seedlings. See CATALOGUE of these and all you want for a garden, out or inside, free for 3 stamps.

Undernamed, all in 12 sorts:

12 Pyrethrums, 4*s.*; 12 Potentillas, 5*s.*; 12 Phloxes, 3*s.* 6*d.*; 12 Pentstemons, 3*s.* 6*d.*; 12 Pansies, either Show or Fancy, 3*s.*; 12 Violas, 2*s.* 6*d.*; 12 Pæonies, 9*s.*; 12 Hollyhocks, seedlings, from five named sorts, 4*s.*; Delphiniums, seedlings, from fine named sorts, 4*s.*

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

10,000 DAHLIAS—DAHLIAS—DAHLIAS.—Strong, healthy, green Plants, now ready, from 3-inch pots, 160 best varieties, 3*s.* per dozen, 20*s.* per 100. Send for a List or Sample dozen. Packing free.
A. J. AND C. ALLEN, Nurserymen, Florists, and Rose Growers, Heigham, Norwich.

TO LARGE BUYERS OF FORCING BULBS.

We are prepared to quote the following, and also all similar articles at extremely low prices, and would advise purchasers to write for our Special Offer before placing orders:—

TUBEROSES EXCELSIOR PEARL,
LILIUM HARRISII,
HYACINTHS, WHITE ROMAN,
,, EARLY ITALIAN,
LILIUM CANDIDUM,
NARCISSUS, PAPER WHITE,
,, DOUBLE ROMAN,
LILY OF THE VALLEY CROWNS,
&c., &c., &c.

HURST & SON,

SEED WAREHOUSE,
152, HOUNDSDITCH, LONDON, E.

CHOICE FLOWER SEEDS.

DANIELS' SPECIAL STRAINS

FOR PRESENT SOWING.

The following have been grown specially for our retail trade, and are recommended as the very finest strains procurable for exhibition or decorative purposes:—

	Per packet—*s.*	*d.*
AURICULA, choicest alpine, very fine strain ...	1	0
CALCEOLARIA hybrida, a superb strain of beautifully tigred and spotted flowers ... 1*s.* 6*d.* and	2	6
CINERARIA hybrida, very choice ... 1*s.* 6*d.* and	2	6
,, ,, new dwarf, large-flowered	2	6
CARNATION and PICOTEE, from stage flowers, will produce 80 per cent. of fine, double blooms, 1*s.* 6*d.*, 2*s.* 6*d.* and	5	0
,, ,, choicest yellow, fine	3	6
HOLLYHOCK, Chater's Superb Double, 12 distinct varieties, 5*s.*; 6 ditto, 2*s.* 6*d.*		
,, ,, ,, choicest mixed seed ... 1*s.* 6*d.* and	2	6
PANSY, Daniel's Prize Blotched, a grand strain of large and most beautifully blotched and coloured flowers ... ... 1*s.* 6*d.* and	2	6
PRIMULA sinensis, Crimson King, superb, high coloured variety	2	6
,, ,, alba magnifica, splendid pure white ...	2	6
,, ,, coccinea magnifica, brilliant scarlet sulphur eye, fine	2	6
,, ,, purpurea magnifica, rich crimson purple, superb...	2	6
,, ,, choicest mixed, in most beautiful variety, 1*s.* 6*d.*, 2*s.* 6*d.* and	5	0
PRIMROSE, a rich strain of brilliantly coloured hybrids ... ... 1*s.* 6*d.* and	2	6
POLYANTHUS, Gold-laced, splendid strain	1	6
SWEET WILLIAM, Daniels' Prize, magnificent strain of splendidly formed and beautifully coloured varieties ... ... 6*d.* and	1	0

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SPECIAL OFFER of GERANIUMS.—Good strong stuff out of stores. Queen of Belgians, Jacoby, 10*s.* per 100; Queen of Whites, Vesuvius, 8*s.* per 100; Madam Crousse, Ivy-leaf, Joan of Arc, 8*s.* per 100; Bouvardia Humboldtii, Laud.

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8 ACRES HERBACEOUS and HARDY PLANTS, true to name, not seedlings (which are generally inferior to the type). Send for a Catalogue of all you want for a garden, free for 3 stamps. It includes over 1000 varieties, selected during 15 years' careful study of this class of plant, and an annual buying in of all that seems good, and a weeding out of the poor kinds, with height, time of blooming, and other useful particulars.

12 Hardy HERBACEOUS PLANTS...	...	£0	4	0
50 ,, ,,	... ...	0	14	0
100 ,, ,,	... ...	1	5	0
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100 Herbaceous and Alpine Plants for 25s.

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CHRYSANTHEMUMS FOR SALE.—A few hundred of the very best kinds, autumn struck, in large sixty-pots, ready for last shift, finest exhibition varieties up to last year. Price 2*s.* 6*d.* per dozen. Also a few hundred TOMATO PLANTS, principally Sutton's Earliest of All, and other exhibition varieties, 2*s.* per doz. Remittance with order.
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JOHN LAING AND SONS have a Grand Stock of Plants carefully and specially selected to colour for bedding from our outdoor beds last summer. Three shades of crimson, orange-scarlet, magenta, pink, rose, scarlet, white, &c. Per dozen, 6*s.* Cultural directions and Catalogues gratis.
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DAHLIAS.—WHITE DAHLIAS, Guiding Star and White Aster, pure white; Fire King, scarlet; all good for cutting; good strong plants, 3*s.* per dozen; 20*s.* per 100; cash with order. Packing free.
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ORANGE TREE, 6 feet high, 3 feet through, full of bloom, £3 3*s.*

A Pair of INDICA ALBA AZALEAS, 5 feet high, 6 feet through, fine Plants, full of bloom, the pair, £4 4*s.*

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STRAWBERRIES.—Good Plants of all the best of the new and old varieties. One of the largest Growers in the Trade. Stocks true. Prices reasonable. Send for Special Descriptive LIST free.

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WHOLESALE LIST on application to

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TEE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL,

at the "ALBION," Aldersgate Street, JUNE 13, 1889.

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Donations and Collections already promised or sent towards the Jubilee Collection of 1889:—

LEOPOLD DE ROTHSCHILD, Esq., Chairman	£105	0	0
The DUKE of WESTMINSTER, K.G., President	100	0	0
The DUKE of BEDFORD, K.G.	100	0	0
The EARL of DERBY, K.G.	21	0	0
Baron HENRY SCHRODER, Vice-President	105	0	0
Messrs. ROTHSCHILD and SONS	105	0	0
Lord REVELSTOKE	52	10	0
J. S. MORGAN, Esq., Dover House, Roehampton	105	0	0
JAMES McINTOSH, Esq., Vice-President	52	10	0
N. N. SHERWOOD, Esq. (Hurst & Son), Trustee	52	10	0
H. B. MILDMAY, Esq., Berkeley Square	52	10	0
HERBERT J. ADAMS, Esq., Vice-President	26	5	0
HARRY J. VEITCH, Esq., Treasurer	26	5	0
C. CZARNIKOW, Esq., Effingham Hall, Dorking	21	0	0
A. A. SILLEM, Esq., Sydenham	10	10	0
J. F. TIARCK, Esq., Chislehurst	10	10	0
JOHN LEE, Esq., Kensington (Trustee)	10	10	0
THAMES BANK IRON CO., Upper Ground Street	10	10	0
J. H. VEITCH, Esq., Chelsea	10	10	0
ARTHUR J. VEITCH, Esq., Chelsea	10	10	0
THOMAS MANNING, Esq., Chelsea	10	10	0
Mrs. H. J. VEITCH, Redcliff Gardens, S.W.	10	10	0
B. S. WILLIAMS, Esq., Upper Holloway, N.	10	10	0
Mr. C. W. BUCK, Covent Garden	5	5	0
Mr. E. R. CUTLER, Secretary	10	10	0
Messrs. JOHN LAING and SON, Forest Hill	5	5	0
Messrs. WEBBER and CO., Covent Garden	5	5	0
Mr. A. PLUMMER, Seedsman, Staines	4	4	0
Mr. R. H. ROBINSON, The Gardens, Heversham	7	7	0
Mr. JOHN CROOK, Gardener, Farnborough	8	5	0
Mr. EDWARD MITCHELL, Gr., Bolton Lodge, Leeds	10	10	0
Mr. W. R. HODGES, Gardener, Copley Dene, Highgate	10	10	0
Mr. E. GILBERT, The Gardens, Old Charlton, Kent	1	15	0
Mrs. VINCENT NICHOLL, Red Hill	2	2	0
W. J. BROWN, Esq.	1	1	0
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ROBERT HOGG, Esq., LL.D., Vice-President	10	10	0
RICHARD CHRIMES, Esq., Rotherham	21	0	0
Messrs. NUTTING and SONS, Southwark Street	10	10	0
Mr. WM. COLLINS, Gr., Chios House, Clapham Park	10	10	0
Mr. WM. WILDSMITH, Heckfield Gardens	1	1	0
Messrs. WATKINS and SIMPSON, Exeter Street	5	5	0
Mr. H. E. TILLMAN, Covent Garden	3	3	0
Mr. S. E. KAY, Finchley	2	2	0
Messrs. DICKSON, The Nurseries, Chester	10	10	0
Mr. GEORGE MONRO, Covent Garden	10	10	0
Messrs. BARR and SON, King Street, Covent Garden	2	2	0
Mr. W. S. JOHNSON, St. Martin's Lane	5	5	0
Mr. J. C. STEVENS, King Street, Covent Garden	5	5	0
Messrs. CUTBUSH and SON, Nurseries, Highgate	5	5	0
Mr. J. ROBERTS, The Gardens, Gunnersbury	10	10	0
Mr. B. WADDS, Birdsall Gardens, York	1	1	0
Mr. G. WYTHES, Syon Gardens, Brentford	1	1	0
Mr. W. DENNING, Nurseries, Hampton	1	1	0
Mr. J. WALKER, Whitton, Hounslow	2	2	0
Mr. PETER BLAIR, The Gardens, Trentham	1	1	0
Messrs. H. and A. TURNER, Royal Nurseries, Slough	10	10	0
Mr. W. G. LEECH, Albury Gardens, Guildford	1	1	0
Miss OSBORN, Streatham	3	3	0
Mr. W. BROWN, Merivale Gardens, Atherstone	2	2	0
Mr. THOS. S. WARE, Tottenham	2	2	0
Mr. PEARMAN, Salmon's Garden, Chislehurst	10	10	0
Messrs. JACOB WRENCH and SONS, London Bridge	5	5	0
Messrs. HOWCROFT and WATKINS, Hart Street, Covent Garden	5	5	0
Messrs. THOMSON and SONS, Nurseries, Wimbledon	2	2	0
Mr. H. J. CLAYTON, Grimston Gardens, Tadcaster	1	1	0
Lord CALTHORPE	£10	10	0
Messrs. SAYNOR, COOKE and RIDAL, Sheffield	1	1	0
Sir JULIAN GOLDSMID, Bart., M.P.	10	10	0
Mr. W. CHAPMAN, Hawk's Yard Gardens, Rugeley	3	10	0
Mr. C. SHEPPARD, Great Glenham Gardens, Saxmundham	0	10	6
Mr. G. H. RICHARDS, Somerley Gardens, Ringwood	0	10	6
Mr. KENDALL, Templeton Gardens, Roehampton	10	10	0
Mr. WILES, Unsted Gardens, Godalming	10	10	0
Messrs. JOHN PERKINS and SON, Northampton	5	5	0
CUTHBERT E. PEEK, Esq., Rousden	10	10	0
WILFRED PEEK, Esq., Rousden	10	10	0
Mr. A. J. LONG, Westwood Gardens, Droitwich	10	10	0
The Rev. W. WILKS, Shirley Vicarage, Croydon	1	1	0
Mr. LOUIS VAN HOUTTE, Ghent	2	2	0
Messrs. F. HORSMAN and CO., Colchester (annual)	1	1	0
Sir TREVOR LAWRENCE, Bart., M.P., Vice-Pres.	21	0	0
Mr. GEORGE BUTT, Kensington	2	2	0
Mr. GEORGE TIFFEN, Cannon Street	2	2	0
Mr. WILLIAM GREEN, The Grange Gardens, Bishops Stortford	1	1	0
Mr. JNO. BIRD, Nurseries, Downham	2	2	0
Mr. HUGH AITON, Messrs. Hurst & Son, Houndsditch	5	5	0
The YOUNG MEN, Syon Gardens, Brentford	0	13	6
The Hon. EVELYN ELLIS, Datchet	10	10	0
Collected at Mote Park Gardens, Maidstone	2	13	3
Mr. G. WILLIS, The Gardens, Hollowmead, Bishopsteignton	5	0	0
Messrs. WIMSETT and SON, Nurseries, Chelsea	2	2	0
Mr. W. RAYSON, Royal Exotic Nursery, Chelsea	0	5	0
Mr. H. DOWNING, Norbury Park Gardens	1	1	0
Mr. R. BULLEN, Botanic Gardens, Glasgow	1	1	0
Mr. J. PERKINS, Thornham Gardens, Eye	1	1	0
Mr. J. GOUGH, Harefield Gardens, Uxbridge	1	1	0
Mr. D. ROBERTS, Prestwold Gardens, Loughborough	1	1	0
Mr. J. H. PEARSON, Beeston, Notts	2	2	0
Mr. W. WARD, Little Aston Gardens, Sutton Coldfield	10	10	0
Mr. G. TURNER, Greenhill Gardens, Telford, Surrey	5	14	8
Mr. J. SMITH, Mentmore Gardens, Leighton Buzzard	1	1	0
Miss MARY DRAKE, Elm Park Gardens, S.W. (annual)	1	1	0
G. F. WILSON, Esq., Heatherbank, Weybridge, Vice-President	10	10	0
R. JORDAN, Llanaway Gardens, Godalming	2	2	0
E. HARRISON, St. Michael's Gardens, Garstang	5	12	6
JOHN GUYATT, Streatham Nurseries, Streatham	10	10	0
WILLIAM PARRY, Gard., Woodford Bridge, Essex	0	2	6
Mr. W. ICETON, Granard Gardens, Roehampton	2	2	0
Mr. F. MORRIS, Baldslow Gardens, St. Leonards	3	8	0
The Hon. Mrs. HAMAV BASS, Needwood (annual)	1	1	0
Major BOLTON, Master of the Haberdashers' Co.	10	10	0
Mr. W. H. ESSERY, Swansea	2	2	0
Received since last week:—			
Mr. R. STRAND, Denne Gardens, Canterbury	0	5	0
Mr. D. A. BREMNER, Ferniehurst Gardens, Shipley	1	1	0
Mr. W. F. MILLS, The Hill Gardens, Stratford-on-Avon	10	10	0
Mr. T. VENN, Paxhill Gardens, Lendfield	0	10	0
Mr. JAS. HUGHES, Spring Bank Gardens, near Wolverhampton	10	10	0
Messrs. RICHARD SMITH and CO., Nurseries, Worcester	10	10	0
Mr. J. HATCH, Donnington Gardens, Reading	0	10	6
Mr. WOODERSON, Mayplace Road, Bexley	1	1	0
JOHN TAYLOR, Hardwick Grange Gardens	10	10	0
THOS. MOORSHEAD, Myddleton Gdns., Longparish	0	5	0

TESTIMONIAL TO MR. ARTHUR BLICK,

OF THE LATE

ROYAL HORTICULTURAL GARDENS,

SOUTH KENSINGTON.

It has been proposed by several Gentlemen that the present time is a fitting opportunity for the large body of Nurserymen, Gardeners, and others, who have been in the habit of exhibiting at the Royal Horticultural Society's Shows for many years past, to make some little recognition of the services of Mr. Blick, who for the past twenty-eight years has been employed at the Royal Horticultural Gardens, South Kensington, and who has now, owing to the collapse of the Gardens at South Kensington, been thrown out of a situation on the shady side of his life. The following Gentlemen have kindly consented to form a Committee to carry out the above proposal, viz.

Mr. W. BULL, ...	King's Road, Chelsea.
Messrs. CARTER and Co., ...	High Holborn.
Messrs. W. PAUL and Son.	Waltham Cross.
Mr. H. TURNER, ...	Slough.
Mr. JOHN WILLS, ...	South Kensington.
Mr. F. SANDER, ...	St. Albans.
Mr. F. Q. LANE, ...	Gt. Berkhampstead.
Mr. H. HERBST, ...	Richmond.
Mr. H. HAWKINS, ...	Twickenham.

The Smallest Subscription will be thankfully received by Mr. J. ALDONS, Florist, Gloucester Road, S.W. *(Hon. Treasurer)*; or Mr. S. M. SEGAR, Royal Exotic Nursery, South Kensington *(Hon. Secretary)*.

N. B. Subscriptions limited to One Guinea.

Profitable Fruit Growing for Cottagers

and Others with Small Holdings.

THE FRUITERERS' COMPANY offer a PRIZE of TWENTY-FIVE GUINEAS for the Best Essay on the above subject. The successful competitor will also receive a Gold Medal, of the value of 5 guineas, to be presented by Dr. Hogg, the Editor of the *Journal of Horticulture*.

Conditions of the Competition can be obtained from Mr. O. C. T. Eagleton, of 40, Chancery Lane, London, W.C., the Clerk of the Company.

ROSES CLEMATIS—ROSES—all in pots, can be sent and planted any time; the finest named sorts. See Catalogue, with colours, descriptions, prices of these, and all you want for a Garden, free for 3 stamps. 12 fine TEA and NOISETTE ROSES, 15*s.*; 12 Hybrid Perpetual ROSES, 12*s.*; 12 Extra-sized Tea and Noisettes to force now, 30*s.*; for Arbours, Pillars, Walls, &c.

3 CLEMATIS, in 3 distinct colours, 3*s.* 6*d.*; 6 CLEMATIS, in 3 distinct colours, 6*s.*; 12 CLEMATIS, in 3 distinct colours, 10*s.* 6*d.*

WM. CLIBRAN and SON, Oldfield Nurseries, Altrincham; 10 and 12, Market Street, Manchester.

Cheap Bedding Plants.—Special Offer.

WILLIAM BADMAN offers as under, from store pots, all well rooted, and fit for present potting. The present is a good time for making up losses sustained during the winter:—VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6*s.* per 100; 12 choice named varieties, 8*s.* per 100. LOBELIA, Bluestone, pumila magnifica, Brighton Blue, 3*s.* per 100. CALCEOLARIA, Golden Gem, 6*s.* per 100. HELIOTROPE, Jaun d'Amour, Miss Nightingale, 6*s.* per 100. AGERATUM, Imperial Dwarf, blue, 5*s.* per 100. COLEUS VERSCHAFFELTI, bedding crimson, 8*s.* per 100. IRESINE LINDENII, dark crimson, good bedder, 8*s.* per 100. PELARGONIUM, Vesuvius, finest bedding scarlet, 8*s.* per 100; Master Christine, Mrs. Levers, Jenny Dodds, best pinks, 12*s.* per 100; Henri Jacoby, best crimson, 12*s.* per 100; Madame Vaucher, Niphetos, white, 12*s.* per 100; Queen of the Belgians, finest white, 3*s.* per doz., 20*s.* per 100; Waltham Seedling, Lucius, Jean Sisley, White Vesuvius, John Gibbons, 12*s.* per 100. SILVER VARIEGATED, May Queen (Turner's), Princess Alexandra, Flower of Spring, Little Trot, Prince Silverwings, Lady Plymouth, 12*s.* per 100. GOLD-LEAF, Crystal Palace Gem, Happy Thought, 12*s.* per 100. BRONZE, McMahon, Black Douglas, The Czar, best bedders, 15*s.* per 100. TRICOLOR, Mrs. Pollock, 15*s.* per 100; Sophia Dumaresque, Lady Cullum, Sir R. Napier, 18*s.* per 100. DOUBLES, F. V. Raspail, finest scarlet; Madame Thibaut, pink; Madame Baltet, Le Cygne, white, 12*s.* per 100. TROPÆOLUM, Vesuvius, Coccinea elegans, 10*s.* per 100. FUCHSIAS, in 12 good named varieties, 8*s.* per 100. PELARGONIUMS, Show and Decorative, from single pots, 3*s.* per dozen, 20*s.* per 100.

NOTE.—Not fewer than twenty-five of any one sort supplied at above rate. Packing included. Terms cash.

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CALADIUMS, GLOXINIAS. — Lovely CALADIUMS of the finest sorts, splendid varieties, handsome foliage, clean, easily grown; 12 sorts, 6*s.*, 9*s.*, 12*s.*

Gorgeous GLOXINIAS, rich colours, pretty foliage, lovely flowers; 12 for 6*s.*, 9*s.*, 12*s.* New CATALOGUE of these and all other plants, 130 large pages, free for 3 stamps.

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FOR SALE, a quantity of GREENHOUSE PLANTS, suitable for Cut Flower Trade. Large Imantophyllums, Dendrobiums, Eucharis, large Lapageria rosea, Anthuriums, &c.

J. CHITTY, Florist, Mark House Road, Walthamstow.

IMMENSE STOCK of ORCHIDS.—Best value in the Trade; must be cleared to make room for fresh importations. Great opportunity; splendid order for potting.

Rarest and loveliest of LILIES, Auratum Rubro-vittatum, true, lovely white, intense band of carmine, no markings or spots or yellow; truly dazzling.

AURATUM VIRGINALE, pure ivory white, no markings or spots; chaste and beautiful.

These two Lilies will take the lead in any group and secure prizes. Usually sold at 21*s.* each—will take 5*s.* each, to clear, post-free.

JAPANESE MAPLES, Silver Banksian Medal.

" TREE PÆONIES, 7 First-class Certificates.

" IRIS, most gorgeous, 4 First-class Certificates.

CATALOGUE of the above on application to

W. GORDON, The Nurseries, Amyand Park Road, Twickenham.

SUPERIOR GRASS SEEDS,

For LAWNS, TENNIS GROUNDS, &c.

Extra Select Mixed Dwarf Evergreen Lawn Grasses, excluding Ryegrass,
Per pound, 1s. 4d., per cwt., 145s.

Extra Select Mixed Dwarf Evergreen Lawn Grass, with a limited proportion of Dwarf Ryegrass.
Per pound, 1s., per cwt., 105s.

These Mixtures are composed exclusively of the dwarfest-growing and finest leaved grasses, and form, in a very short time, a beautiful, velvety turf, of the finest texture and colour.
Delivered Free by Rail or Parcel Post.
Circular, with hints on sowing, free on application.

DICKSONS
(LIMITED),
THE ROYAL SEED WAREHOUSE,
CHESTER.

TEA-SCENTED ROSES

SPRING CATALOGUE NOW READY,
Containing New French and other varieties, with Descriptive List of
HARDY HERBACEOUS PLANTS,
CLEMATIS,
CHRYSANTHEMUMS, DAHLIAS,
BEDDING PLANTS, &c.,
Forwarded on application to
JOHN CRANSTON & CO.,
KING'S ACRE NURSERIES,
Near **HEREFORD.**

KELWAY & SON

Now is the time to plant :—

GLADIOLI,	of which we grow 20	acres.	
DAHLIAS,	do.	do.	2 ,,
PYRETHRUMS,	do.	do.	3 ,,
DELPHINIUMS,	do.	do.	3 ,,
GAILLARDIAS,	do.	do.	2 ,,

"The largest collection in the world," for which the highest awards of the Royal Horticultural and Royal Botanic Societies of London have been given.
See our MANUAL for 1889, Gratis and Post-free.
LANGPORT, SOMERSET.

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The Stock is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.
INSPECTION INVITED.
The Glass covers an area of upwards of **300,000** super. feet.
HUGH LOW & CO.,
CLAPTON NURSERY, LONDON, E.

EVERGREENS.

HARDILY-GROWN. STOCK UNEQUALLED.
Special Prices, with Catalogue, Post Free.
DICKSONS —The— Nurseries **CHESTER.**
(Limited.)

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ARALIA SIEBOLDII.—Fresh Seed, just harvested. Price per ounce on application.
FERN SPORES (Seeds).—100 choice varieties. List of names on application.
Special LIST of choice Perennial, Biennial, and Florists' Flowers. Seeds for present sowing on application.

WATKINS & SIMPSON,
Seed and Bulb Merchants,
EXETER STREET, STRAND, W.C.

CHOICE FLORISTS' FLOWERS

Our collection of these includes all the newest and most beautiful varieties in cultivation, and Customers ordering from the following list may rely on only the finest sorts being sent. The plants are guaranteed strong and healthy, well seasoned, and true to name, and with the exception of Chrysanthemums, all from single pots:—

Post or Carriage Free at Prices quoted.

	Per dozen.—s.	d.
COLEUS, a charming assortment of the newest and most beautiful sorts, 6 for 2s.	3	6
CHRYSANTHEMUMS, new and very choice sorts, our selection 6 for 3s. 6d.	6	0
,, from our very large collection, including all the best of the Japanese, Incurved, Reflexed, and Pompon varieties ... ... 2s. 6d. and	3	6
CYCLAMEN persicum giganteum, strong autumn-sown seedlings, splendid stuff for blooming next autumn, 6 for 2s. 6d.	4	6
DAHLIAS, Show and Fancy, new vars. of 1888 (Keynes, &c.), 6 for 5s. 6d.	10	6
,, from our magnificent collection of 250 carefully selected varieties, good plants, 6 for 2s. 6d....	4	6
,, Pompon, in beautiful variety, 6 for 2s. 6d. ...	4	6
,, Cactus-flowered, including the newest and most beautiful sorts, 6 for 2s. 6d.	4	6
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,, Single-flowered, all the most beautiful sorts, 6 for 2s.	3	6
FUCHSIAS, seven superb new varieties, a charming set, 10s. 6d.		
,, select varieties from our splendid collection, 6 for 2s. 6d.	4	6
PELARGONIUMS, single-flowered, Zonal, a set of 9 superb new varieties of 1888 (Pearson), 10s. 6d.		
,, Single-flowered Zonal, very choice sorts, from our magnificent collection, 6 for 2s. 6d. ...	4	6
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THE

Gardeners' Chronicle.

SATURDAY, MAY 11, 1889.

FRUIT CULTURE IN 1757.

THERE has of late been in the pages of the *Gardeners' Chronicle* much conjecture and surmise respecting the early use of the Paradise stock for the Apple. Mr. Bunyard, in a recent paper, ventured to call the working of the Apple upon the Paradise stock a modern idea. "R. D.'s" note in the *Gardeners' Chronicle* for February 9, and Mr. A. Feeny's of March 23, do not advance anything towards elucidating the point. I have, however, in my possession a valuable old book, which throws much and undeniable proof of the use of the Paradise stock in the middle of the last century. The author of this book is—

"One THOMAS HITT,
Gardener to the Right Honble. Lord ROBERT MANNERS,
At Bloxholme, in Lincolnshire.
Printed for the Author by T. OSBORNE and J. SHIPTON, in Gray's Inn;
and J. RICHARDSON, in Paternoster Row.
This is the Second Edition, and published in 1757."

The book is most comprehensive, and bears abundant proof of the ability of its author upon fruit culture as at that time practised. The work is illustrated by seven copper-plates, showing in the minutest details the mode of pruning, training of wall trees, including Peaches, Nectarines, Plums, Pears, Medlars, Mulberries, Figs, Vines, Apples, &c. (The printed matter consists of 392 pages.)

I purpose now making some extracts from the book, which I hope will be acceptable to your readers. The following remarks from the preface of the book tend to show that most of our best fruits of that day were introduced from abroad, for the writer says:—"I have omitted most of their foreign names, and only mentioned those best known in England." . . . "Almost all the sorts are now under my care at Bloxholme," . . . "and at Belvoir Castle, there was in the time of my apprenticeship at that place a greater number of good sorts than I have mentioned, the greatest part of them having been sent from abroad by the Right Honble. the Earl of Stair to his late grace the Duke of Rutland, and improved by his present grace." (Probably the third duke.)

I must here digress a little, and anticipate that the late Duke spoken of was the second of that noble house, for at p. 352, writing of the Greengauge Plum, the author says:—"A tree of this kind was sent from France by the Right Honourable the Earl of Stair to his Grace the Second Duke of Rutland."

To show that he had practised at other places than Bloxholme and Belvoir Castle, the author says:—"That after I left the Right honourable Lord Robert Sutton, of Kelham (where I had been sixteen years), I resided most commonly in Lincolnshire and Nottinghamshire before I served my lord at Bloxholme."

The first eleven chapters of the book treat of preparation of borders, building of walls and aspects most suitable for the various kinds of fruits recommended. At Chapter 12 he says of the Nonpareil Apple:—"I have seen very great difference between the fruit of these trees when one was grafted upon a Paradise and the other upon a Codling stock." . . . "The juices of the Crab and Codling are known to be very acid, but the juice of the natural fruit of the Paradise is sweet."

If I am not trespassing too much upon your space, I will quote Chapter 15 in full:—

"Stocks proper for Apples.

"There are several sorts made use of, as those raised from Crabs and Apple kernels, from layers of the Codling, Paradise, and creeper Apple trees; I don't know what sort of fruit the last bears, but trees which I have known propagated upon them are of extreme slow growth, and may therefore very justly be called dwarfs. It would be tedious here to point out what stock is proper for each tree that may be planted in a garden; for which reason I shall only lay down a few rules with relation thereto, which, if observed, will be a guide upon most occasions, viz., those trees that are designed for espaliers or dwarfs of any shape, whether horizontal, concave, convex, or conical, should be propagated from Paradise or Codling stocks, as the nature of the fruit requires; such as produce fruit of the sweetest flavour, and are soonest apt to turn mealy and insipid, should, in order to improve their juices, be grafted upon the Codling stock; and those whose fruit yields juices of a more acid and rough taste, may be improved (especially in a wet summer), by grafting them on the Paradise stocks, which naturally produce sweet Apples.

"Such as are designed for standards may be grafted upon Crab stocks, or those raised from the kernels of Apples, only grafting the sweet and mealy sorts upon the Crab, and the others upon Apples.

"But, as the fruit of standards is for the most part made use of in the kitchen, for baking, &c., I recommend the Crab stock for most of them; because kitchen fruit is not valuable without a tart taste either in tarts or pies; and, if made into cyder, it is most agreeable to the palates of the best judges of that liquor.

"N.B.—Graft upon Paradise and Codling stocks as near the ground as possible."

While dwelling upon the stocks of Apples I will make one more quotation, which bears upon a subject advocated in many of the gardening periodicals of recent date (p. 237):—

"As grass plats in gardens of pleasure are often adorned with flowering shrubs, I think, if some parts were to be planted with the following fruit trees, it would answer the same end, and be of equal beauty, and make a variety amongst the others, viz., Nonpareil and d'Api Apples upon Paradise stocks; the Jargonel and Robin Pears upon Quince stocks; Cornelian Cherry on its own root; the Duke Cherries upon the Paramdam stocks, and some of the best Plums, all of which are beautiful in flower and fruit."

At p. 71, writing upon the mode of packing fruit trees, the author says:—"I have received Peach trees and Nectarines from Mr. Henry Woodman, of Strand-on-the-Green, in the county of Middlesex, which I planted for the Rev. Mr. Ewer, of Bottlesford, near Belvoir Castle. All of them lived, and some bore fruit the first year after planting, tho' they were brought above 100 miles."

Pages 81 to 178 contain many valuable hints as to pruning all varieties of fruit trees. There are constant writers of the present day who claim to be the originators of the extension system of fruit culture, as regards the Peach and Nectarine. You "knights of the knife" hear the voice of your forefathers: "There are many that prune all kinds of wall trees immoderately, twice in the space of a year, first in the winter they shorten all the branches, under the pretence of getting new wood to cover the walls; secondly in the summer they cut a large quantity out of the trees, because, as they say, the wood is too strong, or that there is too much. But to cut in the winter to gain wood, and to cut in the summer because forsooth it is too strong, is, I think, acting counter to nature and spending sap unnecessarily. . . It may be objected that leaving the branches to so great a length, as not being cut at all, will weaken the trees, or in other terms, exhaust the sap from the roots; but the contrary may easily be proved. Admit both sides of a tree have at first an equal number of branches, and let either of the sides be cut at pleasure, and observe by the buds what number of shoots may be produced from the remaining branches on that side which is cut short; then let whole branches be left on the other side, in proper places, and the useless buds taken off, till their number on each side be equal. . . Now, if no more shoots be produced on one side, by leaving the branches longer than there are on the other, which was cut short, how can one method weaken a tree more than the other?

"The consequence, indeed, of leaving the branches long will be this, they will have produced shoots at more proper distances, and cover the wall sooner with such as will earlier bear, than those on the other side which were cut short. I have seen Nectarines and Peaches that have been planted against walls ten or twelve years, which have been annually cut in the winter in order to make them strong, and thinned in summer, according to the usual custom that the fruit may be larger, and not too much shaded. Excellent reasons and managements, whereby two-thirds of the branches are either cut or shortened, and at the same time a third-part of the wall is uncovered. Had the branches shortened in the winter been left their full length so as to cover the wall, and in April all their buds rubbed off, except some to produce shoots in proper places, then there must certainly have been more fruit, and fewer branches to be taken out in summer; for the quantity of sap which supported them, might have supported as much fruit as would have been equal to them in weight; besides, I have known by experience, that trees by this short-cutting are not so apt to bear."

There are many chapters in this old book upon the planting of Vines, showing the early methods adopted, of artificial forcing, which appears to be but imperfectly understood at that time.

The concluding part of this book contains a descriptive catalogue of the best fruits of the day. Sufficient has been said to convey to your readers the use of Paradise stocks 130 years ago. *D. R. P.*

CHRYSANTHEMUM MAXIMUM.

It is hardly yet too late to plant hardy perennials, so that we may avail ourselves of an opportunity that now offers of figuring the true Chrysanthemum maximum (sometimes also grown under the erroneous name of C. atratum), and which we do the more readily as we have been among those who have been led into error, and in our turn, it is to be feared, misled others. At any rate, fig. 99 shows the true C. maximum, as grown at Kew, and as distributed by Rev. C. Wolley Dod. It is a native of the Pyrenees, and occurs also on the Cevennes, in the Grisons of Switzerland, and near the Stelvio pass. Its general appearance is sufficiently indicated in the figure. The plant attains a height of 2 feet, and has a marked tendency to form numerous close-set linear lanceolate coarsely-toothed sessile leaves on the stem, while the lowermost leaves are oblong, and supported on very long stalks. It flowers in our gardens in July, and, says Mr. Dod, if cultivated properly—*i.e.*, by being pulled to pieces and replanted within a fortnight of Michaelmas every year, in rich soil—it is quite a "sensational plant." The flowers are sometimes much larger than shown in the figure, often measuring 4 inches across.

With this may be contrasted C. lacustre, a Portuguese plant, also called latifolium, which is a much taller coarser plant, with broader, more fleshy leaves, not so much narrowed at the base, and more regularly toothed. The stems bear many flowers in early autumn, and continues flowering till cut off by frost. A large variety of this was figured once before as maximum (see fig. 100). It might, indeed, be called lacustre maximum, but it is, as will be seen, quite distinct from C. maximum proper. The true C. maximum, as compared with C. lacustre, stands in the same relation as a racehorse to a cart-horse.

Another plant of somewhat similar character is C. uliginosum, or serotinum, but this has thinner leaves and more delicate flower-heads. All are desirable for the border and for cutting.

NEW OR NOTEWORTHY PLANTS.

SPHÆRALCEA NUTANS, *Schweidler.*

This beautiful Malvaceous Shrub was sent to me nearly two years ago under the erroneous name of S. umbellata tricolor, but when it came into bloom this spring in my greenhouse for the first time, I at once saw that it could not be correctly named, as it differed materially in form and general appearance from the plant of which it purported to be a form as figured by Dr. Lindley in the nineteenth volume of *Botanical Register*, on plate 1806, and was in nowise tricolor. On submitting a flower and leaf to my friend, Mr. Baker, in the Royal Herbarium at Kew, it was pronounced to be Sphæralcea nutans, of Schweidler, figured by Van Houtte on plate 726 of the sixth volume of his *Flore des Serres*. On comparing my flower with this plate, I found that though they corresponded in form and general appearance, the colour of the flower is not correctly reproduced in the plate, whereon it is represented as a rather dull shade of red with deeper coloured veins, whereas the actual colour of the flower of my plant is deep violet veined with white. The flowers resemble those of a very large Abutilon, and are produced in terminal bunches of from three to nine on the summits of the young growth of the previous year; they are borne on long footstalks of from two to three inches in length, and all the stems are covered with a thick white tomentum or down. The plant is said to be a native of Guatemala, but this, according to Mr. Van Houtte, is not quite certain. The temperature of a greenhouse seems to be all it requires during the winter, but it should, I think, be planted out during the summer against a wall, as my plant evidently liked this treatment last year, and grew most vigorously while out, making leaves quite double the size of those produced while in the house, most of which, however, fell off during the winter after being put back into a pot. *W. E. Gumbleton.*

Oncidium fimbriatum, *Lindl.*

Here we have not only a very pretty little plant, but a first-class rarity. It was described by Dr. Lindley over half a century ago, from a drawing of a single flower, in the portfolio of Francis Bauer, and which is now preserved at the British Museum. A copy of that drawing is also preserved in Lindley's Herbarium at Kew. The other day I received a large panicle with numerous wiry branches, loaded with flowers, about the size of those of O. cornigerum, Lindl., from Messrs. James Veitch & Sons, of Chelsea, and which they had received as O. pubes, Lindl. They



Fig. 99.—Chrysanthemum maximum, true.

at once detected the error, and so sent it on for determination. I had not seen it before, but after a short search was able to identify it, and was especially delighted to have obtained such a rarity. Instead of a sketch of a single flower, Kew now possesses a magnificent panicle, as well as a water-colour sketch of a small branchlet, and dissections of the flower. I find from a note in these columns in 1879 (n.s., xi., p. 298), that Professor Reichenbach obtained a piece from Mr. Franz Kramer of Klein Flottbeck, near Hamburgh, about that time. Lindley places the plant in his group Tetrapetala macropetala, and considering its resemblance to O. cornigerum, and the fact that Lindley had only the drawing of a single flower to go upon, I do not wonder at all that he should have done so; yet, as Professor Reichenbach pointed out, the lateral sepals are free; and this excludes it from the group, notwithstanding its similarity to species of this group in other respects. I believe, however, that the character of free or united sepals has been made too much of, and in any future revision of the genus it may be relegated to a more subordinate position; for, besides the above instance, it separates such obviously allied species as O. Hookeri and O. raniferum. On the other hand, I think characters derived from the column should be made more of. In conclusion, we may note that the colours of O. fimbriatum are yellow, with red-brown spots, and that the very numerous flowers give a very good effect. *R. A. Rolfe.*

Pholidota ventricosa, *Rchb. f.*

The other day an erect raceme, about a foot high, of distichously arranged white flowers, recalling those of the Lily of the Valley, reached me, from Messrs. James Veitch & Sons, of Chelsea, with request for its name. On comparison it proved to be the above named very rare plant. I am not sure if it has been seen in gardens before, but there was no specimen, either wild or cultivated in the general herbarium at Kew, and only a single wild piece in Lindley's herbarium, from Java, which I conclude is the native country of the species. The name originated in *Bonplandia*, v. (1857), p. 43, where it will be seen to be founded on Chelonanthera ventricosa, of Blume.

A leaf accompanying the raceme was 1½ foot long, narrowly lanceolate, and somewhat fleshy, showing the plant to be considerably larger than the majority of its congeners. The bracts are narrowly lanceolate, and fall off rather early. Although not a grand plant, its drooping white flowers are so thickly arrayed on the raceme as to present quite a graceful appearance. To me it is extremely interesting, as a plant described over half a century ago, and almost forgotten, though it is just possible that in some unfrequented locality in Java it may be common enough. *R. A. Rolfe.*

ORCHID EXHIBITION AT MR. WM. BULL'S.

Again the season for the Orchid exhibition at Mr. Wm. Bull's establishment in the King's Road, Chelsea, has returned, and again a marvellous display of beautiful and rare Orchids in flower has been arranged with elegant Palms and Maidenhair Ferns in the show-house, the rare plants exceeding in number and excellence of quality those present in any of the former exhibitions, while a glance over the whole reveals a pleasing and effective, but, as usual, too crowded an arrangement. Let us call attention to a few of the more striking of these; the orchidist will be able to conjure up in his mind the arrangements indicated, and many of our readers who are not Orchid growers, but lovers of all handsome flowers, will doubtless go and see for themselves.

First, then, in the centre, in front of the entrance, is a group with a noble specimen of Cymbidium Lowianum, in the background its arching sprays of massive flowers falling over a fine arrangement of white Odontoglossum crispum and O. Pescatorei,

*

with a spike or two of the violet Odontoglossum Edwardii, and some elegant trailing sprays of Oncidium leucochilum, and suspended overhead, the golden-hued Cattleya citrina, and the white and rose Odontoglossum citrosmum. On the left is a group of violet and crimson Masdevallias, with white Odontoglossum, and a fairy-like spray of Oncidium phymatochilum, and a twining spike of O. luridum intermedium, with overhead the blossoms of Cattleya citrina and those of the rich, clear yellow O. concolor. On the right Odontoglossum vexillarium, O. crispum, O. cirrosum, and crimson Masdevallias, with Odontoglossum citrosmum and Oncidium concolor overhead; and dispersed among the whole, many an interesting and rare plant.

Another lovely group, which cannot fail to take the eye of the beholder, is composed chiefly of Butterfly and Moth Orchids (the varieties of Oncidium Papilio and Phalænopsis) arranged with crimson Masdevallias; the richly-coloured Cattleya Lawrenceana, the prettily rose-spotted Lycaste Lawrenceana, the rare and elegant Odontoglossum nævium, Cypripedium hirsutissimum, with the golden-yellow Oncidium bifolium majus, scarlet Sophronitis, and the white form of Odontoglossum citrosmum suspended over the group. Some other groups to be remarked were varieties of Odontoglossum Hallii; another consisting of the best forms of the stately Vanda tricolor and V. suavis; a third was made up of the delicately tinted and delightfully fragrant Cattleya labiata Schroderæ, and another of Cypripedium caudatum, the one distinguished as C. c. majus having petals 26 inches long, and that called C. c. nigrum has the pouch almost black.

Rare Plants were observed in profusion distributed throughout the house, and of special notice were Odontoglossum bellinum, which approaches the rare true O. Edithæ, but is better in size, shape, and colour; O. lanceans, of cream colour, with a few violet dots; O. victor and O. imperator, both richly spotted and unique; O. Pescatorei pictum, with white flowers perfectly formed, spotted violet, and tinged at the backs of the flowers with the same; O. hystrix grandis, a noble and massive species; O. Ruckerianum luteo-marginatum, a fine variety, with the edge clear yellow; O. polyxanthum grande, with large wax-like, lemon-yellow flower, heavily blotched with reddish-brown; O. ornatum, which might be described as a very high form of O. Andersonianum; Oncidium curtum var. magnifica, one of the noblest of Oncids, having large golden-yellow flowers marvellously marked back and front with rich chestnut red; O. cucullatum giganteum, with a large clear-rose lip; several varieties of the elegant O. cornigerum, O. superbiens Enoi, with large flowers and violet and white petals; the pure white Cœlogyne cristata alba, Lycaste Skinneri alba, the massive white and crimson Maxillaria Sanderiana, the powerfully-scented Angræcum arcuatum, the elegant rose and white Pleurothallis scapha, Anguloa Ruckeri sanguinea, Epidendrum Wallisii, Angræcum modestum, Cypripedium bellatulum, one specimen having eight noble flowers, creamy white, spotted with purple; Dendrobium nobile nobilius, the true variety, from the original stock; Diacrum bicornutum, one of the most beautiful, snow-white Epidendrums; Cymbidium Lowii var. atrosanguinea, with a blood-red labellum; and some grand forms of Lælia purpurata, among which the best were L. p. alba, with pure white sepals and petals, and white front to the lip; L. p. rubicunda, a large and richly coloured variety, and L. p. Princess, which is of the Russelliana section, and has the least colour in it of any of the numerous varieties; it is a very chaste and lovely form. Among the remarkable Cattleyas was a splendid form of C. Schilleriana which should be noted; it had reddish-umber sepals and petals obscurely blotched with brown, and a magnificent white, broadly expanded labellum, streaked with purplish-crimson; it is near to that figured in the *Lindenia* as L. S. Amalia, but is not so yellow at the base of the lip. Cattleya Schroderæ aromatica, too, had a large and handsome flower, with a conspicuous area of orange on the lip; C. Mendelii majestica well merits its name, and C. M. grandis was one of the largest of the white-petalled forms, with labellum of a very fine colour. The above form our selection of the more remarkable, rare and beautiful species, but there are enough of novelty and beauty to satisfy the fancies of all, and things even more beautiful according to the taste of some, may probably be selected.

Among the older favourites will be found some very handsome specimens of Dendrobium thyrsiflorum, D. aggregatum, and all the other Dendrobes of the season; Oncidium Marshallianum, with many spikes of golden-lipped flowers; O. Phalænopsis, O. cucullatum, many fine Cymbidium eburneum, the still rare Epidendrum Cooperianum, the fine E. atropurpureum and its white-lipped variety, a fine mass, with many spikes; the fragrant Bifrenaria Harrisoniæ, and Lycaste cruenta, with six flowers; a group of the spring-flowering form of Cattleya Mossiæ, another of C. labiata Warneri, Lælia elegans, Odontoglossum Cervantesii decorum, Masdevallia racemosa, and a great number of other rare and beautiful species.

A glance through the Orchid-houses, from whence the supplies which maintain the display for a considerable period are drawn, revealed a great number of flower-spikes of all the Odontoglossums in bud, almost a houseful of Miltonia vexillaria, many fine spikes of Oncidium macranthum, a house of marvellously well sheathed Lælias and Cattleyas, and, in greater or less quantity, a supply of all the species denominated showy.

THE AQUARIUM.

CULTURE OF VICTORIA REGIA AND ITS ASSOCIATES.

The Victoria regia has immense foliage, and grows freely amidst the islands and shallow waters of the River Amazon. No difficulty whatever needs to be experienced in growing the Victoria regia under glass, the only requirements being a moderate extent of hot-water heating during the early summer. Unfortunately, however, this interesting plant is seldom grown in this country, owing to a mistaken idea that great expense must be incurred in finding a suitable building for it, and doubts of success as regards its culture. In reality the expense is not great, where the erection of glass for other purposes is purposed, because, as I shall show, such a structure can be turned to more than one use with economy and profit, whilst, as regards the cultivation of this plant, it is very easy.

It is not my intention to quote the usual cultural directions for aquaria, but to suggest a way to grow and flower the Victoria regia and other Nymphæas, and turning their summer abode into a storehouse for the half-hardy plants. Hence, I set aside the large aquarium at Chatsworth, that of Kew, and the small one at the Royal Botanic Gardens, Regent's Park, and describe the form of the aquarium best suited for the double use. When strict economy in the matter of buildings has to be considered, a large building, comprising two moderate sized square houses on the ridge and furrow system, with one or more iron pillars, resting in the base of the tank to support the centre furrow, and, as a matter of course, without a central partition, will suffice for covering the area. The tank should not be less than 20 feet square, and for artistic effect the corners should be rounded off.

As the building on my present plan is intended for growing the Victoria regia and other aquatics wanting similar treatment during the period, March to October, and for wintering Camellias, Oranges, Azaleas, Oleanders, Agaves, Myrtles, Fuchsias, Ficus, Abutilons, and all greenhouse plants, especially such as are used as foliage plants, in the summer flower gardens, and including bedding-plants, for whose accommodation movable shelves may be devised near to the glass. The tank and paths must be constructed of a suitable form; hence, the tank—a sunken one—should occupy the centre of the house, and be surrounded by a path 3 or 4 feet wide. The tank may be dug out either before or after the house is erected, and to a depth of 3 feet. A waste water drain should be laid from the most convenient part, and be fitted with a wooden plug, for the purpose of emptying the tank, and a supply pipe provided with a tap put in at the proper level. The bottom of the tank may be laid with fire-bricks bedded in cement to the full extent of the excavated site, which should be 1 foot larger than the size of the tank when finished, and afterwards walls should be erected around within the area of the cemented bottom. This space will afford ample room for a 9-inch wall made with good bricks bedded in cement, and which should be made to carry the flag-stones intended for the pathways. It will be an advantage to set the walk some 3 or 4 inches lower than the level of the tank, and an ornamental or rounded kerbing be fixed round its edges.

By having the tank always brimful, the effect will be pleasing, whilst even the slight lowering of the pathway appears to bring the beholder nearer to the surface of the water than the slight difference of level in reality does. To prevent any one falling into the water, iron standards (movable at will) may be let into the flag-stones near the margin, and artistically-formed strong iron railings fixed thereto; such railing, it is important to observe, being made strong enough to be leaned upon.

Owing to the fact that the structure is to be put to two purposes, the Victoria regia must be subjected to special culture—*i.e.*, must be treated and grown as an annual; hence, in the matter of space for the roots and the amount of soil required to grow it in, much less than are customary will be required, with the advantage that fresh soil may be readily supplied annually. The one thing needful is a circular space for the soil, which may be 4 to 5 feet in diameter, and near the centre of the tank. This is done by simply building a wall with ordinary bricks in pigeon-hole fashion, the bricks being laid lengthwise; and the height of such wall may be 2 feet. It may be well to observe that the brick-work is only intended to maintain the soil in position, and avoiding the use of a large quantity in a spreading heap, that is liable to get distributed, and foul the water at such times as it is necessary to enter the tank for any purpose, &c.

As I am describing past practice, I suggest that some four other smaller bricked enclosures be formed at suitable distances from this central one around the sides of the tank for the reception of Nymphæas or other suitable aquatics, which, though smaller in diameter, should, however, be about 6 inches higher than the large one, so that these latter, being less robust, &c., may be enabled to rise to the surface quickly and lay their leaves there without much elongation of leaf-stalks. Indeed, I have reason to believe that by this arrangement, and owing to the greater influence of sunlight and warmth obtained, the plants bloom quicker and the flowers are more numerous. It may be well to add a suggestion in this place, that probably sheets or wire made of iron may be made to hold the heaps of soil together, by which means the work will be lighter.

The requisite heat for such a structure need not exceed a flow and return 4-inch pipe, which should be placed near the side of the tank, and below the water-line, the same arrangement of pipes being placed around the sides of the walks furthest from the tank. Where economy in construction is of importance a single 4-inch pipe may be made to do within the tank, provided that the boiler is efficient. As a matter of fact, this need of hot-water pipes within the tank will necessitate a deeply placed boiler, which fact must be taken into consideration when the estimates are prepared. It may be well to add that a single water jet should be attached to the water pipe, for occasional use in washing the surface of the leaves, and to give motion to the water in the

tank. Beyond this it is well to take a water-supply pipe to some central spot under the roof and above the tank, to which a tap should be affixed, and under which a tin scoop attached to a rod of iron or wood should be made to swing, and into which the water from the tap could be run in any quantity that may be deemed requisite, and each time this scoop fills the water is ejected into the tank below, by which means the stagnation of the water in the tank will be prevented.

In growing the Victoria regia as an annual, seedlings should be procured in spring from leading nurserymen, the price being about £5 per plant. The fecundity of the plant is remarkable, as was shown by Mr. W. Coomber, of the Royal Botanic Gardens, in a communication to the *Gardeners' Chronicle* during the year just passed, and plants are not difficult to obtain.

The proper time to prepare the tank for planting is between the second week in the month of February and the end of March, though good results are obtainable from planting in April. Such as I grew were planted in rough loamy soil from the margin of a pond. The plants were set out in February in a large tub filled with soft water, and which was maintained at a moderate warmth by occasionally removing a gallon or two of water therefrom and replacing it with warm water, the tub being placed in full sunshine in the stove; but where the tub can be placed over hot-water pipes there is less trouble. These young seedlings, having but four or five small leaves, grew freely for a few weeks in their 48-sized pots, when, the tank being ready to receive them, they were turned out of the pots into the mound of soil and made firm about the balls. The plants grew rapidly until the month of July, and the grand leaves all but filled the tank, one measuring 7 feet in diameter, and the beautiful flowers appeared. Full exposure to sunshine was always constantly the rule, whilst the warmth of the stove was from 80°—90°, the temperature of the water being the same, or perhaps a little higher, owing to the proximity of some hot-water pipes.

The Nymphæas best adapted for such tank culture are the Egyptian N. cœrulea, N. Devoniensis × (deep rose), N. rubra, N. cyanea, N. dentata (a white species, very distinct from the British or Canadian N. alba). These plants want but little attention beyond keeping the water clear and free from confervæ.

The best way to do this is to enter the tank, sweep the bottom with a whalebone broom, scrub the sides, and let off about one-third of the water whilst it is in a state of motion, by which means much of the slime will flow away. Meantime fresh water should be run into the tank, and a strong heat maintained in the hot-water pipes to raise the temperature of the fresh body of water. Care should then be taken to remove dirt and moss from the crowns of the plants and the long leaf-stalks; albeit the leaves are well protected by the turning-up rim, they are liable to be infested with masses of moss-like growths upon the lower surfaces, especially upon the ribs, which project from the leaf surface into the water.

To remove these growths, I have found it the best way to turn each leaf completely over on the water. The best way to do this is to lay the arm upon one side of the leaf near its edge, and gradually force that part under water, when with the other hand the other side may be brought over. By this means the leaves are in no wise strained or injured, and I have reason to believe this thorough immersion of the leaves for a short time under water results in greatly increased growth; even as the foliage of our native species grows more vigorously following high winds, which drive the leaves down beneath the surface, or drive the water over them. Having cleaned the under-surface of each leaf, it should be syringed and carefully returned, each to its natural position. For a few hours following these periodical cleanings, permit the water to remain quite still, by which means it will become clear and the plants greatly benefited.

As autumn approaches, and the production of flower ceases and the leaves lose their freshness, the water should be let out of the tank, and the Victoria plant, together with the soil, removed. The Nymphæas can be preserved through the winter by being potted up, and each pot placed into deep pans of water, in the stove; or they may be plunged in a tank, but they must get as much light as possible.

When the tank has been emptied, scrubbed out &c., about the first week in October, or somewhat earlier, it may be filled with any kind of plants requiring protection from cold, and even somewhat tender subjects may be stored therein, as the hot-water pipes both within and without the tank will afford heat sufficient against frost. In the tank itself large Oranges, Yuccas, Myrtles, Bays, &c., in tubs or pots, can be effectively arranged if elevated on other pots, &c., space being left to get about when watering the plants; whilst plants smaller than these may be staged on one side of the path.

Chrysanthemums may be arranged in the house, the higher plants being placed near the sides of the tank on planks graduated, and graduated down by lesser specimens, so as to form sloping banks; here they would do well, as there is ample light, and the means of giving air should be provided for.

It only remains for me to add, that should it not be possible to remove all winter-stored plants before the structure is again required for the Victoria, the space comprising the walks—and, with the assistance of planks or shelves, even more space—could be set apart for a time. *William Earley, Ilford.*

Orchid Notes and Gleanings.

CYMBIDIUM ALBUCIFLORUM, *F. Mucll.*

This is an Australian Cymbidium, nearly allied to C. pendulum, but with very fragrant yellow flowers, with some purple-brown markings on the lip. Two fine racemes were brought to Kew by Mr. W. Swan, gardener to G. C. Rafael, Esq., Castle Hill, Englefield Green, for name. The plant must be in very robust condition, unless what I have before seen was from a very weak plant; in any case one of the racemes was twice as large as the one just mentioned, now preserved as a dried specimen. The largest raceme brought by Mr. Swan measures 18 inches long, the scape, or basal portion, below the flowers, being nine inches long, and quite erect. The raceme itself is pendulous, and bears thirty-seven flowers, the habit very graceful, and the flowers of a decidedly pretty shade of colour. It appears that the plant was exhibited at a recent meeting of the Royal Horticultural Society without a name, when some one called it C. chloranthum. That species, however, has erect racemes, while the flowers are different both in colour and shape. The plant was sent direct from North Australia, which it may be noted is the only locality known for the species. Two other species are also known from North Australia. *R. A. Rolfe.*

Lælia Gouldiana.

This is a splendid novelty, with evergreen foliage and ovate, ribbed pseudobulbs, bearing usually upon the summit a pair of oblong-linear leaves. Flower scape about a foot high, bearing several flowers, the sepals and petals of which are deep rosy-purple; lip the same colour, with yellow keels. It blooms during the months of December and January, and the flowers last some three weeks or more in full beauty, if the plant is kept in a warm house, and the flowers are preserved from the damp. We have not ourselves cultivated this plant, and cannot, therefore, speak confidently of the precise treatment necessary to the successful management; but, judging from the practice of others, we should imagine it grows in the company of its supposed parents, and under exactly the same conditions, so that it may be taken for granted that when its growing season commences there should be no time lost in rendering the plant every assistance to make its growth strong and vigorous, and to induce it to root freely.

This, indeed, is necessary with all Orchids under cultivation, as our seasons are too short and uncertain to admit of delay. We should prefer baskets to grow these plants in, as they enable the cultivator to suspend them in the full sun and light, thus conforming in the nearest possible manner to the natural conditions of the plant, and allowing the roots to absorb the atmospheric moisture in the best possible manner. The material used for these plants should be good peat fibre and living sphagnum moss, whilst at the same time the drainage must be thoroughly efficient, as these plants require a large amount of water during active growth. After this is finished, the bulbs should not be allowed to become dry enough to shrivel, as this will be sure to cause them to dwindle away, and lead to trouble in their restoration, without any one point of advantage having been achieved. A little shade during the hotter part of the day in summer will be beneficial, and a slight syringing on warm days during the period of active growth will cause them to make more vigorous shoots, without which bloom cannot be expected to follow in due season. The L. autumnalis section of this genus requires great care and attention, and does not appear to like being disturbed, unless it is to renew the material in which the plants are growing; and they are also impatient of being cut to pieces, so that increase by propagation in this manner is not readily achieved. The best time for re-basketing is just as the plants show signs of fresh growth, which is usually some little time after their flowering season. If grown upon blocks of wood, as we have cultivated plants of L. autumnalis, they require a large amount of moisture overhead by syringing, as well as a constant lifting down and dipping in water, in order to keep them well soaked, but this system is more dangerous, and causes more trouble than basket culture. The Mexican plants appear to be very subject to the attacks of insects, especially the white scale, which is frequently imported with them in large quantities, and from which they appear to suffer in a marked degree. These pests should, therefore, be constantly searched for and destroyed, as good cultivation depends on cleanliness. *The "Orchid Album."*

A Stove Masdevallia.

This is M. Wendlandiana, one of the dwarfest of its kind. The largest of its leaves does not exceed 2½ inches in length, and the erect, almost thread-like scapes each bear a single flower two-thirds of an inch long. These are chiefly white, the sepals, however, being faintly striped with purple, and tipped with orange. Mr. Sander introduced it from New Grenada a few years ago. The fact that it enjoys warm treatment is amply proved by a plant in the Orchid-house at Kew, which has been grown in a pit along with Dendrobiums, Vandas, &c., and during the past year has more than trebled itself in size, and is now covered with its pretty flowers. *W. B.*

Lælia majalis.

This Lælia requires somewhat different treatment to the larger-growing members of the genus. Although the mode of culture necessary is very simple, it still requires careful treatment, a suitable place being one of the great essentials to success. It is a small-growing plant, found naturally on the branches of Oak trees, and in situations where there is usually a strong current of air. Under cultivation, however, we prefer small baskets for this plant, for the reason that less attention is necessary than when they are grown on blocks of wood. Good drainage is indispensable, and the material used should consist of rough, fibrous peat and living sphagnum moss, with some medium-sized nodules of charcoal added. The baskets used should be as small as possible, and the plant raised well up on a cone-like mound, in order that the roots may ramble over the surface, but care must be taken not to overload the roots with soil, as if this falls into a state of

decay, the roots soon become affected, and the health of the plant will rapidly decrease. Should, however, the material get into a bad state, carefully renew it, and wash the roots before replacing the plant in the basket; but the plant should not be disturbed whilst the roots continue in good condition, as it is impatient of removal. During the growing season it enjoys an abundant supply of water, and hence the necessity of good drainage; whilst, at the time of rest, it should be carefully tended, so that its bulbs and leaves may be kept in a plump condition. This plant should be suspended near the roof-glass, as it enjoys abundance of light and but little shade, and unless these conditions are well studied the growth does not ripen, and no flowers will be produced. The Mexican-house is the most suitable structure for its successful cultivation. *The "Orchid Album."*

APPLE PROSPECTS.

These are of the brightest, notwithstanding the paucity of sunshine and the plague of maggots last year. The fruit buds were also abnormally small as well as late, so that not a few alarmists began to prophesy yet another failure of our most useful and popular fruit; but so far as a good show of bloom is concerned, a full crop of Apples is now ensured; and as—unless in the warmest localities—there will be no Apples in bloom this season till the second week in May, their lateness affords yet another guarantee for a full crop.

The gradual, exceedingly slow, but sure way in which Apple buds have pulled up during this long, cold, and comparatively sunless spring is one more good sign of a full crop. Not a few cultivators who had their Apples lamed, riddled, or skeletonised, or wholly defoliated with maggots last summer, feared the worst for the crops of 1889; but somehow or another the trees have not only managed to recruit their strength, but to elaborate sufficient sap to provide a full supply of fruit blossoms; though how this was or could be done would puzzle the cleverest botanist or vegetable physiologist to explain, for leaves and light are held to be, the be all, and end all, of such highly elaborated sap as shall result in the formation of flower-buds. But 1888 was strikingly deficient in both these causes of production, and yet here are our Apple trees in this late spring of 1889, studded from base to summit with blossoms.

This is the more surprising, as it can hardly be said that the favourable character of the autumn enabled the Apple trees to recoup the severe reverses and cruel accidents of the summer. On the contrary, the season to its close was distinguished by a lack of sunlight and warmth. This watering and lowering of the vital forces of growth and production, partially paralysed the recuperative powers of the trees; those most severely defoliated by maggots staggered or stood still under the blow, or set about the work of restoration in the most sluggish manner. A good many could hardly be said to have made the attempt.

These unseasonable efforts of growth were necessarily late as well as weak, and consequently very imperfectly matured when the winter came upon them to the risk of their life, as well as the nipping of any budding promise of fertility; and yet here among our Apple trees, as elsewhere, it is the unexpected that has happened. Our Apple trees have slept—that is, wintered—well and longer than usual, and as they began to wake up after their long sleep—lo! they are seen to be studded with fruit blossoms. If this promise of a full fruit-basket is really the hopeful result of the maggot pest—most of us may welcome them to do it again.

One thing is certain, that neither did the maggot devour nor the cold starve our Apple trees into sterility. Hence, though we cannot explain, we may legitimately take pleasure in our present prospects. Possibly the lateness of the season and the climatal conditions of this spring may finally rid us of the pest of maggots. The various panaceas recommended hardly touched them last season. The earth seemed to vomit forth, the heavens rain down, maggots by the million. The more were squashed or otherwise slain, the more thickly they overspread, and devoured leaf and branchlet, while most so-called antidotes utterly failed either to moderate their appetites or their lives.

But the winter can hardly have proved very favourable for the safe storage of eggs, nor the spring for the breeding of larvæ. However, possibly with the prompt destruction of the first brood and picking up of any stray maggots, we got rid of this troublesome pest for years to come. Never in my experience did it reach to such a pitch or plague as last year, and it is earnestly to be hoped that no second nor equally strong edition of maggots, nor late beginning spring frost, will deprive us of the brilliant promises of a full Apple basket for 1889, that is already pointing with hope and adorning with beauty the surface of all our Apple trees in garden and orchard. *D. T. F.*

IRIS CAUCASICA AND I. ORCHIOIDES.

I. caucasica of Hoffmann, from the Caucasus, has long been known, and was figured by Sweet in his *British Flower Garden*, t. 255. The typical plant is only a few inches high, bearing two or three greenish-yellow flowers, which are sessile on a stem so short that the internodes are hardly visible. The distichously arranged glossy leaves, broad at the base where they are decurrent on the stem, and gradually narrowing to an acute point, are folded laterally to form a shallow open channel, are more markedly veined on the lower (outer) surface than on the upper, are characterised by the possession of a variably conspicuous horny margin, and spread out in low horizontal arches almost touching the ground. The blade of the outer perianth segment (falls) bears a conspicuous crest, whose edge is coarsely serrate, but on the claw the crest fades away. The sides of the claw are extended, as in I. persica and several other members of the Juno group, into wings or auricles, more or less transparent, so large that the claw is always wider than the blade. The inner segments (standards) are small, spread horizontally or turned sharply downwards, with caniculate claws, and spoon-shaped blades, which are variably toothed. The green spathe valves are distinctly inflated. The whole colour of the flower is greenish-yellow, and the plant thereby fails to attract the gardener; but some specimens are of a bright full yellow, and by no means unhandsome.

Some years ago I received, through the kindness of Dr. v. Regel, bulbs labelled I. caucasica major, which I understood were gathered in Turkestan. The flowers of these agreed in all essential respects with the type, save that they were larger, with the wings or auricles of the claws of the fall even still more marked; the whole plant also was larger, reaching 6 or 8 inches in height, and at times the stem was visible at the internodes. The colour varied from a full rich to a pale straw-yellow colour, the wings of the claws of the fall being invariably paler than the blade. There could be no doubt that this was I. caucasica, and the varietal name major seemed wholly appropriate.

Two or more years subsequently Dr. v. Regel kindly sent me bulbs, also labelled I. caucasica or I. caucasica major, which, upon flowering, seemed to me to differ specifically from I. caucasica; and all the seeds for which I have in the past few years been indebted to Dr. v. Regel as seeds of I. caucasica, gathered in Turkestan or adjoining countries, have (at least this is true of all which have flowered) proved to be of this latter kind.

In this plant the stem is at least one foot, often much more, in height; the leaves are in relation to breadth narrower, and narrowing much more gradually to a point than in I. caucasica, and are devoid of any distinct horny margin, and from the thinness of the cuticle less glossy; the stem shows very conspicuous internodes of an inch or more in length. The flowers, smaller, or at least narrower than those of I. caucasica, are stalked, with green spathe valves narrower and more acutely pointed than in I. caucasica, and not inflated. The claw of the fall, instead of expanding into lateral wings, is straplike and gradually widens into the blade, which is obovate, not ovate, as in I. caucasica, so that the whole fall has a form which is strikingly different from that of I. caucasica. A crest is present on the fall, but not so large and not so ragged as in I. caucasica. The crests of the style branches are generally more pointed and triangular than in I. caucasica, in which they are usually quadrate; but I would not insist on this, since my experience shows that in case of many species of Iris the shape of the stylar crests varies much in different specimens of the same species. As regards the standards and other parts of the flower, except the ovary, the length and hollowness of tube, &c., I do not see any marked difference between the plant in question and I. caucasica. As a quite minor point, I may mention that the point of the vaginal sheath which spears in early spring is solid white, not green, as in I. caucasica.

The colour of the flower is a rich solid yellow, very different from the more or less transparent flimsiness of I. caucasica, with frequently but not always a blotch of greenish purple on each side of the crest of the fall.

The whole plant is certainly handsome, though the want of proportion between flower and foliage, plants more than a foot high often bearing only three flowers, detracts from its ornamental value.

This plant was described by Carrière (*Rev. Hort.* 1880, p. 337) somewhat imperfectly, with the simple statement that it was "Asiatic," as I. orchioides.

I owe to Dr. v. Regel's continued generosity a plant labelled I. caucasica var. cœrulea, which exactly repeats all the features of the above, but is very different in colour. The crest of the fall is a creamy yellow, surrounded at its anterior end by an oval patch of bright yellow, which stands in charming contrast to the rest of the blade of the fall, which is a pleasing lilac. The claw of the fall is a lighter lilac, with deep violet veins. The standards and styles are also lilac. The whole plant is one which pleases me very much; it is certainly not gaudy, but the colours are to my mind soft and charming, and I would advise cultivators to keep their eye on it. This seems to be certainly one of the forms of I. caucasica var. oculata, of Maximovicz (*Mél. Biol. Bull. Acad. Imp. d. Sc. de St. Petersb.*, x., p. 688), and to be the I. caucasica var. cœrulea of Regel (*Descript. Plant. Nov. sc. Fasc.* ix.). Accepting the name orchioides, this would be I. orchioides var. cœrulea. I have not flowered the bulbs which Dr. v. Regelsent me as his I. caucasicavar. β oculata "floribus flavis, sepalis macula cœrulea notatis," but I infer that this is again a distinct variety, different from the yellow form just described with variable blotches on the fall; v. Regel also describes a variety δ linifolia with narrow (3 mm.) leaves; but of this I know nothing.

BothDr.v.Regel and Maximowicz insist on the great variability of I. caucasica. That can readily be admitted; but as far as I have gone at present I find no difficulty in distinguishing a series, with its varieties, which I should I. caucasica from another series with its varieties, for which I should adopt Carrière's name of I. orchioides. This can be done by insisting alone on the form of the fall in each case, though other characters assist. In I. caucasica the claw of the fall expands laterally into more or less pronounced wings, and is separated by a construction more or less marked from an ovate, somewhat pointed blade. In I. orchioides, the narrow long claw is wholly devoid of wings, and widens gradually into the obovate blade. For instance, I have received from Mrs. Barnum of Khaiput, a Juno Iris growing in the neighbourhood of that city. The stem is tall and erect, 9 inches or more in height, and the internodes would be very visible were the bases of the leaves not so extremely


x 320

decurrent; the regular distichous arrangement of the glossy leaves on their erect stem gives the whole plant a very graceful appearance. The wings of the claw of the fall are very slightly developed; nevertheless, they are present, and the claw is separated from the ovate blade by a slight but still recognisable constriction. Hence, I have no hesitation in regarding this plant as a variety of I. caucasica, but so distinct that I think it deserves a varietal name, and should propose to call it I. caucasica var. Barnumensis. The flowers are of a dull greenish-yellow, but are so graceful in form and so harmonise with the graceful stem and foliage that the whole plant gives great pleasure to the eye.

When these several plants are grown side by side, any one looking at them would not hesitate to recognise two species; on the one hand I. caucasica, with the var. major and the var. Barnumensis; on the other hand I. orchioides with the var. cœrulea. And though I have not seen them I have little doubt but that var. oculata, var. linifolia belong to the latter.

I may add that all these plants are quite hardy, and ought to flourish anywhere where they can find a good rich rather stiff soil, a good baking in summer, and freedom from water-logging in winter. *M. Foster, Shelford.*

Cultural Memoranda.

ANEMONE JAPONICA VAR. HONORINE JOBERT.

This is a useful autumn-flowering plant, having pure white flowers, set off with a profusion of yellow stamens; it grows to a height of from 2 to 3 feet, according to the soil. It readily adapts itself to pot culture and forcing, and thus grown it may be had in flower at Easter, when it is nearly as much appreciated as are Eucharis flowers. A stock of it is easily worked up by dividing the root-buds of a few old-established plants, and potting them in 3-inch and 4½ inch pots, using a compost of three parts light loam and one of well decomposed manure, and keeping them well watered during the growing season; the object being to secure large well-ripened crowns before the foliage dies down late in the autumn. If in the open, they should be grown in light rich soil. The plant may also be increased by seeds. *H. W. W.*

Anthericum Liliastrum giganteum

is a very elegant and effective hardy spring flowering perennial plant. The erect flower-stem reaches a height of 2 to 3 feet, terminating with a showy spike of pure white Lily-like flowers of nearly 2 inches in length and width. The plant flourishes in a moist peaty soil, and may be propagated by divisions of the root. *H. W. W.*

A FEW ALPINE CRUCIFERS.

(*Concluded from p. 710, vol. iv.*)

Several months ago I reviewed the species of Alyssum and Draba, but there are also a number of other species suitable for cultivation on rockeries, and which it will be well to enumerate here.

Very nearly related to the Drabas we have Petrocallis pyrenaica, which is Pyrenean only in name, as it is much more abundant on our Alpine chain than anywhere else. This plant of R. Brown, which has for synonyms Draba pyrenaica, L., and D. rubra, is a very pretty little species, belonging to the rock flora of the limestone mountains. Its deep rosy-violet flowers, which are sessile on the tuft of leaves, and which they sometimes so completely clothe that no leaves are to be seen, expand in April and May. Its leaves are small, divided, and form crowded rosettes. It is found at an altitude of 2200 to 2800 metres, and so belongs to the flora of the highest regions. It is sometimes found with white flowers.

The genus Thlaspi furnishes us with a number of pretty rock plants, as T. alpestre, L., a native of the granitic Alps, with white flowers, disposed in elongated bunches, and flowering in March and April; T. Salisii, from the Alps of Tyrol and the Grisons, with white flowers; T. alpinum, from the high Alpine regions, also with small white flowers; T. rotundifolium, is found among the stones and *débris* of limestone mountains, at elevations varying from 1900 to 2800 metres.

It is well known to Alpine travellers, as it is frequently the only plant which grows in the full glare of the sun. But the fact that it grows in the sun, and among stones, should not induce us to keep it dry in cultivation, for the stones conceal in their crevices a reservoir of moisture and coolness, and under those pebbles, so dry to all appearance, are hiding other stones saturated with water, which communicate a cool temperature about the stolons of the plant, which are sometimes very long and very slender. This is one of the most beautiful of the Alpine Crucifers, and should not be absent from any collection. It is raised easily from seeds, and flowers from May to September. T. epacifolium, differs from the preceding species in that the leaves, instead of being round are long, and also that the flowers are not of so bright a rose-colour as in T. rotundifolium. It is found in the Carinthian and Tyrolese Alps.

Hutchinsia alpina, is a charming little plant, with finely divided foliage, of a deep shiny green, and is of itself very decorative. The flowers are pure milky-white, and crowded in little terminal bunches, which are often very freely produced; it is of easy cultivation, and may be raised from seed without trouble. It is found in limestone regions, prefers shade and coolness, and flowers throughout the summer. H. brevicaulis, is a Tyrolean species belonging to the granitic flora; lime kills it outright, and it may almost be regarded as a granite-loving form of H. alpina. It is smaller in all its parts, more dense, and extends over the soil to a greater extent than does H. alpina.

Aethionema saxatile, R. Br., is a very small plant, the rosy-purple flowers of which are hardly visible, but its foliage is decorative. It is a native of certain districts of the limestone Alps. There are several species of Aethionema from the East, whose flowers are more suitable for rockery decoration than those of A. saxatile.

Kernera saxatilis, which has for synonyms Cochlearia saxatilis, Alyssum alpinum, and Camelina saxatilis, is a very pretty species, growing on limestone rocks. Its graceful little flowers, disposed in loose panicles, form one of the prettiest ornaments of the rockery. It likes a sunny position in limestone, and is easily raised from seed.

Braya alpina, and B. dentata, are two very small plants with minute white flowers produced in bunches. The first-named species comes from the Alps of Tyrol and of Carinthia, where it is very rare; and the second is fairly common on our granitic Alps.

Arabis alpina, a very common and widely distributed plant, has white relatively large flowers, and grows pretty well all over the limestone *débris* of the Alps. A. cœrulea, is one of the rare Crucifers with blue flowers. This plant, which is very dwarf, and very dense in its habit, lives in the damp *débris* of the granite rocks, at altitudes varying between 2000 and 2800 metres. A. vochinensis, A. alpestris, and A. serpyllifolia, are three more or less decorative white-flowered species, and all come from the limestone regions. A. pumila, is a very small species from the higher regions. A. Halleri, is one of the most elegant of the genus; its flowers are, relatively speaking, large, rosy-white, and occur in light bunches, surmounting a stem which is well furnished with leafage. A. bellidifolia, is found in the cool and moist spots of the Alps, as is the case with all the members of this genus, which are not rock-lovers. It is the most beautiful species—or, at least, the one which under cultivation makes the finest show. The pure white, comparatively large flowers, are produced in pretty panicles. All these may be raised from seed, and easily cultivated.

Mathiola valeriaca. This is one of the most beautiful ornaments of the rockery. It grows abundantly on the side of the Simplon, where its large rose-coloured flowers produce a very fine effect. It should be grown in the full sun, and be kept dry. It flowers in May and June.

Iberis saxatilis, from the Alps of Southern Austria, is a very pretty, very small plant, with pure white flowers, having erect foliage of a dark bright green—very *recherché*. It flowers in April.

All the plants which I have enumerated are saxatile species, growing on rocks or stones. They like a rocky soil, well drained, and limestone or granite added, according as the species has an affinity for the one or the other. All are easily grown, and produce flowers abundantly in cultivation. The mountains in other countries yield other species which are very beautiful; such are, for instance, the excellent Iberis jucunda, from the Carpathians, which with its flowers of rose veined with purple is one of the most delightful of rock-plants, and Arabis blepharophylla, of North America, and many others But I have confined my remarks to the plants of the Swiss ranges. *H. Correvon, Director of the Jardin Alpin, Geneva.*

Plants and Their Culture.

Trachelospermum jasminoides.—Plants of this are most serviceable for decorative work, when grown in 5 or 6-inch pots they are useful vase plants, and when arranged along a shelf or stage for greenhouse or conservatory decoration are effective. They are generally grown on a trellis or pillar, but if frequently stopped make bush plants of themselves. Stout short jointed cuttings should be taken early in spring, and which if taken off with a heel, will soon strike. Insert singly in small pots, using a light compost of sifted peat, leaf mould, and sand, placing in a propagating pit or frame; when the pots are full of roots, the plants should be shifted into 5 or 6-inch pots, using some good fibrous loam in the compost. Give 3 small stakes, and allow the scandant shoots to hang over the sides of the pot, very few ties will be necessary, and only in the early stages of growth, stopping. If larger plants be required, three plants may be put into an 8-inch pot. While making their growth the first season the plants require to be in a warm house, afterwards they succeed with greenhouse treatment. There is a variegated form which is only grown for its foliage, and, moreover, is not of such easy cultivation.

Double white Primulas.—From the stock plants which after having flowered should have been kept drier at the roots, cuttings should now be taken with a heel. Insert singly in small pots in a light compost, using a liberal quantity of silver sand (the siftings from the peat suits them), adding some chopped sphagnum or fertilising moss with plenty of sand. Place the pots in a warm pit or frame, shading carefully for a time, and watering sparingly. The cutting pots require plenty of drainage, and previous to inserting the cuttings should be well watered when filled, to prevent damping afterwards. When well rooted the plants should be shifted, and treated like the single varieties.

Kalosanthes.—These are useful, and easily cultivated. K. coccinea is one of the best for general decorative purposes. Healthy shoots taken now from the old stock will make nice-sized plants for next season. They should be inserted in small pots in a compost of loam, peat, and silver-sand. If placed in a warm house and watered carefully till rooted they will soon be ready to repot, when more loam should be used in the compost; 5-inch pots will be large enough for the final potting of the young stock; when potted finally grown on in a warm house, and when growth is made remove to a shelf in the greenhouse, and keep them rather drier. They require frequent stopping during growth, to encourage lateral branching, but this must not be continued after September. As soon as flowers begin to form the pots will be full of roots; give weak liquid manure twice a week. Greenfly will attack the points of new growth, and this must be destroyed

by dipping and keeping the plants well syringed. They are also liable to the attacks of a small weevil, which causes the stems to shrivel; this must be destroyed by cutting out the affected portions as soon as the insect is discovered. *Geo. Wythes, Syon House, Brentford.*

THE FLOWER GARDEN.

ASSOCIATED FLOWERING PLANTS.—Those who have not completed their arrangements for the beds, and who find their stock of plants unequal to the demand, may conquer the difficulty by planting mixed beds. The system has the advantage that it may, by avoiding discords of colour (pink and yellow for instance), have plants of almost any kind pressed into its service. This will be best illustrated by giving the constituents of certain mixed beds, which I have already made, or intend to make, not, be it observed, from necessity, but from choice:—Seedling Verbenas, white, scarlet, and purple, intermixed with white, blue, and lilac Violas, make a perfect bed, and if, as will sometimes happen, one of the two species of plants fails, the other one quickly fills up the gap so caused, and if both do well, it is an easy matter so to curtail growth that neither gains the lead. The employment of a few plants grown as standards adds interest to this arrangement; Grevillea robusta, Aralia Sieboldii, Fuchsias, or Abutilons, being very suitable for the purpose. Another telling mixture of plants for large beds consists of single-flowered Dahlias and Marguerites in about equal numbers. The colours of the former should be scarlet, white, and purple, and of the latter yellow; and the ground-work may be of Heliotropes, Ageratums, variegated Pelargoniums, and white Viola Countess of Hopetown; and the edging plants variegated Mesembryanthemum or Gnaphalium. Planting a mixture of annuals is another way of eking out a scanty supply of bedding plants proper, and I have had beds of these which would bear comparison with those more pretentious. Last year I had a large circular bed, planted almost promiscuously, with the following annuals:—Intermediate Stocks of all colours, the but little grown dark blue Anagallis grandiflora, Cuphea miniata, Phlox Drummondii of various colours, Indian Pinks, and as standards over the whole bed, plants of Salpiglossis tied to stakes, and the plants which admitted of it being either pinched in, or pegged down to keep them at a moderately even height. This arrangement filled out, and was effective early in the season, and continued so long after the Pelargoniums and the ordinary bedding plants had faded. One other instance which I may give is that of a long border which had been planted for several years in the most formal way, and might still have been so but for my failure to obtain the required number of plants. To make up for this accident, recourse was had to mixtures of plants in the three lines, previously planted with a line of one variety only. The back line of the border was the most formal, and necessarily so, a regular and even background being generally indispensable to the better display of the front lines. This back line was planted with single Dahlias of various colours, which alternated with yellow and white Marguerites, with a Hollyhock at intervals of 15 feet; all these plants were kept in as straight a line as stakes and ties could make them, and in front of these the space previously planted with three lines of colour was filled out with the following plants in as regular mixture as it was possible to do it:—Violas and Pelargoniums in a variety of colours, Heliotropes, Ageratums, Agathea cœlestis, tuberous and fibrous-rooted Begonias, Lobelia cardinalis, Zinnias, Asters, Stocks, Phlox Drummondi, Pentstemons, &c., the whole being enclosed with a line of white and blue Lobelias, Golden Feather Pyrethrum, and variegated Mesembryanthemum. It need hardly be said that this arrangement was admitted to have been greatly in advance of those of previous years.

General Work.—Proceed as rapidly as possible with planting out of the hardier plants, the very tender species being placed outside to harden, affording them a slight shade from hot sunshine at first, this being as essential as protection from frost at night. Bring the propagation of Alternantheras to an end, and place Coleus and Iresine in cold frames. Plant out in showery weather, Stocks, Asters, Everlastings, and all kinds of annuals. If a plot of ground cannot be given up to the more useful flowers for cutting, as many groups as possible of these should be planted in the flower borders, Rose beds, and in front of shrubberies. Destroy weeds on herbaceous borders; stake Delphiniums, Pæonies, and any others which may need it. *W. Wildsmith, Heckfield, Winchfield.*

FRUITS UNDER GLASS.

THE FIG-HOUSES.—The fruit in the early house will now be on the point of ripening, therefore do not syringe the trees, but maintain a drier atmosphere with a free circulation of air. The Fig is a luxuriant grower and a moisture-loving plant, requiring plenty of manure-water. When trees are in full bearing in pots, the latter should be examined two or three times a day to ascertain if water is needed. The temperature may range from 60° to 65° at night, and 75° to 80° by day with abundance of ventilation. In the succession houses, the shoots will require to be stopped at the seventh leaf, or thereabouts; tie them in so that they do not touch the glass, and cut out the thin, weak wood, leaving room for the remaining shoots and foliage to develop freely. Give plenty of manure-water to the borders, inside, if these are not newly made, damping the houses, and syringing the trees in the morning and afternoon, and shutting up sufficiently early, that with sunheat the temperature will rise to 90°. A night temperature of 65° to 70° should be afforded, giving air early in the morning, when the warmth is about 75°.

Vineries.—Grapes which are ripe should have a cooler temperature than hitherto, with air, and with a little moisture on the paths, &c., on hot days. Those which are ripening may be afforded a night temperature of 65° to 70°, and a day temperature of 80°, running the latter up to 90° with sunheat, but ventilating at the same time—avoiding draughts. On mild days the front ventilators will require to be opened.

Succession Vines on which the berries are swelling should have the laterals pinched off, and the shoots properly tied in, avoiding in doing so overcrowding the same. Adhere to former directions about maintaining a growing atmosphere, and give air to the house early on the mornings of warm days, increasing it till the maximum is reached at mid-day, and closing the house when the sun has still power to maintain it for a time at 90° or 95°. Give the Muscats a temperature of 70° to 75° at night, with a corresponding increase by day. As a security against bad setting of the flowers, use the pollen of the Black Hamburgh to fertilise them when dry, and do not be in haste to thin the berries, or to reduce the number of the bunches, removing only small ones, and such berries as are very small, till they are fully set and have commenced to swell, and the stoneless berries can be distinguished. The mulching material on outside Vine borders may be reduced in bulk, and that which is left forked up, and left loose for a time, and when finally removed, a top-dressing of spent Mushroom dung, or other light material, may be applied to keep the soil from cracking. Young Vines should be encouraged to grow freely, and pot-Vines should be potted if not already done, employing mainly loam, and a little of Thomson's Vine Manure. After repotting shade them for a few days, growing them in a Vine-pit or other light structure. *W. Bennett, Rangemore, Burton-on-Trent.*

THE HARDY FRUIT GARDEN.

PROTECTION AND FRUIT TREES.—Where much protection may have been afforded to the Apricot, Peach, and Nectarine trees, the material, whatever it may be, may now be partially removed, but it will not be prudent to remove it altogether for at least a fortnight longer.

Insects.—Examine frequently the young foliage of trees likely to become infested with red-spider; as no matter however well the trees may have been dressed in winter this pest is liable to appear at an early date, and if it be not checked in the beginning by insecticides or daily syringing it will spread over the entire trees. This syringing is best done from 6 A.M. to 9 A.M. After there is no longer danger from frost, a slight syringing may be done also in the evening. Should blister or curl make its appearance, and it generally does so on ill-ripened wood and in cold, wet weather, pick off at once the affected parts and burn them. When the young shoots are affected greatly, their removal must be attended to, and the next best placed healthy shoots trained in to take their places.

Gooseberry bushes.—In case the Gooseberry caterpillar should appear, handpick the bushes or dust them over with white hellebore powder when the leaves are wet with dew or rain. These are the best remedies against this marauder. When making use of this powder do not forget to wash the berries before consuming them. Ply the Dutch hoe freely among the bushes in fine weather to keep down weeds, and to loosen the surface-soil. *H. Markham, Mereworth Castle, Kent.*

THE KITCHEN GARDEN.

CARDOON.—There are several varieties of this vegetable grown, but two are quite sufficient for cultivation in this country. The Cardoon of Tours is the one preferred in the Paris market, but it is so beset with spines that it requires a great amount of caution in working amongst them. The Spanish Cardoon is more accommodating in this way, and quite as good as the Tours variety. The plant likes a good dry bottom, and is most successfully grown on such; but it will also grow fairly well in any well-drained ground. The situation must be open, else the produce will not be satisfactory. I take out trenches, as for Celery, digging in a good quantity of rotten manure. The seeds may be sown about the beginning of May, on the place where they are to grow; but then the rows are apt to have gaps, and a more certain way is to sow two or three seeds in a 4-inch pot, placing them in a spent hotbed frame until they are fit to plant out, taking care to remove the light when the seeds have germinated. When the plants are placed in the open ground it should be at a distance of 18 inches in the rows, and when it can be discerned which is to be the strongest plant, the weaker ones must be removed. During dry weather the plants should have every attention with water, and the hoe must also be freely plied. By October the plants will have made sufficient growth to be fit for blanching. There are several methods of doing this. Some gather up the leaves and roll them round with hay bands, afterwards heaping the soil around the plants.

In wet localities, or during a wet spell, many of the plants perish under this system, and I find that they can be more safely blanched in the following way:—Remove any defective and small leaves from the plant, and whilst one man gathers up the leaves closely, another passes two strands of raffia round the plant; a sheet of brown paper is then wound round, and similarly fastened with ties at the top and bottom, and in the middle; over all is then placed some straight straw of a uniform thickness of 2 inches; this is fastened with three ties of tar twine. Should wet weather prevail, two boards should be fastened ridge-fashion over the tops to prevent the entrance of water into the hearts of the plants. For winter use the plants should be lifted from the trenches with a ball of earth, and placed in a dark cellar, packing them in an upright position with leaf-mould, sand, or cocoa-nut fibre refuse; they will be fit for use thus treated in about fourteen to twenty-one days.

Minor Matters regarding Crops.—Winter Onions, Shallots, and Garlic, will be benefited by slight dustings of guano during showery weather, afterwards loosening the surface with the hoe to prevent the escape of moisture. Any roots which may be standing in the seed lines may be thinned out to 6 inches, the thinnings being reserved for use. When the plants show signs of flowering, if the head be pinched out the bulb will continue to swell.

Ridge Cucumbers, Vegetable Marrows, and Gherkins.—A ridge may now be got ready for these, by throwing out the soil from a strip of about 4 feet wide, replacing the soil with warm fermenting manure and leaves, the depth of which may be from 2 feet to 3 feet. Trample these materials moderately firm, and cover over with the soil thrown out; and to give the ridge a dressed appearance make little mounds about 4 feet apart for the reception of the plants, which may be put out at once if handlights or *cloches* are available, and these may be covered with mats should a frost threaten. In default of plants, seeds may be planted on these ridges now—and covered with an inverted flower-pot till germination takes place. The watering, training, and regulating of plants in hot-beds will require constant attention, and let the water which is used be a few degrees warmer than he hot-bed, itself being careful not to sprinkle the foliage when the sun is shining directly on it. *W. M. Baillie, Luton Hoo, Beds.*

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, May 14 — Royal Horticultural Society: Fruit, Floral, and Scientific Committees.
Public Meeting of the Trade to consider Railway Rates, at "Hotel Windsor," Westminster, at half-past 3 o'clock.

SHOWS.

WEDNESDAY, May 15 — Royal Botanic Society.
Bath Floral *Fête*.

SALES.

MONDAY, May 13 — Collection of Orchids formed by the late J. T. Peacock, on the Premises, Sudbury House, Hammersmith, by Protheroe & Morris (five days).

WEDNESDAY, May 15 — Plants, Ferns, &c., at Protheroe & Morris' Rooms.
Established and Imported Orchids, at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—54°.3

Growth of Potatos.

THE Potato crop is of such great importance that anything pertaining to it is of interest. Anything, moreover, that can rouse us from the paralysis of routine and do something towards obviating the waste that is the consequence of our neglect and ignorance is worthy of attention. On this account we venture to call the attention of our readers to a very valuable contribution to cultural chemistry that has recently been issued by Dr. J. H. GILBERT, F.R.S., in the form of a lecture delivered at the Royal Agricultural College, Cirencester.

The lecture embraces the results of field experiments at Rothamsted on the growth of Potatos for twelve years in succession on the same land, with collateral investigations into the composition of the produce, made in the Rothamsted laboratory, together with some results by other investigators.

The Rothamsted experiment consists of ten plots; one has received no manure since the commencement, the others have received various artificial manures or farmyard manure. The variety of Potatos grown during the first four years was the Rock; subsequently the Champion was grown.

The following table gives a summary of the average produce of Potatos over the total period of twelve years, under each of the different conditions as to manuring.

Manures and Produce per Acre per Annum during Twelve Years—1876-1887.

	Good.		Small.		Diseased		Total.		Per cent. Diseased.
	Tons.	Cwt.	Tons.	Cwt.	Tons.	Cwt.	Tons.	Cwt.	Per cent.
Unmanured	1	13½	0	5	0	1½	1	19¼	3·15
Superphosphate ...	3	5	0	5⅜	0	2¼	3	13¾	3·66
Mixed mineral manure	3	7½	0	4⅜	0	2⅜	3	15½	3·45
Ammonium-salts alone	1	17¾	0	6¾	0	1⅞	2	5¾	4·06
Nitrate soda alone ...	2	4⅜	0	5½	0	2⅝	2	12½	4·93
Ammonium-salts and mixed minerals ...	5	18½	0	7½	0	8⅜	6	14½	6·26
Nitrate soda and mixed minerals ...	5	17⅜	0	6¾	0	9½	6	13	7·89

These results show that the average produce of tubers over twelve years without manure is scarcely two tons per acre, and it was found that there was a considerable decline from period to period under this exhausting treatment. Nevertheless this low yield without manure for twelve years in succession on the same land, is about as much as the average produce of Potatos under ordinary cultivation in the United States, and nearly two-thirds as much as in some important European countries.

By superphosphate of lime alone the produce is raised to nearly 3¾ tons; and by a mixed mineral manure containing, besides superphosphate, salts of potash, soda, and magnesia, to just over 3¾ tons, or very little more than by superphosphate alone. It is evident, therefore, that up to this amount of production, the character of the exhaustion induced by the growth of the crop on this land, which was, agriculturally speaking, in a somewhat exhausted condition, was much more that of available phosphoric acid than of potash, or the other bases.

In reference to this increase in weight by mineral manures alone, it may be observed that the result is quite consistent with that obtained with root-crops, having comparatively shallow root development; and in such cases the source of the nitrogen is chiefly the store of it in the surface soil.

It is remarkable that there is much less increase of produce of Potatos by nitrogenous manures alone than by minerals alone. Thus, with ammonium salt there is an average produce of scarcely 2 tons, 6 cwt., or only about 6 cwts. more than without manure; and with nitrate of soda alone there is an average of only 2 tons 12½ cwt. per acre. The better result by the nitrate is doubtless due to the nitrogenous supply being more immediately available, and more rapidly distributed within the soil, and so inducing a more extended development of feeding root.

These negative results by the nitrogenous manures alone confirm the conclusion that by the continuous growth of the crop on this land it was the available supply of mineral constituents within the root-range of the plant, more than that of nitrogen, that became deficient.

The last two lines of the table show, that with a combination of minerals and nitrogenous manures there was an average of nearly 6¾ tons per acre, which is higher than the estimated average produce of either division of the United Kingdom; and more than one and a half times as high as in Ireland in recent years. These results may be taken as fairly indicating the characteristic manurial requirements of the crop, and that both mineral and nitrogenous manures are required to give full crops.

The last column shows the average percentage of diseased tubers under each of the several conditions of manuring. It may be seen that, without manure and with purely mineral manures, the proportion of diseased tubers is much less than where nitrogenous manures were applied. Consequently, with luxuriance of growth and high produce, the disease is most prevalent.

A point of considerable interest was brought to view in the fact that there was, under every condition of manuring, a very much larger proportion of diseased tubers over the first four years, when the Rock was grown, than afterwards with the Champion. The very bad result over the first period was, however, doubtless in great measure due to the character of the climate also, which included some exceedingly wet and unfavourable seasons.

"PRODUCE WITHOUT MANURE, AND WITH FARMYARD MANURE."

The following table shows the average results (per acre per annum) for each of the farmyard manure plots, compared with that of the unmanured plot, over the whole period of twelve years, 1876—1887.

	Good.		Small.		Diseased		Total.		Per Cent. Diseased.
	Tons.	Cwt.	Tons.	Cwt.	Tons.	Cwt.	Tons.	Cwt.	Per Cent.
Unmanured ...	1	13½	0	5	0	1½	1	19¾	3·15
Farmyard manure, six years; unmanured, six years	3	12½	0	6½	0	3½	4	2¾	4·56
Farmyard manure and superphosphate, seven years; farmyard manure alone, five years... ...	4	7½	0	6¾	0	4⅞	4	18⅜	4·93
Farmyard manure, superphosphate, & nitrate of soda, six years; farmyard manure alone, six years*	4	15½	0	6½	0	9½	5	11¼	8·82

Comparing these results with those obtained by artificial manures alone, we find that farmyard manure, which, besides an abundance of mineral matters, and a large amount of organic substance rich in carbon, supplied annually about 200 lbs. of nitrogen—gave considerably less produce than an artificial mixture of minerals and ammonium salts or nitrate of soda, supplying only 86 lbs. of nitrogen per acre per annum. The fact being, that it is only the comparatively small proportion of the nitrogen of farmyard manure which is due to the liquid dejections of the animals that is in a readily and rapidly available condition, whilst that due to more or less digested matter passing in the solid matter, is more slowly available, and that in the litter remains a very long time inactive. Hence, the addition of nitrogen, as nitrate of soda, to the farmyard manure had a very marked effect.

It may be mentioned that, over the last six years, farmyard manure, together with the residue of previously applied farmyard manure, superphosphate, and nitrate of soda, only yielded an average of about 4 tons of tubers; and that farmyard manure and the residue of farmyard manure and superphosphate, only gave about 4¼ tons, whilst farmyard manure alone gave, over the first six years, 5¼ tons, is a clear indication that

* The superphosphate, but not the nitrate, was applied in the seventh year, 1882.



VIEW IN THE PLEASURE-GROUNDS, LUTON HOO PARK, BEDS.

the later seasons were somewhat less favourable for luxuriance with such manures.

The last column of the table shows, as before, that the proportion of diseased tubers was the greater, the greater the amount of nitrogen supplied, and the greater the luxuriance.

The next point of interest is the amount of some of the more important chemical constituents of the tubers stored up in the crop, under the influence of the different manures, and especially the increased amount for a given quantity of nitrogen supplied in manure.

The average amount of nitrogen annually stored up in the tubers grown without manure was, notwithstanding the amount supplied in the seed, only 14·9 lb., or less than would be yielded in Wheat or Barley under the same conditions.

On the other hand, the direct application of 86 lb. of nitrogen per acre per annum, in the form of ammonium salts alone, only raised the amount taken up to 19·7 lb., and when supplied as nitrate of soda alone, to only 23 lb. The incapacity of the plant to avail itself of the supplied nitrogen in the absence of a sufficient available supply of mineral constituents, is thus strikingly illustrated.

With the same applications of nitrogen, but in conjunction with the mixed mineral manure, the amount of nitrogen stored up in the tubers is raised from 20 lb. to about 50 lb.

It is remarkable that, by the use of superphosphate alone, 30 lb. more potash are taken up per acre than without manure, and that only 3 lb. more are taken up under the influence of minerals alone, which, besides superphosphate, supplied annually nearly 150 lb. of potash. It is well known that one special effect of superphosphate applied to spring sown crops, is greatly to increase the development of feeding-root within the surface soil; and thus it would seem that under its influence, probably on both soil and plant, the Potato has been enabled to obtain a large amount of potash from the stores of the surface soil.

It is, however, when the mineral and nitrogenous manures were applied together, that the greatest amount of potash is taken up. Indeed, under the influence of this combination, nearly one-half of the 150 lb. of potash annually supplied is recovered in the increased produce.

But little is definitely known of the special function of individual mineral constituents in vegetation. It is, however, pretty clearly established that the presence of potash is essential for the formation of the chief non-nitrogenous matters—starch and sugar; and here in the Potato we find a greatly increased amount of potash in the heaviest crops, that is to say in those in which the largest amounts of starch have been formed.

In regard to the application of farm-yard manure for the Potato crop, the results seem to indicate that this plant is able to avail itself of a less proportion of the nitrogen of manure than any other farm crop. Yet, in ordinary practice, farmyard manure is not only largely relied upon for Potatos, but is often applied in larger quantity for them than for any other crop.

It is probable that, independently of its liberal supply of all necessary constituents, its beneficial effects are in a considerable degree due to its influence on the mechanical condition of the soil, rendering it more porous and easily permeable to the surface roots, upon the development of which the success of the crop so much depends. Then, again, something may be due to an increased temperature of the surface soil, engendered by the decomposition of so large an amount of organic matter within it; whilst the carbonic acid evolved in the decomposition will, with the aid of moisture, serve to render the mineral resources of the soil more soluble.

The Potato is, indeed, largely a kitchen and market garden crop, as well as a farm crop; and for the production of garden vegetables generally very much larger quantities of farm or stable manure are applied, beyond what is required as a mere supply of constituents to the crops, the process being to a great extent one of forcing, and a necessary result is a great accumulation of unexhausted residue within the soil.

The Gardeners' Orphan Fund. — The Wholesale Flower Market in Covent Garden, in which the *fête* for the benefit of this fund will be held on Wednesday, May 22, from 8—12 P.M., is perfectly distinct from the well-known "Central Avenue," and may be fairly described as the greatest plant and flower emporium in the world. Though in the centre of the metropolis, it is practically unknown, except to the skilled cultivators, who furnish it so richly every morning, and the busy workers who distribute its floral treasures to adorn the mansions of the rich and brighten the homes of the poor in the chief cities and towns of the kingdom. It is the headquarters of domestic floriculture, and represents the magnitude of an industry on which thousands depend for subsistence, and by which tens of thousands derive pleasure of the most delightful kind. There, arranged on nearly 400 stands, are all the plants and flowers in season, each bearing the stamp of the highest culture, and the whole arranged in the most effective manner for appealing to the tastes of those who inspect them. On every morning at this season the display is such as cannot be seen elsewhere, either in private gardens or at public exhibitions; but on the evening of the Floral *Fête* it will excel, both in magnitude and diversified splendour, for the expert growers will put forth their full strength for the occasion. The extent that this unique floral spectacle will occupy is an area of nearly three-quarters of an acre; and it will have a frontage of flowers, tier above tier, extending over a length of 700 yards, with 1000 square yards of promenade between the floral avenues, for visitors. In the ordinary routine of this great floral industry, the stands are furnished at night, and the market is open to the public at 4 o'clock in the morning, and closed at 9 o'clock. It is only by special privilege, kindly accorded in the cause of charity, aided by the willing efforts of the numerous cultivators, in completing their arrangements some hours earlier than usual, that the public is enabled to enjoy the extraordinary array of plants, as they are temptingly disposed in readiness for purchasers who often clamour for their acquisition before the dawn of day.

"What choice to choose for delicacy best:

. . . . .

Taste after taste upheld with kindliest change."

—Milton.

Tickets, which are limited to 2000, may be obtained for five shillings each of the Hon. Secretary, A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, W.

Skimmias.—In a recent number of the *Gardeners' Chronicle* we had occasion to mention, as a result of investigations *ad hoc*, that the plant usually grown in gardens as Skimmia japonica, and which is, indeed, so figured and described, was really of Chinese origin, and markedly different from the true Japonica. The Chinese plant has perfect flowers, and sets its berries freely. The Japanese plant, better known as oblata, has pollen-flowers on one plant, germ-flowers on another, and if only one of the two conditions is present of course no berries are formed, a state of things which, in the eyes of gardeners, gives the matter in question something more than botanical interest. We ventured, therefore, to call the plant introduced from Chinese gardens by Fortune, S. Fortunei, and we have now the opportunity of announcing that among the rich collections just received at Kew, from Ichang, in Central China, are, as kindly pointed out by Professor Oliver, specimens of the wild Skimmia Fortunei, collected by Dr. Henry, thus affording an interesting confirmation of our opinion as to the history of the plant.

Die Natürlichen Pflanzen Familieen.—This work on the natural families of plants conducted by Drs. Engler and Prantl proceeds with exemplary regularity. An astonishing amount of information is comprised within a small compass, thanks to a small but clear typography and a system of abbreviations intelligible enough to a German but somewhat embarrassing for a foreigner. The illustrations are numerous and well chosen, the information comprehensive, well arranged, and brought down to date. We have but one fault to find with the book, and that is, that it is written in German! a circumstance that our Teuton friends would justly consider no drawback. But whatever the nationality, it is a book which must find its way into botanical libraries all over the world. The last published numbers comprise the history of the Loranths, the Mesembryanths, and several other orders.

Royal National Tulip Society. — The annual exhibition of this Society will take place in connection with the Whitsun show of the Manchester Horticultural and Botanical Society, at the gardens of the latter, on June 7 and 8, the Tulips remaining until the evening of the second day.

National Co-operative Festival. — We hear that this gathering of working-men co-operators, which created so much interest last year, is to be repeated. It will be held at the Crystal Palace on Saturday, August 17. Edward Vansittart Neale, George Jacob Holyoake, and Edward Owen Greening, three well-known leaders of the co-operative movement, are the chief executive officers for the year, and William Broomhall is the general secretary. The flower show to be organised by the Agricultural and Horticultural Association has a prize-list already of £300, for vegetables, flowers, and fruit. The exhibition of manufactures from co-operative productive workshops, will be under the auspices of the Labour Association, which is doing good work in the propagation of the principle of the right of workers to share in the profits of their labour. The number of performers in the great concert will be increased to 5000, and a new selection of pieces will be sung, together with the ode specially written for the occasion by Lewis Morris. The Home Industries Exhibition, the athletic sports, and the public meetings are being arranged for, and it is anticipated that a very large number of people will be present. Industrial Co-operative Societies in all parts of the country are subscribing the necessary funds, and many well-known public men are taking an interest in its success.

Good Old Man.—Sensitive reader, be not alarmed, this appellation has no political significance, although the initials correspond to the famous "G. O. M." of political life. Our Good Old Man is rather a favourite amongst the plant hawkers, and may be found by the hundred on costermongers' barrows in certain metropolitan localities on Saturday nights, selling at the very democratic price of one penny each. In other parts of the kingdom it enjoys the singularly diverse appellation of "Boys' Love," but in gardens is best known as Southernwood, and really is Artemisia abrotanum, or a species of Wormwood. Now, why this particular plant should be so popular amongst the poor, but especially amongst town dwellers, it is difficult to say, but possibly it is a good town plant. In any case, it is evergreen, and is pleasantly scented, always a good recommendation with people whose lives furnish too little of the charms of existence. Just now the growers of good Old Man are busily engaged in potting out into finely pulverised soil innumerable cuttings. Some are of hard wood, some of the young wood of the later growth; but

howsoever made, all seem to freely strike in the open during the summer, and in the autumn the young plants will be lifted and replanted into fresh soil and have more room given them. Fairly good plants sell at about 6*d.* per dozen, lesser ones so low as 3*d.* per dozen; all depends upon the quality. From these prices the dealer hopes to make a profit of from 50 to 100 per cent., but his risks are considerable, and he has to sacrifice a day to fetch his wares from those outer districts where the root trade nurseries lie.

Royal Horticultural Society. The Gardens at Chiswick are now open on Sunday afternoons to Fellows and their friends. Last Sunday was the first occasion, and only a few Fellows availed themselves of the privilege; but no doubt the threatening aspect of the weather deterred some from visiting the gardens. As it was there was a very heavy though short fall of rain. The gardens will be open on Sundays after 1 o'clock throughout the summer.

Tuberous Begonias.—M. Henri Duchartre has made a study of the tuberous Begonia with reference to its anatomical construction, and the development of its vegetative organs. In the introduction he refers to the species from whose intercrossing the tuberous Begonias have sprung, and which constitute a separate section of the large genus Begonia, called in honour of the well-known hybridist of Nancy, Lemoinea. The tuber, the only persistent part of the plant, results in these plants from the caulicle or portion of the seedling plant between the two seed leaves and the radicles. The annual growth of the tuber is the result of the active growth of a layer of cells which develop into vessels on the inside and into growing points, from which proceed annual stems and roots. Into the numerous anatomical details studied by M. Duchartre we cannot enter. We may, however, say that while in B. octopetala and B. boliviensis there is no special water-bearing tissue in the other species, there are water-pores on one surface, and in B. Veitchii on both surfaces of the leaf. The disarticulation of the leaves results from variations in the amount of turgescence in the various tissues.

Jerusalem Artichokes from Seed.—M. Joseph Michon, in the *Comptes Rendus de l'Académie des Sciences* (April 23, 1889) reports some successful attempts to produce this plant from seed. Jerusalem Artichokes (which are usually propagated from tubers) were planted in Corsica, and, though even there they were not very fertile, two or three seeds were ripened. These seeds were planted in sandy soil, and it is said that the plants produced were more vigorous and abundant than those propagated by tubers, and that there was also much variety, three distinct varieties being noticeable. If it once becomes the custom to grow Jerusalem Artichokes from seed, either in sub-tropical climates or under artificial heat, as we have often advocated in these columns, we may hope to obtain not only new but improved varieties of this useful but hitherto rather coarse vegetable. The French experimenter above referred to has an eye to the quantity of alcohol that may be produced from them, so that now that the Phylloxera has annihilated the brandy producing Vines, we may have Esprit de Topinambour replacing old Cognac!

Church Decoration.—On Sunday last, at the church of the English Martyrs, Streatham, on the anniversary of the day of its opening, the altar was decorated with some 750 spikes of cut blooms, conspicuous among them being some grand Dendrobiums, such as D. thyrsiflorum, fine varieties of D. nobile, cut with the pseudobulbs; Odontoglossums, Angræcums, Cymbidiums, Oncidiums, Cattleyas, &c.; while, in the space under and about the altar, were grouped plants of Cattleyas, Odontoglossums, &c., in flower, the whole forming a spectacle of extreme beauty. By way of contrast the side altars were decorated with White Arum, Lilium Harrisii, Lily of the Valley, Heliotrope, &c., with Ivy for the foliage. It is not everywhere that such a display could be made, but the collection of Mr. R. H. Measures is so rich, that a few of the distinguished visitors who inspected the houses after the service, were delighted with the wealth of beautiful Orchids in bloom still in their place, notwithstanding the draw made on the flowering plants. The Odontoglossum citrosmum and Cattleya Lawrenceana varieties were especially numerous and fine.

Bilbergia maxima. — This lovely Brazilian Bromeliad is, we hear from M. A. de la Devansaye, of Fresne (Maine-et-Loire), now flowering in his collection. It is the first time the plant has flowered in Europe. It bears three pendulous flower-spikes, each measuring about 75 centimetres in length. The flowers, in their shades of red, white, and blue, represent the national tricolour, but will, it is feared, be faded before the first horticultural show of the Paris Exhibition. M. de la Devansaye, however, proposes later on to show some of his remarkable seedling Anthuriums, by means of which the horticulture of Angers will be worthily represented.

Stock-taking: April.—The annexed figures are extracted from the "summary" of imports from foreign countries and British possessions during the month of April:—

	1888.	1889.	Difference.
	£.	£.	£.
Total value of imports	32,098,693	37,225,549	+5,126,856
§II.—(A.) Articles of food and drink—duty free	9,470,948	11,847,368	+2,376,420
(B.) — do., dutiable	1,708,940	2,098,907	+389,967
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	8,372,166	9,384,656	+1,012,490
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	2,325,282	2,887,633	+562,351
§IX. — Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,051,121	1,006,114	—45,007

The "returns," as a whole, occupy some 136 pages, but only the following extracts are of interest to the general body of our readers:—

	1888.	1889.	Difference
§ II. Fruit:—			
Apples, raw ... ... bush.	69,186	272,258	+203,072
Unenumerated, raw ... ,,	6,130	9,854	+3,724
Onions ... ... ,,	297,559	235,929	—61,630
Potatos ... ... cwt.	156,120	79,728	—76,392
Vegetables, raw, unenumerated ... ... Value	£62,090	£45,918	—£16,172

As the reader is doubtless very well aware, a "vegetable product" of some importance has occupied a great deal of attention during the past month, and many people have an idea that that product is very scarce. The "returns" note an increase in the imports of unrefined sugar amounting to 234,831 cwt. over the same period last year—£480,568 being the recorded increase of value!

Easy Mode of Preserving Succulent Botanic Specimens.—At places closed to traffic writes Baron Sir Ferdinand V. Mueller, many kinds of botanic specimens, not readily admitting of the ordinary pressing and drying process between paper, might be preserved by plunging them into drums containing methylised alcohol. Thus succulent flowers and fruits could be secured in the best possible state for scientific purposes, but each kind of flower or of fruit should be on its leafy branchlet, and each specimen should be tied separately into a piece of calico. This mode of collecting is expeditious and cheap, but can, of course, not be employed in pedestrian journeys. If, however, the collectors will bring the succulent specimens in a basket to the harbour or settlement, such material is likely to remain unimpaired after even some days' carriage in a basket, and may be then transferred to the vessel containing the alcoholic preserving fluid. Iron drums, such as are used for the mercantile conveyance of petroleum, can be cheaply so altered as to obtain a wide lid fixed with screws for perfect closing.

Publications Received.—*Note sur les Importations et les Exportations de produits horticoles, de* 1886 *à* 1888.—*Journal of the Agricultural and Horticultural Society of India.* Part iii., vol. viii. New Series.—*Report of the State Experiment Station*, Baton Rouge, Louisiana, U.S.A. — *The Western New York Horticultural Society's Proceedings.—Report by the Director of Public Gardens, &c., on the Cayman Islands* (Jamaica: Government Printing Office, 79, Duke Street, Kingston.) — *The Country Gentleman's Reference Catalogue to Books.* (Taunton: Barnicott & Son, 44, Fore Street).

LUTON HOO.

[See Supplementary Sheet.]

The gardens and manor of Luton Hoo have been noticed several times in these pages in recent years, and we will here repeat some portion of a notice about them which appeared in June, 1885, from the pen of Mr. H. Evershed: "This extensive demesne takes high place among the 'ancestral homes of England.' For many years past it was the residence of Mrs. Gerard Leigh, now by reason of her marriage with his Excellency the Danish Minister, Madame de Falbe. The manor of Hoo is very ancient, and was possessed by the family of that name long before the Norman Conquest, mention being made of the fact in records so far back as the time of King Canute.

"The estate seems to have remained in the possession of this family for many years after, although the residents took an active part in the stirring events of the period. After various vicissitudes, it came into the hands of John, Earl of Bute, about 1760, who gave £111,000 for the house and grounds. In 1844 it was sold by the Earl of Bute to Mr. Ward, who immediately resold it to Mr. John Shaw Leigh, the father of Mrs. Gerard Leigh's late husband.

"The park contained about 300 acres when Lord Napier was the owner, in the reign of James I. It was enlarged to 1200 acres by Earl of Bute; and the succeeding Marquis of that ilk added 300 more acres." The house, seen through the trees, stands high and has an imposing appearance from the front, looking over a great extent of smooth untimbered park land, which is separated from a lawn of many acres by a "ha ha."

Mr. Baillie, the present gardener at Luton Hoo, sends the following particulars concerning the view shown in the Supplement:—

"The view in the garden was taken on the north side, and very fairly illustrates the important part which trees of decided character produce when judiciously planted. In associating trees with buildings, care must be taken not to plant such as are tall growers in too close a proximity to the building, else the structure will have the appearance of being dwarfed, and the building be placed in imminent danger from falling trees.

"Elms and the taller species of Conifers should be kept at a distance from the walls of from 80 feet to 90 feet at the least. On the other hand, if the subjects chosen be of dwarf growth the building remains unrelieved; the planting should therefore be carried out in such a way as will allow of the more striking features of the building being visible from the best vantage points, whilst the important object—shelter—is as far as possible secured. When planting for effect much diversity of form and colour are desirable points to

bear in mind, and, if possible, a background of evergreens should be made to set off the darker and varied hues of the Conifer.

In the view the Cedar of Lebanon, a tree which is unsurpassed, plays an important part. On the right a background of Laurels helps to dissipate the gloom of the Austrian Pine; while on a bank of verdant turf such striking subjects as Thuiopsis borealis, Libocedrus decurrens, Junipers, Gold and Silver and Green Hollies are conspicuous; Biotas, Buxus, and Taxus in variety, add beauty of form and colour to the composition. Cypresses of many handsome species and varieties are met with either grouped or isolated, of which mention may be made of Lawsoniana, macrocarpa, and Lambertiana.

THE PHILOSOPHY OF THE AURICULA.

When I read this heading to the paper at p. 562, I expected to find something of a hypothesis or system by which certain natural effects were explained; but after reading it carefully I thought of *Hamlet's* reply, when asked what he read, "Words! words! words!" Mr. Horner's paper was written for a definite purpose, and any Auricula grower who will peruse it, will have a better knowledge of the Auricula and be better able to cultivate his plants. The corolla of the Auricula has long been designated a "pip," and florists so term it by virtue of custom. As to the position of the stigma and anthers in the flowers of the Primulacea, I cannot imagine the use of the reference, not for the first time in these pages, "of Darwin's discovery that there are two or more variations with regard to the position of the sexual organ." This is so, but it was known to the Lancashire florists before Darwin was born. All the variations have long been well known, and more than a century ago the thrum eye (that is the anthers filling up the tube or nearly so, and the stigma well down in the tube out of sight), was chosen as the prettiest form of the sexual arrangement, and a long line of intelligent cultivators have confirmed this. The evil effects of breeding "in and in," as it is termed, is also well known to Auricula growers, as it is to most cultivators of garden varieties of popular plants. We try to avoid doing it; but a man must use his own judgment, whether he will reject the highest class varieties, even if they are too near akin, in order that fresh blood may be infused from an inferior form. But in truth the danger is more apparent than real, and unless seedlings from the same parents are crossed again and again, the progeny suffer nothing, at least in constitutional vigour. "E. B." asks, "has the limit of variation been reached? and what is that limit?" This seems to be rather a futile question to ask by one who has undertaken to write of the philosophy of the Auricula. There is no limit, and no one presumes to define a limit. Campbell, in an eloquent passage in the *Pleasures of Hope*, says of those who would limit the power of the mind:—

> "Ye that expanding truth invidious view,
> And think, or wish, the song of Hope untrue.
> Perhaps your little hands presume to span
> The march of Genius, and the powers of man;
> . . . . . .
> Tyrants! in vain ye trace the wizard ring;
> In vain ye limit Mind's unwearied spring."

So it is with our Auriculas. The florist does not care to grow the variations that arise, or he has not room for them. There are some, however, who have attempted to save these variations. I have done so, and "E. B." could have seen a selection of a dozen varieties exhibited by me under the name of "fancies," to which a 1st prize was awarded. They had all been saved from grey, green, or white edged forms. I keep all the novel forms I raise regardless of the florist's "dogmas," but few people will look at them after seeing the orthodox varieties. May I ask who says "the Auricula is anything but a strong plant?" As a matter of fact the variety Rev. F. D. Horner (Simonite) is much more vigorous than any known wild form, and to most of the best varieties of green, grey, white and self-edged the same remark applies; but still they vary in degree of constitutional vigour just as do the wild forms. One of the smallest growing varieties is Conservative (Douglas), but it has its counterpart in a pretty Swiss form, Primula auricula var. marginata. I have them both, and can therefore compare them. They are much alike in constitution. I may say the effect of crossing has not been to make the Auricula a less hardy and vigorous plant, and besides Rev. F. D. Horner I give the following names of some varieties, which possess even more vigour than any wild forms, viz., Mrs. Moore (Douglas), Silvia (Douglas), Colonel Champneys (Turner), Heroine (Horner), Sapphire (Horner), Frank (Simonite), Lord Lorne (Campbell), Monarch (Horner), Robert Traill (Lightbody). All these and others not named are more vigorous than any true species of Primulas of the European Alps. "E. B." says: "Auricula fanciers may tell you that if they kept heretical variations, and did not exterminate them, they would spoil the others. How can this be? Selected varieties are propagated by offsets, &c.?" Just so. When a plant has once been raised, its character cannot be altered by being placed in juxta-position to bad company. But place bad forms amongst good ones, and save the seeds from the good forms, and it will be found that the "heretical variations" have by their pollen upset the work of a lifetime. "E. B." wishes some one would take up the Auricula, and create heresy after heresy, &c.; so far so good, but the florists will not do it; they have shaped out their own course, and intend to travel on their own lines. Some one else should go in for heresies, the field is wide; there are the Auriculas wild and cultivated, they are free to "E. B." and others to manipulate them to their heart's content; but let the fancier go on in his own way, whatever it may be. *J. Douglas.*

IRISH NOTES.

PHŒNIX PARK, DUBLIN.

This fine park looked very well at the time of my visit (March 16). The Crocus in large masses of distinct colour are pleasing; indeed, the effect at a distance was enchanting, and Tulips and Narcissi looked as if they would also make a bold show. The water-course seems to have been taken in hand lately; and, so far as it was completed, it appeared to be well done. It is quite in keeping with the surroundings, and in summer it should be most inviting. Shrubs of all kinds looked bright and fresh, and the park as a whole reflected credit on its manager.

Botanic Gardens, Glasnevin.

I saw much here in a short space of time that was instructive. The cool, lean-to fernery, with its Todeas, but, above all, the Killarney Fern on the back wall looked grandly, in spite of thousands of fronds not being fully expanded, but the beauty of them in a couple of months could be easily imagined. I have seen many attempts to grow this Fern, and mostly poor ones; the treatment it gets at Glasnevin suits it admirably. In the stove fernery the pillars were masses of growing Ferns, not short or puny, but most luxuriant; this is an arrangement which is graceful. I noticed this covering of the back walls of houses, which is characteristic of the place, and I would add my own opinion that no bare wall should be visible in plant-houses. All that is wanted are wire-netting, turfy loam, moss, and some amount of taste for such work. That beautiful stove plant, Solandra grandiflora, was trained up some of the pillars, and was laden with massive Brugmansia-like flowers; it was superb; no plant that I am acquainted with could approach it in the pale yellow tint of its flowers, their profusion, and the fine foliage. It is a splendid plant, and should be in every collection.

Amongst the Orchids were observed good examples of Cymbidium, Phaius, and Dendrobium, in flower. We know from past notices in the *Gardeners' Chronicle* that Glasnevin is the recognised home of Disa grandiflora, and these plants looked the picture of health, being strong and robust. A rapid glance at the contents of the other houses, and then we are outside amongst a bewildering forest of labels. Everything is neat and regular as befits the place. Some small beds of Babianas looked charming, and we observed that best of hardy Hardy Heaths, Erica herbacea, was extensively planted; the tasselled Papyrus-grass looked well standing out in the borders: it is a grass of graceful appearance.

Coniferæ and flowering shrubs looked well, showing very little traces of the evil effects of east winds. It occurs to me that some of the many able correspondents of the *Gardeners' Chronicle* who reside near public gardens should record their observations therein a little oftener, for such gardens are, or should be, the pioneers of horticulture, presided over, as they are, by men of talent and learning. *H. R. H.*

THE CHINESE AND JAPANESE SPECIES OF BUDDLEIA.

The more we learn of the vegetation of China the more we must be inclined to admit the justness of the appellation "Flowery Land." What richness and beauty the shrubby and arboreous vegetation exhibited before the teeming population swept the greater part of it away may be imagined from the remnants met with here and there in the mountainous regions of the centre and the west. Nowhere, probably, in the north temperate regions is there so great a variety in the woody element of the flora, and if the flowers do not equal in brilliancy of colouring those of many Australian trees and shrubs they often surpass them in grace and elegance. This does not apply in any special degree to the Chinese species of Buddleia, yet of this genus there is a much greater variety than was anticipated. Most southern and western readers at least of the *Gardeners' Chronicle* will be familiar with the handsome Chilian Buddleia globosa, whose orange-coloured balls of flowers are unique in their way. This species was introduced into English gardens by Messrs. Kennedy & Lee upwards of a hundred years ago, but in consequence of its susceptibility to very severe frosts it does not occupy the prominent position in our gardens it otherwise would. Several other species have been imported from time to time, but, with the exception of the Chinese B. Lindleyana, *Botanical Register*, 1846, plate 4), and a Japanese species cultivated and figured (*Illustration Horticole*, 1870, p. 133, plate 25), under the erroneous name of B. curviflora, they were little known outside botanic gardens. Concerning the hardiness of these two species I can say nothing from personal observation, and there is very little on record, and that little points to their being hardy only in the milder parts of the kingdom.

In working out the material for Forbes and Hemsley's *Index Floræ Sinensis*, I found several new forms, and it also became apparent that the Buddleia curviflora of gardens is quite different from the Loochoo plant, on which the original B. curviflora was founded by Hooker and Arnott; but before giving a synopsis of the Chinese species, a few words on the genus as a whole.

Buddleia comprises about seventy species, between fifty and sixty of which inhabit America, ranging from Texas, New Mexico, and California to Chili and Buenos Ayres. Three or four, or perhaps more, are at home in South Africa, Madagascar, and the Mascarene Island; four are native of India, and eight or nine of China and Japan. The total absence of the genus from all parts except the southern territories of North America is remarkable. Throughout its whole area this genus presents such uniformity in structure that it has been designated one of the most sharply defined genera in the vegetable kingdom. Indeed, it is so distinct that it is not so easy to determine its closest relationship to other genera, and therefore there are different opinions as to its

exact place in the natural system. B. Colvillei, a native of Sikkim at elevations of 9000—12,000 feet, is the most anomalous in appearance, and at the same time the most showy member of the genus, having, large, crimson flowers in loose panicles. There is a fine portrait of it in Hooker's *Illustrations of Himalayan Plants*, (pl. 18), reproduced in a modified form in the *Illustration Horticole* (1857, pl. 127), and the eminent author expresses the opinion that it would prove hardy in this country. Whether it ever has been introduced alive into this country I have not been able to ascertain, yet, if hardy and manageable under cultivation, nothing could be more desirable. The flowers are similar in size, shape, and colour to those of Rhododendron malayanum.

The species at present known from the China-Japanese region are the following:—

1. *Buddleia japonica*, Hemsley, syn. B. curviflora, André (*Illust. Hort.*, 1870, pl. 25), and of others, but not of Hooker and Arnott. This differs conspicuously from the typical B. curviflora in the four-winged branches, relatively larger calyx, and shorter, less slender corolla. So far as our material goes, this appears to be peculiar to Japan, and is the only species common there. Indeed it is the only one enumerated as Japanese by Franchet and Savatier, Maximowicz, and other botanists, but Maries collected specimens of B. Lindleyana on Mount Fudsiyama. There are several seminal varieties in cultivation, stated to be the issue of B. japonica, among them B. carnea (*Revue Horticole*, 1879, p. 90, with a coloured plate), which is represented with lilac rather than flesh-coloured flowers.

2. *B. Lindleyana*, Fortune (*Bot. Reg.*, 1846 pl. 4). — This was one of the first plants found by Mr. Fortune at Chusan, and he was so struck with its beauty that he desired it should bear Lindley's name, if new. He posted seeds at Chusan on November 13, 1843, and it is mentioned as a striking illustration of the rapid communication with the East, that they were growing in the garden of the Horticultural Society on March 4, 1844. The violet-purple velvety flowers of this species are very beautiful. There is an elegant variety with lobed leaves in Dr. A. Henry's rich collections.

3. *B. asiatica*, Loureiro (*Bot. Mag.*, pl. 6323).—This is an elegant white-flowered, fragrant species, spread over nearly the whole area of the genus in Asia, yet it does not appear to have been cultivated in the United Kingdom long anterior to 1874. The individal flowers are quite small, but as they are arranged in drooping clusters of long dense spikes they are very effective.

4. *B. officinalis*, Maximowicz.—There is no figure of this, but I had no difficulty in determining copious specimens collected by D. A. Henry as the plant described. Like B. madagascariensis (*Botanical Magazine*, pl. 2824) it is covered with a velvety tomentum, but it has dull-purplish flowers.

5. *B. alternifolia*, Maximowicz.—A species I have not seen, described as having alternate leaves, and flowers that are naked, not bearded, within. It is also singular in having very slender branches. I have seen a cultivated specimen of B. madagascariensis with distinctly alternate leaves.

6. *B. curviflora*, Hooker and Arnott.—There is one good specimen of this in the Kew Herbarium, differing from B. japonica in the characters pointed out above.

7. *B. alhiflora*, Hemsley, n. sp. in *Journ. Linn. Soc.*, xxvi., 118.—An arboreous species, 20—30 feet high, with large rather thin distinctly petiolate coarsely toothed leaves, glabrous above, and white or yellowish beneath, with a very short tomentum. Flowers small, white, borne in long narrow terminal panicles. This was collected by Dr. A. Henry in the Patung district, Hupeh, Central China. Only the flowering state is known.

B. variabilis, Hemsley, n. sp. in *Journ. Linn. Soc.*, xxvi., 120.—This is remarkable for the great diversity in the size, indumentum, and shape of the leaves; the extreme forms being so different that in the absence of connecting links they would certainly be regarded as distinct species. Dr. Henry describes the flowers of this shrubby species as pink outside and orange inside, and they are half an inch long, and borne in long narrow terminal panicles. From the same region as the last, and also from the more westerly province, Szechuen, collected by the Rev. E. Faber. Apparently good seed of this species was sent, so we may look forward to seeing it in a living state. *W. Botting Hemsley.*

THE AMANCÆS.

This plant appears to have many synonyms—Narcissus Amancæs, of Ruiz and Paron; Pancratium Amancæs, also Ismene Amancæs; but recent authorities have included the plant under Hymenocallis—as H. Amancæs, sub-genus Ismene. Whatever the name, it is surprising that it is not oftener met with in cultivation, especially as it possesses all the attributes of a good garden plant. In speaking of it as a Daffodil [which we hope no one else will do], it may be observed that neither in flower or habit is it like a Daffodil—the all important mark of a Daffodil, the corona, being wanting, although at first sight the very large staminal cup (as also seen in Eucharis and Pancratium), might be mistaken for the trumpet; but the point of insertion of the stamens readily marks the distinction. The leaves are not unlike some of the smaller Crinums, the flowers are produced on a leafless scape as in that genus; the maximum number of flowers to a scape is said to be six—which, as the flowers open in succession, would extend the flowering period to about one month, that is if due attention be given to shading them from bright sunshine.

Our plant, which is only a small bulb, had three flowers last year and four this year, and in each year lasted about three weeks in perfection. The flowers are bright clear yellow, almost sessile; the perianth tube is nearly green, curved, and about 3 inches long, the yellow lanceolate spreading segments being about 2½ inches in length; the funnel-shaped cup exceeds the level of the spreading segments, and is about as broad at the mouth as the segments are long, and it is the part of the flower which is of the deepest colour. The feature of the flower is its fragrance, which may be detected at some distance; and we are told, in *Stewart's Visit to the South Seas*, that the native Peruvians hold an annual festival of the Amancæs, proceeding to the plains at the foot of the mountain where it grows. The cultivation of the plant is simple—ordinary greenhouse treatment suiting it. It is deciduous, and requires complete rest in the winter, and repotting, when required, in ordinary loamy compost when at rest. It is said to be hardy, but of this I am doubtful. *F. R.*

NURSERY NOTES.

MESSRS. PAUL & SONS, OLD NURSERIES, CHESHUNT.

May-day is late in the year to see the Amaryllis at its best, but Mr. Paul had some fine seedlings in bloom, and my own are not yet over. Messrs. Paul have a fine lot of plants in their nursery at Cheshunt, and have now produced some distinct and handsome forms by crossing some three or four years ago. The fine dark variety, Dr. Masters, raised by Mr. B. S. Williams, has been the parent of some fine varieties; but the best I have yet seen has just flowered with Messrs. Paul; it has four flowers on one scape, the flowers of fine form, and of a rich scarlet-crimson colour. It has been named Mrs. Masters.

The pardina section contains many fine varieties also. This type is readily distinguished by the flowers being spotted more or less, by the broad massive character of the petals, and the short tube. There are a few very good varieties of it now in flower. The best of them had a scape of three broadly opened flowers of a good reddish colour, and freely spotted; it is named Euterpe. In another direction large size has been developed, and when this is combined with good form and stout substance of the petals, the results are very satisfactory. Mastodon is the best of this type; it has large handsome flowers about 8 inches in diameter, of a clear scarlet colour, with a greenish star in the centre. One other, yet unnamed, had six flowers on a spike of this large size, the flowers rose and white.

Sea Nymph is a very pretty variety, rose colour, with white bars in the petals. Messrs. Paul are progressing to the development of a good white variety; one was almost entirely white, and of good size and form, and appears also to be of a vigorous constitution; but this has, of course, to be proved by time. Indeed, it is noticeable that the white forms have very weak constitutions, although some light-coloured varieties, such as Enchantress (Veitch), and some others are more vigorous than many of the darker forms.

It is only fair to add, that the whole collection of plants in the Cheshunt Nurseries is very strong and healthy, as indeed the plants from here exhibited at the London shows have abundantly proved.

I noticed amongst the general collection a plant of A. Raynerii, but was informed that it had not yet flowered. It is the supposed blue Amaryllis, and is a native of Brazil. The bulbs were sent to England by Mr. Williams, residing at Bahia, some years ago, and the plant was flowered for the first time, I believe, in England, by Dr. Rayner, of Uxbridge, in November, 1870. It has large, broad, and sickle-shaped buff-edged leaves. The flowers are also large, of a pale purplish colour, white at the tips, with broad creamy bands down the centres of the segments of the petals. It is quite distinct in growth, and may lead to a revolution in the character of the winter-flowering varieties if it can be flowered and crossed with those already under cultivation. This plant is figured in the *Botanical Magazine*, t. 5883. *J. Douglas.* [The plant in question came from Rio, and is identical with Duchartre's Hippeastrum procerum. Ed.]

Hardy Primroses and Polyanthuses.

In the Bedfont Seed Grounds, near Feltham, Mr. Dean has a surprising wealth of flowers just now, although somewhat late in the season. Fine three-year old clumps are bearing strong flowers in profusion, and the Polyanthus section, which is very strong in shades of yellow, were equally fine. When seen close at hand, the deep crimson hues are very striking, but for remote effects the more intermediate or "washy" reds are much more effective.

The Blue Gem Primrose, which is the best blue we have as yet, was raised here, and there are a great number of most delicate shades of all colours, from white to deep crimson-black and mauve, and even brown, to be noticed, but rich yellows do not develop among the Primroses—nothing appreciably darker than the common wild form; but, on the other hand, the Polyanthus is very rich in this direction—indeed, some of the finest forms are yellows; but there is no approach to the blue in them.

If the weather is favourable, there will be a good seed-harvest in these grounds. Despite careful selection, the Primrose type here and there bolts off into a Polyanthus, carrying its flowers on the top of a stalk, when, strange to say, the flowering period is a bit later, as though the energy was occupied in the formation of the peduncle; this effect was plainly to be seen among some vigorous three-year-old Primroses which were just going over. Mr. Dean has a good strain of hose-in-hose Polyanthus, and also of the strange Jack-in-the-Green forms of Primrose and Polyanthus, with leafy calyxes in various stages of development. In one case the calyx was only green at the apical half, the lower being coloured, and the divisions of the calyx carried down to the very base, making each sepal free; and, moreover, the same process was developing in the corolla, the divisions running right into the tube. The form named Crimson Beauty has been certificated, is a very pretty one, with erect flower-stalks and a good, firm, leafy calyx in which nestles a deep crimson corolla. Mention should also be made of the Bedfont Yellow Wallflower, which was in full

flower, and Aubrietia deltoidea violacea, very deeply coloured, a large mass of which was blooming so profusely as to present a sheet of colour without a trace of green.

HOME CORRESPONDENCE.

☞ *Correspondents will greatly oblige by sending early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Photographs or drawings of gardens, or of remarkable plants, trees, &c., are also solicited.

MUTISIA CLEMATIS.—I note at p. 532 of the number of the *Gardeners' Chronicle* for April 27, that Mr. W. E. Gumbleton and his neighbour have been unsuccessful in their attempts to cultivate this beautiful plant. This seems to have somewhat prejudiced Mr. Gumbleton, and no doubt accounts for some of the adverse conclusions at which he has arrived. My experience of the plant is entirely at variance with his, and there is a possibility that it may, in time, vary from his own outdoor experience, for, if success is to be expected, the conditions during growth should be such that the wood is well ripened. Now I am suspicious of Mr. Gumbleton's "moist seaboard site." It is very likely to favour continual extension growth rather than its maturation. The latter is a condition in which a plant will stand a much lower temperature than when it is soft and immature. That the plant can withstand a fair amount of cold we had good proof of last winter, when the plant in question was, owing to its closeness to the glass, which was frequently frozen, and the shoots also, through which ordeal they passed unscathed, of course the wood being previously well ripened. That the plant flowered freely is, I think, now a well established fact; moreover, that it is not a fugacious flower of the day only, for on two occasions, a month apart, I exhibited, at the meetings of the Royal Horticultural Society quantities sufficient to demonstrate its floriferous character, and on these occasions it was much admired by the visiting public, besides gaining the general approval of the horticultural press. I have since then sent many specimens to friends and others interested in the plant, and had Mr. Gumbleton's note been only a few days earlier, I would have sent him a bouquet of the flowers, just to show him what it is like, and possibly caused him to alter his opinion about it. I do not cast any doubt on his neighbour's experience of the plant in the corridor, but I am rather sceptical about the "intelligence of the English gardener," as I venture to think that had the latter possessed a little more, the results might have been different. The readers of these pages will readily see in the illustration on p. 501 that, although the figure exhibits a certain amount of artistic merit, yet it is by no means flattering; further, scarlet is not a colour difficult to detect ordinarily amongst green leafage, particularly if of the size of Mutisia clematis, and would hardly require a man to mount a ladder to view it. It surely must have been an abortive production, and not the glowing scarlet tassel-like object which the fully-developed flower is when viewed from beneath. I may add that, although it is well suited for furnishing fairly lofty structures, yet it flowers quite satisfactorily when not in such a high position. Our plant produced its flowers at a height of from 6 to 8 feet from the ground. The reason we cut the plant out was that it shaded unduly some Australian plants which were placed underneath it. *F. Ross.*

AURICULAS.—I read with much interest the remarks upon this subject which appeared in the *Gardeners' Chronicle* on the 4th inst., and as I have made the experiment that your correspondent wishes some one to try, I proceed to give the result. First let me say that a dozen years ago some mixed Auriculas which had, I believe, been weeded out of Messrs. Turner's collection, came into my possession, and were planted in the garden under a rather dry wall. They bloomed and seeded freely, and as the wild bees took a fancy to them, cross-fertilisation of the most indiscriminate kind took place. I have year by year raised a large number of seedlings with very interesting results. Although the varieties originally purchased did not exceed five, I now have a great number, the tints and markings of which I have in vain tried to define. There are instances of reversion to very old forms, and cases of development to choice varieties which I recognise in the collections of famous exhibitors in the alpine classes. I get no green, grey, or white-edged Auriculas, although there is a trace of a cross in the foliage and on the "paste." "Meal" appears where it ought not to be, and some of the "pips" are "laced" rather like a Polyanthus. Sometimes two distinct flowers appear on the same truss. The reversions to older types are in the direction of the yellow Primula Auricula and the mauve Primula pubescens. This year several shades of red and crimson have appeared in "selfs." As I have no pits or green houses specially adapted for Auricula culture, my plants are apt to get drawn from being too far from the glass, and the temperature being higher than it ought to be, they bloom some weeks earlier than the proper season; still, I have almost endless variety of sweet and beautiful flowers at a time when such are scarce, and perhaps some day I may exhibit my cross-bred and vigorous strain of hardy Auriculas. A few of the original plants are still alive in the garden, having stood their ground in the open for at least ten years. They are more enduring than Polyanthuses, and make excellent plants for a rockery. Drought does not hurt them, and they come up smiling after 22° of frost. They like fresh fibrous loam, and if a little fine charcoal and old mortar siftings are mixed with it, so much the better. They do not require much manure, and if potted in the compost above recommended, they will bloom two seasons without repotting. My plants are singularly free from insect pests, which I think arises in part from the practice of exposing the potted plants to the open air on an ash-border from the time the bloom fades until the beginning of January, when they are brought under cover. *W. R., Streatham Hill.*

—— As one of the multitude who have not been educated to understand or appreciate the technical beauties of the Auricula, I would ask to be allowed to thank "E. B." for having so admirably described the feelings of outsiders when present at a great Auricula show, and to say that what he suggests has to some extent been already carried out. If he will give me the pleasure of a visit, I can show him growing in the open air, bold irregular flowers, some of them with "pin eyes," and with few of the qualities which rejoice the hearts of orthodox Auricularians, and yet which to the uninitiated are really beautiful garden flowers, and he will also be able, thanks to the kindness of friends, to see plants of, and seedlings from, strictly correct varieties, also in good bloom; happily there are some sorts, such as Charles J. Perry, which the learned and ignorant can cordially join in appreciating. One cannot but feel how thoroughly good a pursuit gardening is which gives work and pleasure to people of such different tastes and notions. I lately talked with an authority, first-class in Auriculas, and also great in all sorts of gardening; he described so well the delight felt by many small growers in developing plants, so as to arrive at their ideal of beauty, that it was impossible not to feel that technical Auricula growing was a good thing for a large class, though it might not harmonise with the instincts of others. By growing Auriculas, correct and otherwise, in beds together, and sowing their seeds, we arrive at such infinite variety of form and colour, that I think before very long "E. B." will be satisfied with the extent of variation. *George F. Wilson.*

WALLFLOWER BELVOIR CASTLE.—This is the best yellow Wallflower of a dwarf habit with which I am acquainted. The plants when the strain is unmixed are even in size, and range from 1 foot to 15 inches in width, and 1 foot in height, possessing about twelve spikes to a plant. Many of the blossoms of a pale orange or clear yellow colour are 2 inches across. When growing in colonies large or small, this, like other Wallflowers, shows to the best advantage. *E.*

PURPLE HONESTY.—For brightening up the fronts of shrubbery and herbaceous borders at the present time Lunaria biennis is a good subject to grow. The plants do not flower the same year as the seed is sown, hence its specific name, and the seeds should be sown in the early part of April in a cold frame, the seedlings being planted when strong enough in the position they are to flower. In the following April they commence to throw up offshoots from the base of the plant, which grow to 2 feet in height and more, and commence to flower early in the month of May. If the seed pods are untouched they become very attractive, and last a long time after being cut, which they should be with long stalks. *E.* [This plant, an old-fashioned inhabitant of our gardens, was in the spring bedding-time of 25 years ago in great repute, and, indeed, masses of it are not unpleasing when associated with some more graceful plants. Ed.]

TULIPS AT CRITCHELL HOUSE.—The magnificent beds of Tulips in Lord Alington's garden are now in full bloom. The beds number twenty-four, and are large and splendidly filled, the varieties being Crimson King and Yellow Prince; altogether, there are about 15,000 bulbs. It is, without exception, one of the grandest displays to be witnessed in this country. The gardens at Critchell, under Mr. Beck's management, have never looked better since Mr. Beck took charge of them, now twenty years ago. Excellence is found in every department of the garden, the plant-houses being gay with flowering and foliage plants, and the many fruit-houses giving great hopes. The favourite Strawberry here, and the best cropper, is James Veitch. *C. Hazel, Gaunts, Wimborne.*

PELARGONIUM EDWARD PERKINS.—For early flowering in a small state this is one of the best Pelargoniums that we have. Its colour is a bright orange-scarlet, with a maroon blotch on the upper petals. It is a variety which lasts for a comparatively long time in good condition when cut, and shows to advantage as a single truss placed in a small vase with some of its own foliage or that of Maiden-hair Fern. The growth is strong, and the foliage ample, even when grown in very small pots, which is an advantage where small vases have to be filled. Those who want decorative plants at this time of year should note this variety for growing in the future. *E. M.*

STRIKING CARNATIONS FROM CUTTINGS.—Mr. W. Harper gives very useful information at p. 565 with respect to the rooting of Carnation cuttings during the winter. It is very different experience from my own, although I have not put in cuttings in December, but rather earlier. However, the chief point in the practice seems to lie first in the slitting of the base of the cuttings, the which I should infer is productive of precocious rooting, and in the warmth to which subjected during mid-winter. I cannot imagine that Carnation cuttings put in during December and kept in a cool frame only, even under the most favourable conditions, can become well rooted by March; practically in three months, and during the dead of winter. Mr. Harper simply refers to the necessity of keeping the cuttings in a cool pit or light structure where frost is excluded, and the atmosphere is rather moist than dry. That is invariably the condition of the air in all cool frames during winter, and in heated ones or in houses the moisture is soon artificially created. But the difficulty of believing that these cuttings—for I doubt if there are cuttings of anything, even of Pelargoniums, the which would root during January and February in a cold frame—leads to the inference that wherever placed some bottom warmth must have been given to induce root-action. Is it a *sine quâ non* of success that the cuttings shall be put in so late as December, and may not they be made and put into the boxes in October. Perhaps so far north as Perthshire the wood has not become firm earlier, but our Carnation shoots in the south are as firm in October as at any time. I am willing to believe that slitting the cuttings may assist precocious rooting, but that all this rooting should take place in a cold frame during mid-winter is a hard nut to crack. *A. D.*

THE HYACINTH.—Judging from the Hyacinths I have seen this year the spikes were generally but of medium quality; and taking the cold ungenial season of 1888 into account this is what might have been expected. At the same time, it is worthy of note, that some collections in quality were not behind previous years. There is one point upon which some stress should be laid, and that is, that the standard of excellence set up by the Dutchmen seems now to be more in accordance with English ideas than formerly was the case. I have before me a series of spikes of selected varieties, new and old, sent by Messrs. J. H. Kersten & Co., bulb merchants, Haarlem, and amongst them are some not quite new, but which are as yet not much known to gardeners and amateurs in this country. Very old varieties are still grown, although there are many which are newer and of almost the same colour,

whilst being much superior in truss and bells. The new varieties will win their way in time, and supersede the old varieties when the prices asked for them are more uniform. *J. Douglas.* [For a list of some of the best of the new Hyacinths, see report of the Royal Horticultural Society, p. 407, in our issue for March 30 this year. Ed.]

WOOD WOOL.—I wish to bring under your notice a sample of wood wool, which I think will be found superior to either wadding or dry moss for packing Peaches, Plums, and such like fruits; it being much lighter than either, also elastic, clean, durable, without smell, and cheap. The cost being about one-third the price of wadding. I have shown it to several fruit growers, who have a high opinion of it. *J. George*, 10, *Victoria Road, Putney.* [Very useful for the purpose, being elastic and not likey to promote fungous growth.—Ed.]

THE SHORTENED BICOLORS, OR NELSONI GROUP OF NARCISSUS.—The raising of the Nelsoni Group of Daffodils is attributed to the late Mr. Leeds. It is, however, very strange that with my lot of imported Bernardi bulbs from the South of France a form identical with Nelsoni minor has turned up, and a few plants very like Macleai, or Diomedes minor, have also appeared. This has been considered a cross between a pseudo-Narcissus and Tazetta. The internal evidence now before me with living plants is against this. Muticus



Fig. 101.—CARPET BED.

and poeticus may give the start for the "Nelsoni group;" and as all wild sorts seed freely, even the Bernardi section. What would the latter yield re-crossed with a bicolor such as Haworth's? I fancy the product with the small Bernardi would be Macleai, and with the large what we now see as Nelsoni. There is no doubt of the broad-leaved muticus blood, and muticus is a beautiful Daffodil, and a certain seeder. As regards twin flowers on Macleai, we get the same on Bernardi, yet we do not consider the latter to have Tazetta origin. There are some forms of muticus here nearly the size of Emperor. *W. Baylor Hartland, Cork.*

SOCIETIES.

LINNEAN.

May 2.—C. B. Clarke, M.A., F.R.S., in the chair. Messrs. H. B. Hewetson, of Leeds; Mr. B. Slater, and T. W. Shore, were admitted Fellows of the Society; and Messrs. C. Hedley, T. W. Girdlestone, and E. E. Prince were elected. Professor W. Pfeffer, of the University of Tübingen was elected a foreign member.

With reference to a recent exhibition by Mr. D. Morris, of leaves of different species or varieties of plants included under Erythroxylon coca, Lamarck, Mr. Thomas Christy made some remarks on the leaves of a variety from Japan. These he described as brittle and thin, with hardly any trace of cocaine, though yielding 8 per cent. of crystallizable substance. The thicker leaves of the Peruvian plant yielded more cocaine, though at first rejected on account of their more glutinous nature.

Mr. John Carruthers read a short paper on the cystocarps, hitherto undescribed, of a well-known Seaweed, Rhodymenia palmata, upon which remarks were made by Mr. G. Murray and Mr. A. W. Bennett. The second part of a monograph of the Thelephoreæ was communicated by Mr. G. Massee.

Mr. Mitten contributed a paper on all the known

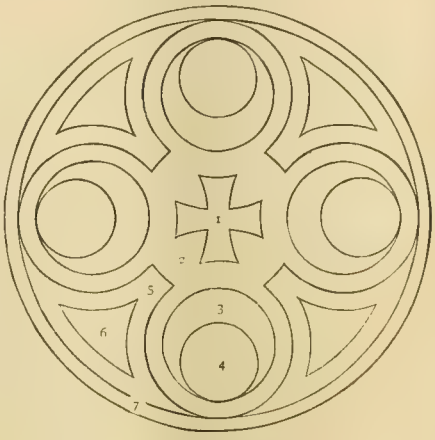


Fig. 102.—CARPET BED.

species of Musci and Hepaticæ recorded from Japan. An interesting discussion followed on the character of the Japanese flora, in which Mr. J. G. Baker, Dr. Braithwaite, and Mr. G. Murray took part.

The meeting adjourned to May 24.

ROCHDALE AURICULA.

This Society, which was formed a few years ago, held its usual annual show in the Public Hall on May 1, the day following the Manchester show, consequently some of the flowers shown there were also seen at Rochdale. The exhibition fell much below



Fig. 103. DESIGNS FOR CARPET BEDS.

the Manchester one in extent, and was not so good as last year, though good prizes are offered, and the Society appears to be well furnished with funds.

Show Auriculas.—The leading class was for six show Auriculas, and exhibitors were required to stage one green, one grey, and one white edge, and one dark self, one blue, and one maroon, scarlet, or yellow self. Miss Woodhead, Halifax, was 1st out of three competitors, having green edge, Prince of Greens; grey, George Lightbody; white edge, Mr. Dodwell; self, Black Bess; blue self, Mrs. Potts; and red self, Lord of Lorne—a very good half dozen, though Lord of Lorne was a little rough. 2nd, Mr. Tom Lord, Holebottom, Todmorden.

In the class for four varieties, one of each section, Miss Woodhead was again 1st, with green edge, Prince of Greens; grey edge, Rachel; white edge, Acme; and self, Heroine, with a very fine truss, containing fourteen pips. 2nd, Mr. T. Lord, with green edge, Prince of Greens, the fine example which took the premier prize at Manchester the day previous.

In the class for two plants there were four competitors, and Mr. H. Wilson was 1st, with white edge, John Simonite; and self, Heroine. 2nd, Miss Woodhead, with green edge, Prince of Greens; and white edge, Acme.

The best specimen with yellow centre was Sovereign, a highly promising seedling, from Mr. J. Beswick; Mr. S. Barlow being 2nd, with Beauty, one of his fine strain of seedlings.

The best white centre was a laced seedling from Mr. J. Beswick; he was 2nd, with Queen Victoria.

Miscellaneous.—In addition, prizes were offered for spring blooming plants in several classes, but few only were forthcoming. Greenhouse Azaleas, table plants, hardy shrubs, represented by Rhododendrons and American Azaleas; Hoteia japonica and Lily of the Valley were forthcoming in their several classes. In that for two hardy herbaceous plants in flower, Dr. Morris, Rochdale, was 1st, 2nd, and 3rd, an exhibitor being allowed to put up as many collections as there are prizes, and win them all. He was 1st with a very finely-grown Trillium grandiflorum with twenty-



Fig. 104.—CARPET BED.

two flowers, and Cypripedium pubescens with seven fine flowers; he was 2nd with C. calceolus with five flowers, and Dodecatheon elegans; and 3rd with a very fine pan of Narcissus bulbocodium and Trillium grandiflorum. Mr. S. Barlow was the only exhibitor of two species of Primulas, having P. denticulata and P. viscosa rosea. He was also 1st, with six fancy Auriculas, and also for six Primroses—no other exhibitor competing.

SCOTLAND.

SCOTTISH PRIMULA AND AURICULA SOCIETY.

The third show of this Society was held on the 8th inst. in the Calton Convening Rooms, Waterloo Place, Edinburgh. Owing to the sunless character of the weather during the spring, and the consequent lateness of growth, the number of entries were fewer than last year. The competition was almost exclusively confined to Scotland, English growers being prevented from putting in an appearance on account of their plants being practically past showing for the season. Notwithstanding these drawbacks, the show was a good one in point of quality, but the sunless weather which we in the North had experienced during the critical time of the opening of the flowers was evinced in many of the plants staged.

Stage Auriculas were the feature of the show, alpines being very few in number.

In the class of six plants, dissimilar in class and variety, Mr. James Black, East Calder, was placed 1st, with a fine lot, which contained the most distinguished plant in the show—John Simonite, which received the prize for the premier white edge variety, and also that for the premier Auricula of any class in the show. The other varieties in this stand were F. D. Horner, George Lightbody, Talisman, Acme, and Heroine. Mr. Kilgour took 2nd prize in this class, with more vigorous plants, but less smooth and equal blooms, his stand being composed of Morris' Cordelia, Headley's Alderman, Wisby, Hepworth's True Briton, Trail's Prince of Wales, Rivers' Lovely Ann, and Simonite's Mrs. Douglas.

In the class for four plants, one of each class, Mr. Black again took 1st position, with Mrs. Dodwell, F. D. Horner, George Rudd, and Mrs. Potts; Mr. Straton, Secretary and Treasurer of the Society, was a worthy 2nd, with Acme, a white edge unnamed and unknown, Warrior, and Prince of Greens. Mr. Ker, Douglasfield.

The premier green edge was set up by Mr. Straton, and the premier self was a tie between the latter and Mr. Black, the latter tabling Mrs. Potts, and Mr. Straton, Blackbird. In addition to those already named, the principal prize-takers were Mr. Storrie, Lenzie; Mr. John Menzies, Duns; Mr. Henderson, Clermiston, Edinburgh; Mr. A. R. Henderson, Bo'ness; Mr. Fotheringham, Gairney House, Trinity.

Messrs. Laird & Sons, Edinburgh, put up the only entry for "a collection of Primula and Auricula," and their table formed a very pretty feature of the show. It contained many choice varieties of stage and alpine Auriculas, Polyanthus, Primroses, Primula obconica, and other species, and some promising seedlings of the florists' varieties.

Of exhibits, a small collection of Primulaceæ was sent from the Edinburgh Botanic Garden, the most interesting of which were the chaste Primula Reidi, P. ciliata purpurea, P. mollis, P. floribunda, several varieties of P. Sieboldii, the most striking of which was Magenta Queen Messrs. Dicksons & Co., exhibited a mass of the old double yellow Auricula. Mr. Jas. Gordon, Comely Park Nursery, Falkirk, exhibited Primula scotica, P. integrifolia, P. rosea, and P. auriculata; and Messrs. Jas. Dickson & Sons decorated one end of the hall with a miscellaneous assortment of stove and greenhouse plants, among which was conspicuous a well-bloomed specimen of Fransicea calycina. A fine and numerous collection of cut Narcissi, from C. W. Cowan, Esq., Valleyfield, Penicuik, occupied a table by itself, and attracted much attention.

Scottish Horticultural Association.

The ordinary monthly meeting of this Association was held in 5, St. Andrew Square, Edinburgh, on the 7th inst., Professor Bayley Balfour, President in the chair. Mr. W. E. Dixon, Edinburgh, read a paper on Nepenthe, and treated the subject in an exhaustive manner. Touching on the modern opinion that Pitcher-plants are carnivorous, the writer held it incapable of proof, and the peculiar structure of the pitchers were rather a beautiful provision of Nature to enable the plants to store up moisture during the rainy season for their support in the dry season. Nepenthes, as regarded its history, was assumed to be very ancient, authorities being quoted to show that it was known to Hippocrates and Homer, and probably become first known to the Egyptians in their intercourse with Madagascar, with which country there was indisputable evidence they were well acquainted. On this ground the writer concluded that the earliest known species was N. madagascariensis. In the *Genera Plantarum*, and also that of Jussieu, both published in 1789, there were only three species of Nepenthes mentioned. Now there are about 120 species and varieties known to science, only 40 of which have been introduced to cultivation. The unsatisfactory and confused state of the nomenclature of the family was animadverted upon in terms of regret. The discoveries of Low, Burbidge, Burke, Curtis, and Miss North, and others, whereby our knowledge of the family has been so largely increased were dwelt upon in rapid but clear terms, and garden hybrids, of which there are over 40 of remarkable character, were next spoken of and their parentage defined. The geographical distribution of the family, a knowledge of which was held to be of the utmost importance to the cultivator, proved a most interesting portion of the paper, as the author had been at great pains in collecting from every available source many and valuable facts respecting habitat and other particulars. A brief resumé of the cultural requirements of the family brought the paper to a close.

Exhibits were numerous. Mr. McHattie, The Gardens, Newbattle Abbey, exhibited a distinct form of Anthurium Schertzeriaum, with very large wavy spaths of very brilliant colour, and yellow spadix, and to which First-class Certificate was awarded.

Messrs. Dicksons & Co., sent Cyrtanthus sanguineus; a seedling Rhododendron, almost blue; Gymnogramma gloriosa, and an enormous pair of plants of the old double yellow Auricula in flower, which were very much admired; also somfine sprays of Clerodendron Balfouriana and Stephanotis floribundia.

Mr. R. Grossart, Oswald House, Oswald Road, presented a finely flowered specimen of Posoqueira multiflora in beautiful condition; and Cypripedium bellatulum, the first that had been seen in flower in this district.

Mr. John Smith, The Gardens, Ballikinrain Castle, Stirlingshire, sent a mass of a fine strain of Poyanthus.

Mr. M. Dunn, Dalkeith, sent some cut blooms of Chrysanthemums to show that the flower might be had for cutting almost the year round, and also a plant of Stephanotis in bloom, about 4 inches high, in a 4-inch pot—a flowering shoot having been struck, and the foliage and truss of bloom were perfect in every respect.

The Weather.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending May 7.	Temperature. Accumulated. Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1889.	Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (—) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1889.	Rainfall. Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	3 +	48	0	— 9 +	27	1 —	98	16.6	32	21
2	3 +	47	0	— 26 +	20	2 +	75	8.2	28	23
3	1 +	45	0	— 49 +	15	1 —	67	7.3	31	23
4	1 +	69	0	— 88 +	122	1 —	70	6.0	46	24
5	3 +	75	0	— 84 +	71	0 av.	64	9.7	34	23
6	3 +	82	0	— 89 +	79	0 av.	69	7.7	36	23
7	3 +	61	0	— 35 —	14	3 +	79	14.5	28	25
8	3 +	71	0	— 58 +	4	2 +	72	9.4	30	24
9	1 +	64	0	— 81 +	90	0 av.	68	12.1	23	29
10	1 +	59	0	— 30 —	46	9 +	89	13.0	21	21
11	0 av.	59	0	— 36 —	10	10 +	79	12.6	25	28
12	0 av.	65	0	— 31 —	16	3 +	78	8.9	35	34

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending May 7, is furnished from the Meteorological Office:—

"The *weather* has varied considerably in different parts of the kingdom. In the west and north it has been dull, unsettled, and rainy, while over the greater part of England the condition has been finer, and rain less frequent. Thunderstorms have prevailed at times in nearly all districts.

"The *temperature* has been above the mean in almost all parts of our islands, the excess in most cases being 3°; in 'Ireland, S.,' and the 'Channel Islands;' however, the mean value for the time of year has been only just equalled. The highest of the maxima, which were recorded in most places on the 5th, ranged from 61° to 68° in Ireland, from 72° to 74° in Scotland, and from 72° to 77° over England. The lowest of the minima were registered either on April 30 or May 2, and varied from 34° in the 'Midland Counties' to 42° in 'Channel Islands.'

"The *rainfall* has been considerably more than the mean in Ireland, and a little more in the west and east of Scotland, but in most parts of England and in the north of Scotland the fall has not differed materially from the normal.

"*Bright sunshine* has been less prevalent generally than it was last week, the percentage of the possible duration having ranged from 21 to 25 in Ireland, from 28 to 32 in Scotland, and from 23 to 46 over England."

Markets.

COVENT GARDEN, May 9.

Trade improving, with supplies of all classes of fruit and vegetables good. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2 0	4 0	Peaches, per doz.	6 0	24 0
— Canada and Nova Scotia, per barrel	10 0	17 0	Pine apples, Eng., lb.	1 6	2 0
Grapes, per lb.	2 6	4 0	— St. Michael, each	2 0	8 0
Lemons, per case	12 0	21 0	Strawberries, per lb.	2 0	4 0

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	12 0	...	Mustard and Cress, punnet	0 4	...
— French, bundle	21 0	...	Onions, per bunch	0 5	...
Beans, Jersey French, per lb.	3 6	...	Parsley, per lb.	1 0	...
Beet, red, per dozen	1 0	2 0	Peas, French, per qt.	1 0	...
Carrots, per bunch	0 6	...	Potatos, per cwt.	4 0	5 0
Cauliflowers, each	0 3	...	— kidney, per cwt.	4 0	5 0
Celery, per bundle	1 6	2 0	— new French, lb.	0 6	...
Cucumbers, each	1 0	...	Rhubarb, bundle	0 6	...
Endive, per dozen	3 0	...	Seakale, punnet	2 6	...
Green Mint, bunch	1 0	...	Shallots, per lb.	0 6	...
Herbs, per bunch	0 6	...	Spinach, per bushel	5 0	...
Leeks, per bunch	0 4	...	Tomatos, per lb.	2 0	...
Lettuce, per dozen	1 6	...	Turnips, per bunch, new	0 5	...
Mushrooms, punnet	1 6	...			

Potatos.—Beauty of Hebron, 70*s.* to 80*s.*; Imperators, 60*s.* to 65*s.*; Dunbar Magnums, 130*s.*; Lincoln, do., 70*s.*; and Dunbar Regents, 110*s.* to 120*s.* per ton. Large supplies of new Potatos from Malta, St. Michael's, and the Canaries.

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Foliage plants, various, each	2 0	10 0
Arum Lilies, p. doz.	6 0	12 0	Ficus elastica, each	1 6	7 0
Azaleas, dozen	24 0	30 0	Fuchsias, dozen	6 0	12 0
Begonias, dozen	4 0	12 0	Genista, dozen	8 0	12 0
Calceolarias, dozen	6 0	9 0	Lily-of-Val., per doz. pots	10 0	18 0
Cineraria, per dozen	6 0	12 0	Marguerites, doz.	6 0	12 0
Cyperus, per dozen	4 0	12 0	Mignonette, doz.	6 0	12 0
Dracæna terminalis, per dozen	30 0	60 0	Musk, dozen	4 0	6 0
— viridis, per doz.	12 0	24 0	Palms in var., each	2 6	21 0
Erica, various, doz.	12 0	30 0	Pelargoniums, dozen	9 0	15 0
Euonymus, in var., per dozen	6 0	18 0	— scarlet, doz.	4 0	6 0
Evergreens, in var., per dozen	6 0	24 0	Roses, H.P., doz.	12 0	24 0
Ferns, in var., doz.	4 0	18 0	— Fairy, doz.	9 0	12 0
			Spiræa, doz.	9 0	15 0
			Stocks, dozen	4 0	6 0

Bedding Plants in variety from 1*s.* per doz.; per box, 1*s.* 6*d.* to 2*s.* 6*d.*

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0	Narcissus, white, 12 bun.	2 0	6 0
Anemone, Fr., 12 bun.	1 0	3 0	— double, 12 bun.	4 0	6 0
Arum Lilies, 12 blooms	2 0	4 0	Pelargoniums, 12 spr.	0 6	1 0
Azaleas, 12 sprays	0 6	1 0	— scarlet, 12 spr.	0 4	0 6
Bouvardias, per bun.	0 6	0 9	Polyanthus, 12 bun.	2 0	4 0
Camellias, white, 12 blooms	2 0	4 0	Primroses, 12 bun.	0 6	1 0
— red, 12 blooms	0 9	2 0	— dbl. white, 12 bun.	0 6	1 0
Carnations, 12 blms.	1 0	2 0	Primulas, dbl., 12 sp.	1 0	1 6
Cowslips, 12 bun.	0 6	1 0	Ranunculus, 12 bun.	1 6	3 0
Daffodils, various, 12 bunches	4 0	9 0	Roses, Tea, per doz.	1 0	3 0
Eucharis, per dozen	3 0	6 0	— coloured, dozen	2 0	4 0
Gardenias, 12 blooms	1 0	4 0	— red, per dozen	2 0	6 0
Heliotropes, 12 spr.	0 6	1 0	— Safrano, dozen	1 0	2 0
Lilac, white Fr., bun.	3 0	5 0	Spiræa, 12 bun.	6 0	8 0
— lilac-coloured, p. bunch	3 0	5 0	Stephanotis, 12 spr.	2 0	4 0
Lily-of-Val., 12 spr.	0 6	1 0	Tuberoses, 12 blms.	1 0	2 0
Marguerites, 12 bun.	3 0	6 0	Tulips, 12 bun.	3 0	4 0
Mignonette, 12 bun.	3 0	6 0	Violets, Parme, Fr., bunch	3 0	4 0
			Wallflowers, 12 bun.	2 0	4 0

SEEDS.

London: *May* 8.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, E.C., state that the present protracted season is naturally drawing to a close. Stocks held over are for the most part comparatively light. Red, white, and Alsike Clover seeds, can now be bought on moderate terms. Choice Trefoil is with difficulty obtainable. For Perennial and Italian Rye-grass low rates prevail. There is an inquiry for fine Blue Peas. Scarlet Runners have advanced from 10*s.* to 50*s.* per bushel. Rape seed is dearer. No change in Mustard seed.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended May 4:—Wheat, 29*s.* 10*d.*; Barley, 24*s.* 7*d.*; Oats, 18*s.* 6*d.* For the corresponding week in 1888:—Wheat, 31*s.* 2*d.*; Barley, 30*s.* 6*d.*; Oats, 16*s.* 4*d.*

FRUITS AND VEGETABLES.

Stratford: *May* 7.—Supply has been good during the past week, and a fair trade was done at the following prices: — Cabbages, 2*s.* to 3*s.* per tally; Greens, 1*s.* to 1*s.* 6*d.* per dozen bunches; Cauliflowers, 1*s.* to 1*s.* 9*d.* per dozen; Carrots, household, 23*s.* to 28*s.* per ton; do., cattle feeding, 15*s.* to 22*s.* do.; Mangels, 13*s.* to 18*s.* do.; Swedes, 15*s.* to 19*s.* do.; Onions, Dutch, 3*s.* 6*d.* to 4*s.* 6*d.* per bag; do., Bordeaux, 4*s.* to 4*s.* 9*d.* per case; Apples, English, 3*s.* to 6*s.* per bushel; do., American, 12*s.* to 16*s.* per barrel; Watercress, 6*d.* per dozen; Radishes, 9*d.* to 1*s.* per dozen bunches; Cucumbers, 4*s.* to 8*s.* per dozen; Spring Onions, 3*s.* to 4*s.* per dozen bunches; Rhubarb, 2*s.* to 2*s.* 6*d.* do.; Cress, 1*s.* 9*d.* to 2*s.* per dozen baskets; Lettuces, 8*d.* to 1*s.* per dozen.

POTATOS.

Borough and Spitalfields: *May* 7.—Only moderate supplies, and prices rather hardening. Scotch Regents, 80*s.* to 130*s.*; English, 60*s.* to 105*s.*; Magnum Bonums, 65*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.*; other varieties, 60*s.* to 80*s.* per ton.

Spitalfields: *May* 8. — Quotations:—Magnums, 55*s.* to 70*s.*; Scotch do., 60*s.* to 110*s.*; Regents, 75*s.* to 125*s.*: Champions, 55*s.* to 70*s.*; Imperators, 60*s.* to 80*s.*; Hebrons, 50*s.* to 60*s.* per ton.

Stratford: *May* 7. — Quotations: — Scotch Regents, 80*s.* to 110*s.*; do., Magnums, 90*s.* to 120*s.*; English Magnums (light), 65*s.* to 80*s.*; do. dark, 50*s.* to 65*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, old, prime, 125*s.* to 144*s.*; good new do., 85*s.* to 120*s.*; do., inferior, 40*s.* to 70*s.*; prime old Hay, 108*s.* to 120*s.*; good new do., 88*s.* to 105*s.*; inferior, 30*s.* to 72*s.*; Straw, old, 42*s.* to 46*s.*; new do., 28*s.* to 40*s.* per load.

NOTICES TO CORRESPONDENTS.

*** **Irises.**—Growers having Irises of any kind in bloom will render service if they will be good enough to send specimens to illustrate Prof. Foster's lecture on Tuesday next. They should be sent to the care of Mr. Barron, Drill Hall, Royal Scottish Volunteers, James Street, Westminster, not later than Tuesday morning next, before 10 a.m.

Blind Narcissus poeticus plenus: *Mayflower.* The cause of Narcissus blooms going blind is as yet unknown. By some it is ascribed to heat, and by others to frost; whilst some growers find loose soil, too much or too little water, at the bottom of the malady. To avoid it as much as you can, pot firmly, and do not use any but thoroughly decayed manure, and do not use even that if the loam is of good quality. Leaf-mould is a better fertiliser in small quantities. Put a pinch of silver-sand at the base of the bulb when potting the bulbs early in September, and do not expose the pots afterwards to frost or drying winds.

Books: *W. J. N. A.* Fruit Growing for Market: *Fruit Farming for Profit*, by G. Bunyard. (F. Bunyard, 29, Week Street, Maidstone).—*H. B.* Landscape and Laying-out: The best work on these subjects is *How to Lay Out a Garden*, by E. Kemp. (Bradbury, Agnew & Co., Bouverie Street, Fleet Street, E.C.) Decorating and Colour: Get the *Manual of Colour*, by W. Benson. (Chapman & Hall, 193, Piccadilly, W.)

Carpet Beds: *C. H. B.* The plans (figs. 101, 102, 103, and 104, p. 598), if planted with the usual dwarf plants, will be effective.

Cob Nuts and Apples: *Hopeful.* The scheme is not very hazardous, especially as Nuts at present fetch good prices. The returns will be the best from early kitchen and late dessert Apples; late kitchen Apples will have to compete with the American fruit; but much may be done to get over the competition by careful sorting and good packing. Under crops, to pay interest on outlay for the years before the Apples and Nuts bring any returns, might include Wallflowers, Narcissus, and Strawberries, besides the bush fruit named in your note.

Consignment of Plants: *R. P. G.* Consult a solicitor.

Cut Blooms: *N. N.* These must be exhibited in accordance with the Society's rules. It is usual to show stove and greenhouse cut flowers in small bunches, inserted in inconspicuous tubes or glasses, or cushioned on damp moss. It wants doing with a light hand, avoiding formality and clumsiness, and giving enough space to each bunch.

Euchabis Bulbs: *Parrott Bros.* Your bulbs are affected with the mite, and the fungus is also present.

Green-flowered Rose: *C. Houlton.* It is a Bengal Rose, and may be obtained from a Rose nursery.

Juniper Fungus: *X.* The yellow slimy fungus is Podisoma juniperi, and does not, so far as we know, attack other Conifers than Junipers, but it exists under quite a different appearance on the Hawthorn, where it has in consequence received the name of Roestelia lacerata. See an illustrated article in our columns, Oct. 31, 1885, p. 556.

Lichens on Fruit Trees: *Burwell.* In your damp locality Lichens will always be present more or less. The villagers' plan of ridding the trees of the parasitic growth by lime-washing is a good one; but, as you say, its unsightliness is against its use in gardens. The petroleum will need to be used with a good deal of caution, and only in the winter, when the buds are all closed. We have not much experience with it. Brine is as effective, and safer in the using; ground fresh lime thrown into the infested trees whilst they are wet with rain, is one of the best means of killing Lichens, and it has the good property of not adhering very long, like whitewash. After all, we do not believe the Lichens can do much harm.

Name of Fruit: *F. H.* Pear Verulam.

Names of Plants: *J. C.* 1, Dendrobium densiflorum; 2, Brassia maculata; 3, Oncidium sphacelatum, but not a good variety; 4, Dendrobium fimbriatum; 5, Cymbidium Lowianum. — *S. N.* Picea Smithiana, *alias* P. morinda, long slender leaves; Cryptomeria Lobbi; Cephalotaxus, probably drupacea. — *No name.* 1, Thuia gigantea; 2, Thuiopsis borealis; 3, Retinospora pisifera; 4, Cryptomeria Lobbi; 5, Cupressus, not recognised; 6, Melittis melissophyllum, with variegated leaves. —*J. F.* 1, Corydalis solida alba; 2, Euphorbia amygdaloides; 3, Salix caprea, female; 4, Ranunculus auricomus.—*W. C.* Lunaria annua.—*J. W. O.* Rough leaf — Nordmannia cordifolia, 2, sp. of Scopolia? — *Camellia.* We cannot undertake to name varieties. You should apply to a nurseryman who grows them.—*Ross.* Rubus rosæfolius.—*S. C.* 1, Linaria cymbalaria; 2, Orobus sp.; 3, Epimedium alpinum; 4, Anchusa italica; 5, Ornithogalum nutans.—*G. H. G.* 1, Alyssum saxatile, yellow flower tied up with leaves, apparently of Lychnis coronaria; 2, Ornithogalum nutans; 3, Hoya bella. The Azaleas we cannot name; send them to a nurseryman who makes a specialty of such plants.—*W. Covell.* Athyrium filix-fœmina cristata.—*W. T. P.* Oncidium sphacelatum.—*Vox.* 1, Ribes aureum; 2, Ribes unknown (should have been sent in flower); 3, Lastrea tenericaulis; 4, Polypodium aureum; 5, Polystichum angulare prolificum.—*Alpha.* Hibiscus sinensis flore pleno-fulgida. It is merely a form of the single-flowered species, and, like all varieties, it is apt to revert to the original form.—*K. A.* Prunus malus floribunda. The grass next week.

Odontoglossum crispum: *H. M.* Very fine in size, but the form is not of the best type.

Orchid Flowers: *G. B.* The Cattleya Mossiæ are very large, but not of particular merit in colouring. Lælia purpurata and L. cinnabarina are fine forms.

Seedsmen and Flower Growers: *J. S.* A list of the former may be found in either the *Horticutural Directory* or the *Garden Annual.* For the latter we do not know where to refer.

Silver Tree: *W. M.* If you raise any more plants from seed, they should be kept in a warm greenhouse during the autumn, winter, and spring. In June, July, and August, the plants will be quite safe in the open air.

Slugs: *J. M.* Dressing with salt, gas lime—as lime is not obtainable; deep trenching, if the land will admit of its being done; laying about bran and the leaves of Cabbages; trapping. These are some of the methods of ridding a garden of these creatures. Sow lines of Lettuces for them to feed on. A brood of ducks or some pinioned sea-gulls would assist your endeavours.

Tomatos: *A Constant Reader.* The leaves are attacked with a minute fungus similar to the Potato-rot in appearance. Syringing with a weak solution of sulphate of copper will destroy the spores, but nothing will destroy the fungus when it has developed within the plant.

Tulip: *J. Drury.* There is nothing unusual in a Tulip having marginal variegation of the leaves.

Vine Border and Bones: *Bones.* The fat is best taken from them by boiling before they are incorporated in a broken-up state with the soil.

Vine Leaves: *T. Wagstaff.* We cannot determine certainly what may be the exact cause of your Vine leaves becoming so affected. It seems to be some form of scorching through imperfect ventilation.

CATALOGUES RECEIVED.

R. B. Laird & Sons, 17, South Frederick Street, Edinburgh, N.B.—Plant Catalogue.

Bruant, Boulevard St. Cyprien, Poitiers, Viénne, France—General Spring Catalogues of Flowering Plants.

Rawlings Brothers, Old Church, Romford, Essex —Dahlias.

Paul & Son, Old Nurseries, Cheshunt, Herts — Roses; also Hardy Herbaceous and Alpine Plants.

James Backhouse & Son, The Nurseries, York—Alpine Plants, Hardy Perennials, and Florists' Flowers.

E. H. Krelage & Son, Haarlem, Holland—Exhibition Hyacinths.

G. Cooling & Sons, Bath — Roses, Clematis, Climbers, Dahlias, Chrysanthemums, Bedding Plants, &c.

Alexander Dickson & Sons. Royal Nurseries, Newtownards, co. Down—New Seedling Pedigree Roses.

Hogg & Wood, Coldstream, N.B. — Agricultural Seeds.

Keynes, Williams & Co., Salisbury—Dahlias, Verbenas, and Bedding Plants.

Lucombe, Pince & Co., Exeter—Stove, Greenhouse, and Florists' Flowers.

Dicksons & Co., 1, Waterloo Place, Edinburgh, N.B.—Bedding and Border Plants.

Wood & Ingram, Huntingdon—Bedding Plants and Various.

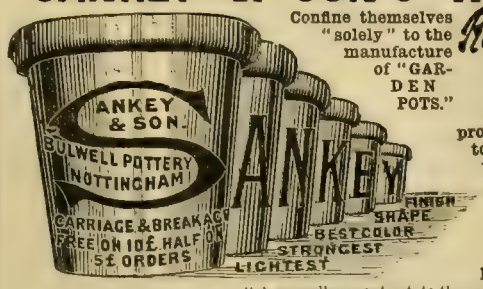
Wm. Bull, 536, King's Road, Chelsea, London, S.W. —New Plants and Orchids.

James Veitch & Son, Royal Exotic Nursery, King's Road, Chelsea, London, S.W. — Catalogue of Plants; also Soft-wooded and Bedding Plants.

Communications Received.—C. W. D.—M. de la D., Angers. —Professor Maximowicz, St. Petersburg.—W. S.—H. B.—W. & N.—T. S. W.—G. N.—H. Smith.—Ellwanger & Barry. —R. A. R.—F. R.—R. Veitch & Son.—J. S.—J. G.—R. D.—J. D.—G. C.—S.—Nil Desperandum.—Bee.—G. W. S.—W. B.—J. Harding and W. Thompson (next week).

DIED.—On the 8th inst., Thomas, son of the late George and Mary Lazenby, of Sandhutton, Yorkshire, aged sixty-six years; for twenty-two years Head Gardener to W. H. Fox, Esq., Bradwell Grove, Burford, Oxfordshire.

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"Scientific process of manufacture—fireing perfect. Market Pots capital; favour close packing, utmost economy in space under glass.—*Gardeners' Magazine.*
"Excellent Garden Pots. Show careful making and burning, with the employment of first-rate materials."—*Gardeners Chronicle.*
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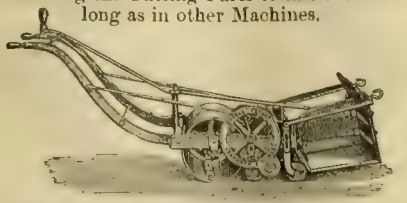
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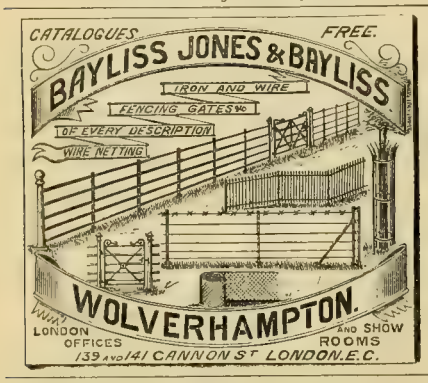


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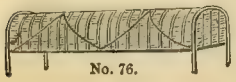
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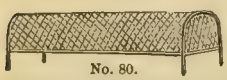
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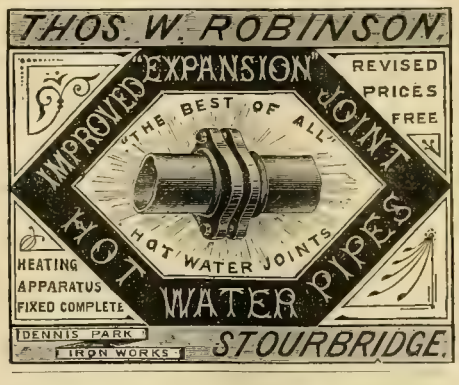
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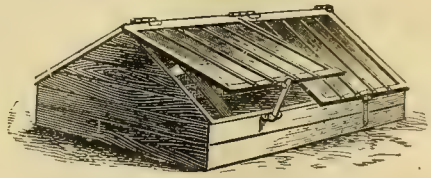
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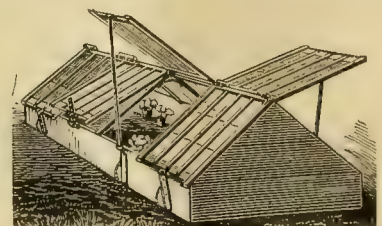
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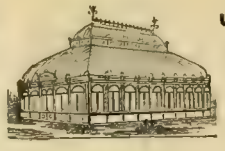


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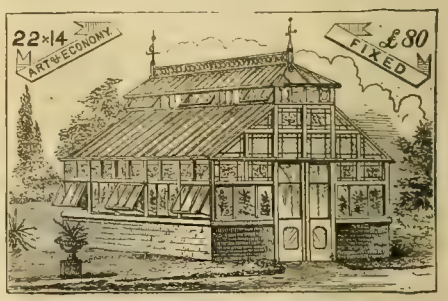
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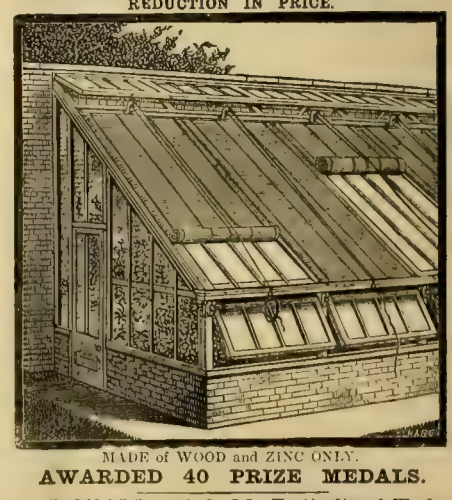
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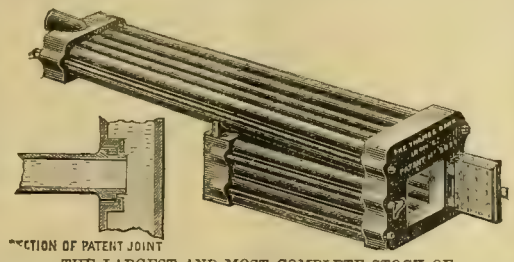
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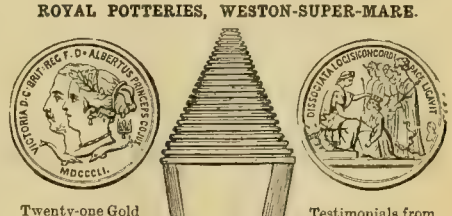
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The Winners of every First Prize in all cases of competition, and they are the only Mowers in **constant** *use at all the Royal Gardens and at the Royal Horticultural Society's Gardens, South Kensington.*

Patronised by—
HER MOST GRACIOUS MAJESTY THE QUEEN on many occasions,
HIS ROYAL HIGHNESS THE PRINCE OF WALES,
THE KING OF THE BELGIANS,
The Late EMPEROR OF THE FRENCH. The EMPEROR OF RUSSIA,
And most of the Nobility, Clergy, and Gentry of the United Kingdom.

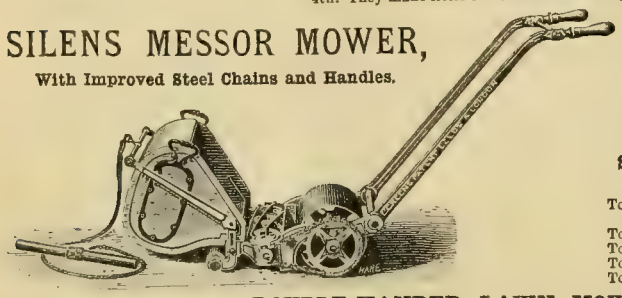
Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "*Journal of Horticulture*," *of June 9, says:*—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. GREEN & SON, of Leeds and London. As the Machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

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With Improved Steel Chains and Handles.



SINGLE-HANDED LAWN MOWER.

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* If made stronger, suitable for Donkey, 30s. extra.

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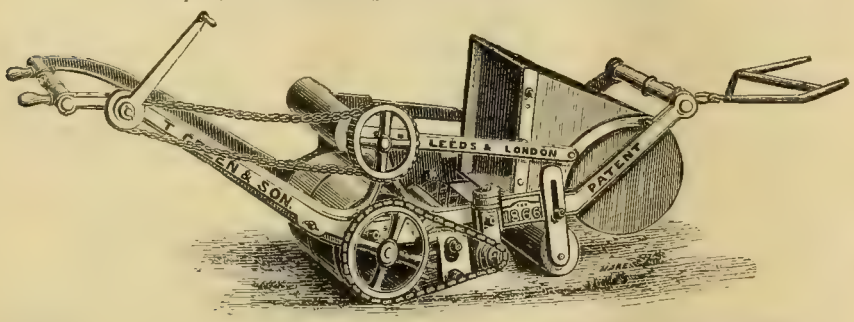


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☞ **A very useful and serviceable Machine.**

Prices of Donkey, Pony, and Horse Machines, including Patent Self Delivery Box, or Side Delivery, with Cross-stay, complete, suitable for attaching to Ordinary Chaise Traces or Gig Harness:—



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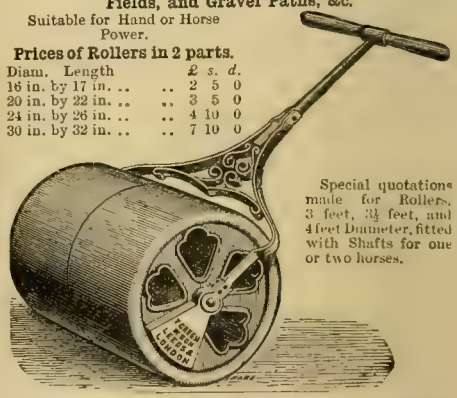
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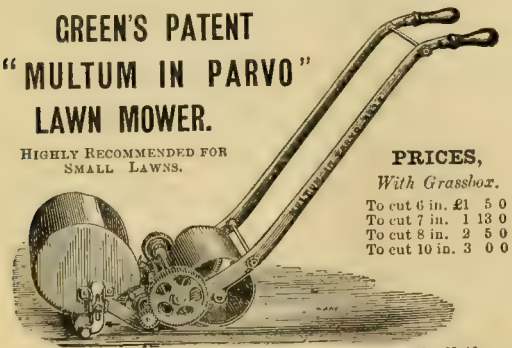
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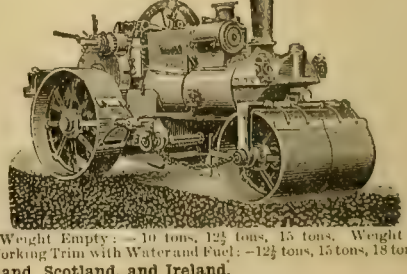
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THE GARDENERS' CHRONICLE, Vol. IV., Third Series, JULY to DEC., 1888.

W. RICHARDS, 41, Wellington Street, Strand, W.C.

GRAND EVENING FLORAL FÊTE in aid of the GARDENERS' ORPHAN FUND will be held in the Wholesale Flower Market, Covent Garden, W.C., by permission of His Grace the Duke of Bedford, K.G., on WEDNESDAY NEXT, May 22. From 8 to 12 o'Clock. Opening ceremony at 8 P.M., by the Baroness Burdett-Coutts. Admission (by ticket) 5s. (limited to 2000), to be obtained of Mr. J. ASSBEE, Market Office, Covent Garden, W.C.; and the Hon. Sec., A. F. BARRON, Royal Horticultural Gardens, Chiswick, S.W.; or of Mr. W. RICHARDS, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C. As the number of tickets is strictly limited, early application is necessary.

See large Advertisement, p. 611.

ROYAL BOTANICAL SOCIETY of MANCHESTER.

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THOMAS, Covent Garden Market. *Telegraph Address*, "THOMASES, London." Telephone, No. 2822. See large Advertisement, p. 617.

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N.B. The MANSION, with Ornamental GROUNDS of about 150 acres, TO BE LET on Lease.

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Dendrobium Wardianum
Wrighti
Vanda Sanderiana
Lælia purpurata Nellissii
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Aërides Lawrenceana, fine plant, and splendid variety
,, Shrœderi
Cattleya Mendeli, several fine varieties
Dendrobium Brymerianum, grand plant and variety
Cymbidium eburneum
Cattleya Skinneri ocullata, 7 leads
Aërides Leonii expansum
Cattleya gigas, several fine varieties
,, Warneri, several fine varieties
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On view morning of Sale, and Catalogues had.

Barnes, S.W.

A few minutes' walk from Barnes Railway Station, and Hammersmith omnibuses passing every twenty minutes.

ANNUAL SALE.—Important to Gentlemen, Florists, and others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Barnes Nursery, High Street, Barnes, S.W., on WEDNESDAY, May 22, 1889, at 1 o'Clock precisely, by order of Messrs. E. Bristow & Son, without reserve, 15,000 well-grown BEDDING PLANTS.

May be viewed the day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, Estate Agents, and Valuers, 67 and 68, Cheapside, E.C.; and Leytonstone.

Wednesday Next.

A very fine Collection of small Greenhouse and Stove FERNS, and other PLANTS, in variety, PALMS, 1,000 EUCHARIS CANDIDA, and a quantity of Hardy PLANTS and BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, May 22, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Blackheath, Kent, S.E.

The St. James' Park Road Nursery, adjoining "Royal Standard Hotel," Third ANNUAL SALE of 30,000 of BEDDING and other PLANTS, including 10,000 GERANIUMS of the best sorts; 1000 CHRYSANTHEMUMS; 500 Double and Single DAHLIAS, PELARGONIUMS, Climbing and other ROSES; 3000 LOBELIAS, COLEUS, CALCEOLARIAS, PALMS, AZALEAS, CAMELIAS; 3000 HERBACEOUS PLANTS, and other Stock.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, on the Premises as above, on FRIDAY, May 24, at 2 o'Clock precisely.

On view day prior, and morning of Sale. Catalogues had on the Premises; and of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday Next.

CATTLEYA SCHRODERI.

The entire stock from which the only known white variety has has flowered, the whole for Sale without reserve, by order of Mr. G. T. White.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE on FRIDAY NEXT, May 24, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next, May 24.—Second Portion.

The justly celebrated COLLECTION of ESTABLISHED ORCHIDS formed by C. Dorman, Esq., The Firs, Laurie Park, Sydenham. The whole to be Sold, with very few exceptions, without reserve.

MESSRS. PROTHEROE AND MORRIS have received instructions to OFFER by PUBLIC AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 24, at half-past 12 o'Clock precisely, the Second Portion of the above justly celebrated COLLECTION of ORCHIDS. The plants are in the best possible health, and embrace many very desirable specimens. The following, amongst many others, may be specially mentioned:—

Cattleya Arnoldiana
,, labiata, autumn-flowering variety
,, Reineckiana superba
,, Skinneri alba
,, Trianæ Backhouseana
,, ,, Eboracensis
,, ,, Miss Dorman
,, ,, W. Goldring
,, Wagneri, the pure white
,, Mossiæ Seedling
Cymbidium Philbrickianum
Cypripedium leucorrhodum, specimen
Dendroblum crassinode Welnobile Cooksoni
Dendrobium splendidissimum
Lælia anceps alba (Bull's)
,, ,, Dawsoni
,, ,, Williamsi
,, cuspatha
,, irrorata
,, Perrini nivea
,, prosiata
,, seedling
Masdevallia cucullata
Maxillaria Sanderiana
Miltonia Blunti
Odontoglossum Schroderi
,, vexillarium superbum
Oncidium incurvum album
Sobralia leucoxantha

And a CYPRIPEDIUM SPECIES from the East Indies of most distinct and robust appearance. Great expectations may be indulged in over this plant.

Plants will be on view the morning of Sale. Catalogues forwarded post free on application to the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Friday Next.—Imported Orchids.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on FRIDAY NEXT, about 100 lots of various IMPORTED ORCHIDS for unreserved Sale, received through Messrs W. Kemsley & Co.

On view morning of Sale, and Catalogues had.

Leytonstone.

IMPORTANT ANNUAL SALE. 20,000 beautifully-grown GREENHOUSE and BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The American Nurseries, High Road, Leytonstone, on SATURDAY, May 30, at 1 o'Clock precisely, 20,000 BEDDING PLANTS, exceedingly well grown, comprising 5000 Geraniums of the best sorts, Choice Decorative Plants, 5000 Pelargoniums, fine plants; Ferns, Palms, and a great variety of other plants.

May be viewed the day prior and morning of Sale. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and High Road, Leytonstone.

The Downside Collection of Orchids.

Highly important TWO DAYS' SALE of the remaining portion of this renowned Collection of ESTABLISHED ORCHIDS, including many plants matchless in point of rarity; the whole being remarkable for culture and condition. By order of Wm. Lee, Esq., who has sold the Estate, and is relinquishing the cultivation of Orchids, Absolutely without reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, May 28 and 29, 1889, at half-past 12 o'Clock precisely each day, absolutely without the least reserve, by order of Wm. Lee, Esq., who has sold the Estate of Downside, and is relinquishing the cultivation of Orchids, the remaining portion of this extremely valuable and celebrated COLLECTION of ESTABLISHED ORCHIDS. It is difficult from such a collection to mention all plants of merit, but special attention is called to the following;—

Cattleya Trianæ Leeana
,, ,, Archduchess
,, ,, Normani
,, ,, Emiliæ
,, ,, Emperor
,, ,, Empress
,, ,, alba
,, ,, Dodgsoni
,, ,, magnifica
,, Percivaliana alba
,, ,, rubra
,, Gaskelliana rubra
,, Mendelii Leeana
,, ,, Selbornensis
,, ,, elegans
,, ,, rosea odorata
,, Mossiæ Southgatei
,, ,, aurea glandiflora
,, labiata, autumn-flowering
Lælia Amesiana
,, purpurata Williamsii
,, elegans Dayana
,, calistoglossa
,, anceps Schroderiana
Cymbidium giganteum
Odontoglossums, a large and choice selection of fine plants
Oncidium prætextum Leeanum
Dendrobium Kingianum album
,, crassinode album
,, micans
Cypripedium œnanthum superbum
,, insigne albo-marginatum
,, microchilum
,, vernixium
,, alba-purpureum
,, Wallisii
Vanda Sanderiana
,, tricolor Patersoni
,, ,, planilabris
Trichopilia tortilis alba
,, suavis alba
Epidendrum Wallisii
Cœlogyne cristata alba
Masdevallia, the original Bull's Blood

The Plants can be inspected by appointment at Downside prior to the Auction, and will be on View in the Sale Rooms on the morning of Sale. Catalogues may be had on application to Messrs. PROTHEROE AND MORRIS, Auctioneers, Estate Agents, and Valuers, 67 and 68, Cheapside, London, E.C.

North Cray.

Unreserved CLEARANCE SALE of ORCHIDS, GREENHOUSE PLANTS, and GLASS ERECTIONS, by order of the Executors of Mr. J. H. Bath.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Manor Farm, North Cray, Kent, on THURSDAY, May 30, 1889, at half-past 12 o'Clock precisely, without reserve, the remaining Portion of the extensive COLLECTION of ESTABLISHED ORCHIDS, comprising 1000 of the beautiful Odontoglossum Alexandræ, the whole of the GREENHOUSE PLANTS of the usual description, the erections of nine GREENHOUSES, 3000 feet hof Hot-water PIPING, and other effects.

May be viewed two days prior to Sale. Catalogues had on the Premises; of Messrs. MAY, SYKES, AND BATTEN, Solicitors, 2, Adelaide Place, London Bridge, E.C.; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Orchids in Flower.—Special Sale, Friday, May 31.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be glad to receive NOTICE OF ENTRIES AS SOON AS POSSIBLE.

Sale of the Foston Hall Collection of Orchids,

by order of H. J. Cumming, Esq.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at the Central Sale Rooms, on TUESDAY, June 4, at half-past 12 o'Clock precisely, the whole of the above valuable COLLECTION of ESTABLISHED ORCHIDS. For Sale, without reserve. Further particulars will appear.

Thursday Next.—(Sale No. 7930.)

RECEIVED DIRECT.

Extensive consignments of VANDA CATHCARTII, DENDROBIUM NOBILE, and D. DENSIFLORUM, just to hand; also CATTLEYAS, LÆLIAS, ONCIDIUMS, and other BRAZILIAN ORCHIDS, in fine order.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 23.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7930.)

Magnificent Specimen ZAMIAS, CYCADS, CYBOTIUMS, DASYLIRIUMS, YUCCAS, AGAVES, and other STOVE and GREENHOUSE PLANTS, suitable either for exhibition or conservatories.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 23.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 7930).

A fine lot of ESTABLISHED ORCHIDS, many in Flower and Bud, including some splendid forms of Odontoglossum Alexandræ, &c., &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 23, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W., on WEDNESDAY, June 12, at half-past 12 o'Clock precisely, and he will be glad if gentlemen desirous of entering plants for this Sale will send List as soon as possible.

Preliminary Announcement.

THE CRAWFORD COLLECTION OF ORCHIDS.

MR. J. C. STEVENS has received instructions from W. H. S. Crawford, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY, June 12 and 13, at half-past 12 o'Clock precisely each day, without the least reserve, the COLLECTION of ORCHIDS formed by the late W. H. Crawford, Esq., of Lakelands, Cork, comprising about 700 specimens, some being fine exhibition plants, all in the best possible health, and many of great rarity and value.

Further particulars in future Advertisements.

Greenhouse Plants.

By direction of Mr. Wm. Fisher, of Wright Street, Small Heath, and Market Hall, Birmingham, who is giving up growing.

MESSRS. POPE AND SONS, HORTICULTURAL AUCTIONEERS, will SELL by AUCTION, on WEDNESDAY, May 15, 1889, and on WEDNESDAY, May 22, 1889, at 12 o'Clock in Phillip Street, the well-known Rooms adjoining the Market Hall, Birmingham, a choice COLLECTION of PLANTS, including Palms, Ferns, India-Rubbers, Eucharis, Stephanotis, &c.

Catalogues may be had from the Auctioneers the day prior to Sale, and Plants on view the morning of Sale.

FOR DISPOSAL, a NURSERY, SEED, and FLORIST BUSINESS—one of the most lucrative to be found near London, 10 miles out. Reason for selling, proprietor having several other branches cannot give necessary time. Seven large Greenhouses, and a number of Frames—all efficiently heated, and in excellent repair. Good Dwelling-house and attractive Shop, fitted with every convenience for a busy trade. Clean, healthy, valuable Stock; beautiful neighbourhood. Price for Stock, Lease, &c., £900.

Apply, HORTUS, 41, Wellington Street, W.C.

To Nurserymen, Florists, and Gardeners.

TO BE SOLD, the Lease and Goodwill of a well-established NURSERY BUSINESS. Good Jobbing Connection. Valuation low, and on easy terms.

Apply to Mr. CLINGO, Waverley Nursery, St. John's Wood, N.W.

TO BE SOLD, on Lease, an old-established NURSERY, with Dwelling-House, 10 Greenhouses, 6 Pits, large Conservatory and Shop, 3 Acres of Land, good Stables, in good repair. Five miles from Covent Garden. Rent moderate.

Apply, P. L., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO BE SOLD, by Private Treaty, as a going concern, a large and well-equipped NURSERY, situate about seven miles from Manchester. There are 11 Houses, varying in length from 20 to 60 yards, and the stock inside comprises Adiantum cuneatum, Double White Primula, Lomaria gibba, Palms, Draccenas, Azaleas, Pancratium, Spiræa japonica, mixed Ferns, Eucharis amazonica, &c. The outside of the Nursery is stocked with Rhododendrons and Rose Trees. There is ample plant and working utensils.

Particulars can be obtained on application to Messrs. BOOTE AND EDGAR, 18 and 20, Booth Street, Manchester.

TO BE DISPOSED OF, MILL STREET NURSERY, situate in centre of Derby, including ten well stocked Greenhouses. Good going concern, with excellent connection. Satisfactory reasons for retiring.
For further particulars, apply to J. WOOD, George Street, Burton-on-Trent.

NURSERY (London West), within 8 miles of Covent Garden, about 1 Acre of Glass, consisting of Eight large Greenhouses and Pits, well stocked, Heated with Hot-water. Lease 16 years, with two Cottages. Rent £58.
Particulars of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

TO BE LET, or SOLD, a fine opening for Florist, Seed, and Jobbing Business. Corner situation, central position, chief thoroughfares, 2 miles from Southampton, half mile from station. New detached, superior built 6-room COTTAGE. About half an acre of fine deep loamy LAND. Immediate possession. Land planted with Vegetables.
Apply, N. BLANDFORD, Moor Hill, Westend, near Southampton.

FLORIST.—Capital opening for steady person. Ground, Hot-house, and every necessary appliance. Rent £30. No opposition.
Apply, J. H. HARMAN, Estate Office, Clacton-on-Sea.

FIRST-CLASS WEST-END PREMISES, one door from Piccadilly, of the net annual value of £610, and held direct from the Freeholder for a long unexpired term, together with or without the Goodwill of the Old-established Seed Business of Thomas Gibbs & Co., or Offers for the Trade and Use of the Name, apart from the Lease, might be entertained.
Apply on the Premises, 26, Down Street, Piccadilly, W.; or to Messrs. EDWIN FOX AND BOUSFIELD, 99, Gresham Street, Bank, E.C.

Channel Islands.
TO LET, the charming RESIDENCE, Highfield, St. Saviour's, Jersey, with Conservatory, Green and Hothouses, fitted with every convenience for saving labour. Magnificent Land and Sea Views. Situation high, subsoil gravelly; abundant water supply. The DWELLING-HOUSE contains Drawing, Dining, and Reception Rooms, Bedrooms, with necessary Offices, Stabling, &c.
The GLASSHOUSES consist of Conservatory, 26 by 17 feet; 2 Cruciform Houses, 98 by 32 by 22 feet, 124 by 48 by 22 feet; 1 Span, 70 by 15 feet; 2 Lean-to, 57 by 13 feet, 180 by 10 feet. All communicating. The whole heated by Horizontal Boiler; water laid on all over the houses. Surrounded by Ornamental Gardens, Avenues, Kitchen and Flower Gardens.
100 yards from above on same estate, 4 Span-roofed Houses, 68 by 11 feet; 5 Spans, 74 by 12 feet; heated by 1 Boiler, and water laid on. The whole water system supplied by Hot-air Engine and Forcing Pump in Engine-house.
The above combines the advantages of a charming residence, in a most genial climate, with adaptability for carrying on a lucrative business, it having been specially constructed for Growing Forced Fruits, Vegetables and Flowers, for supplying Covent Garden and other markets.
The reason for letting being the recent death of the proprietor.
Apply, Mrs. BRAYN, Highfield, Lower Trinity, St. Saviour's, Jersey.

To Florists and Market Gardeners.
TO BE LET in the neighbourhood of Covent Garden, a well-furnished Bed-room.
Apply, 12, Wilson Street, Long Acre, W.C.

TO LET, a SEED and FLORIST BUSINESS, as a going concern, in one of the best thoroughfares in Tunbridge Wells. House and Shop, £68 per annum. Stock, Fixtures, &c., £256, with immediate possession.
Particulars of STURT AND CO., High Street, Tunbridge Wells.

Wimbledon. Near the three stations of the L. & S. W. R., L. B. & S. C. R., and District Railway.
TO BE LET, a semi-detached RESIDENCE. Every convenience. Very large Garden, Greenhouses, &c. Suitable for a Florist or an Amateur Garden.
Apply to Mr. BRIDGE, 22, Chancery Lane, W.C.

To Market Gardeners and Others.
TO BE LET, about 14 Acres of excellent MARKET GARDEN GROUND, in good Cultivation, with Peas, Potatos, Carrots, Cabbage, &c., and Bulbs of all kinds. There are Piggeries, Cooking-house, Pigs, Horses, Carts, Ploughs, Harness, and other Farming Implements, Cart-sheds, Stables, and other Outbuildings, in good condition. Lease 16 years to run. Rent £42 per annum. The Ground is noted for growing Early Crops. Reason for selling, proprietor retiring from business.
Apply to Mr. A. ROGERS, Auctioneer and Estate Agent, Walton-on-Thames.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.
(JOHN COWAN), Limited,

Have just received large Importations of ORCHIDS from East India and Mexico, including a fine lot of VANDA AMESIANA, V. CŒRULESCENS, V. CŒRULEA, CYPRIPEDIUM BELLATULUM, DENDROBES in variety, ODONTOGLOSSUM ROSSI MAJUS, L.ELIA FURFURACEA, EPIDENDRUM VITELLINUM MAJUS, &c.

Lists, with Prices and Full Particulars, on application.

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

GRAND FLORAL FÊTE

AND PROMENADE

IN AID OF

The Gardeners' Orphan Fund,

ON

WEDNESDAY NEXT, MAY 22, 1889, from 8 to 12 p.m.,

IN THE

WHOLESALE FLOWER MARKET, COVENT GARDEN,

SPECIALLY GRANTED FOR THE OCCASION BY

HIS GRACE THE DUKE OF BEDFORD, K.G.

Under the immediate Patronage of

H.R.H. PRINCESS MARY ADELAIDE DUCHESS OF TECK.

HER GRACE THE DUCHESS OF BEDFORD . THE MARCHIONESS OF SALISBURY.

THE BARONESS BURDETT-COUTTS . . . . THE BARONESS BOLSOVER.

THE COUNTESS SPENCER . . . . . LADY GOLDSMID.

LADY GEORGE HAMILTON . . . . . LADY DOROTHY NEVILL.

THE LADY MAYORESS.

THE BARONESS BURDETT-COUTTS

Has kindly consented to open the Fête at 8 o'Clock.

BAND OF HER MAJESTY'S ROYAL HORSE GUARDS.

(By permission of Col. the Hon. Oliver Montagu.)

Conductor .. .. Mr. CHAS. GODFREY, R.A.M.

ADMISSION:

By Ticket, price Five Shillings (limited to 2,000). To be obtained of The Hon. Secretary, A. F. BARRON, Royal Horticultural Society's Gardens, Chiswick;

Mr. ASSBEE, Market Office, Covent Garden;

or of Mr. W. RICHARDS, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand.

A WELL-STOCKED GREENHOUSE.—ABUTILONS, all the best and newest; 12 fine sorts, 3s. 6d.

BEGONIAS (evergreen class), fine for summer or winter; 6 fine sorts, 1s. 9d.

HELIOTROPES (Cherry Pie), fragrant and free bloomers, best new and old sorts; 12 for 2s. 6d.

LANTANAS, fine for greenhouse decoration, pretty and free; 12 sorts, 2s. 6d.

SALVIAS, distinct and pretty; 6 fine sorts, 1s. 6d. Half number at same rates. New CATALOGUE of these and everything else you want for Greenhouses or Gardens, free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

NEW ROSES.—The following are some of the finest of the new varieties introduced during the past two seasons. We have proved them, and can recommend them as desirable acquisitions which any Amateur may with confidence add to his Collection. Strong plants in pots now ready.

		s.	d.
LADY ALICE, the new creamy-white Hybrid Perpetual	each	3	6
SIR ROWLAND HILL, splendid deep rich maroon, a grand variety	each	3	6
GLOIRE DE MARGOTTIN, brilliant red, said to be the brightest Rose known	each	2	0
MADAME HOSTE, pale yellow, Tea-scented variety, of fine form; considered by some to be one of the finest introductions since Maréchal Niel was sent out	each	2	6
LUCIOLA, Tea-scented, bright carmine rose, tinted with saffron-yellow; exceptionally distinct and good	each	2	0
RED PET, GOLDEN FAIRY, LITTLE DOT { Exceedingly pretty ... ... / New Polyantha ... ... / Or Fairy varieties		2	6
		2	6
		2	6
L'IDEALE, a new Noisette, metallic red, streaked with golden-yellow, quite distinct; will be as popular as W. A. Richardson when it becomes known	each	2	6
One strong plant of each of the above new varieties, 21s. Basket and packing free for cash with order.			
TEA-SCENTED ROSES IN POTS, fine bushy plants coming into flower...	per dozen	16	0
HYBRID PERPETUAL ROSES IN POTS, for turning out to fill up vacancies, form new Rose Beds, &c.	per dozen	10	6

List of ROSES in Pots, DAHLIAS, CHRYSANTHEMUMS, &c., Gratis and Post-free.

GEO. COOLING AND SONS, The Nurseries, Bath.

STOVE PLANTS, GREENHOUSE PLANTS, such as ALLAMANDAS, STEPHANOTIS, BOUGAINVILLEAS, CLERODENDRONS, and other fine CLIMBERS.

CROTONS, DRACÆNAS, and other fine foliage varieties; IXORAS, HIBISCUS, POINSETTIAS, and other flowering bush-habited plants, in finest varieties, clean, healthy, all named; 12 distinct kinds, 12s., 18s., 30s. per dozen.

Attention is specially asked to the very fine and rare OCHNA MULTIFLORA, OXERA PULCHELLA, SCHUBERTIA GRANDIFLORA. For Prices and Descriptions see new CATALOGUE.

GREENHOUSE PLANTS, equally well selected, good and healthy; 12 sorts, 9s., 12s., 18s., half at half-price. New CATALOGUE of these and all you want for a garden free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nurseries, Altrincham; 10 and 12, Market Street, Manchester.

The Best Present for a Gardener.

VINES and VINE CULTURE. The most complete and exhaustive Treatise on Grapes and their Culture ever published.

New Edition.

Price 5s., post-free 5s. 6d.

A. F. BARRON, Royal Horticultural Society, Chiswick.

"A New Plant to English Gardens."

HARTLAND'S NEW "GOLDEN QUILLED"

DOUBLE SUNFLOWER, "SOLEIL D'OR."

Strong Plants, 1s. 6d. each; Extra Clumps, 2s. 6d.; post-free for cash. The clumps can be divided for quantity. It is one of the finest things introduced to English gardens for years. For cutting purposes and harvest festival decorations superb.

WM. BAYLOR HARTLAND, Seedsman, 24, Patrick Street, Cork. Trade Price special.

20,000 DAHLIAS, Show, Fancy, Single, Bedding, Cactus, Bouquet. See CATALOGUE of the whole Family of these and everything else you want for a Garden, free for 3 stamps.

12 lovely kinds of any class, 3s.; 25 lovely kinds of various class, 6s.; 50 lovely kinds of various class, 11s.; 100 lovely kinds, of various class, 21s.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

To the Trade.

Choice Home-grown VEGETABLE and FIELD SEEDS.

H. AND F. SHARPE are prepared to make special low offers of their exceptionally fine Stocks of VEGETABLE and FIELD SEEDS of 1888 growth, and all carefully selected. Prices and further particulars may be had on application.

Seed Growing Establishment, Wisbech.

W. GORDON, Importer of ORCHIDS.

AN IMMENSE STOCK of recently imported plants compels a SALE of the ESTABLISHED PLANTS to make room. They have not yet flowered, but are all flowering plants, and must be sold at a GREAT SACRIFICE. Very valuable varieties are certainly to be obtained, and great bargains. See Public Journals for high prices recently obtained. The SPECIAL OFFER affords a PAYING INVESTMENT to anyone with glass at command, which should not be overlooked. Such plants may never again be offered to the Public and Trade. GOOD ESTABLISHED PLANTS:—

25 in	25 species and varieties	... ...	£3	3 0
50 in	50 "	"	5	5 0
100 in	100 "	"	10	10 0

CATALOGUE of the above large stock held on application to W. GORDON,

The Nurseries, Amyand Park Road, Twickenham, Middlesex.

CHOICE FLORISTS' FLOWERS

Our collection of these includes all the newest and most beautiful varieties in cultivation, and Customers ordering from the following list may rely on only the finest sorts being sent. The plants are guaranteed strong and healthy, well seasoned, and true to name, and with the exception of Chrysanthemums, all from single pots:—

Post or Carriage Free at Prices quoted.

	Per dozen.—s.	d.
COLEUS, a charming assortment of the newest and most beautiful sorts, 6 for 2s.	3	6
CHRYSANTHEMUMS, new and very choice sorts, our selection 6 for 3s. 6d.	6	0
" from our very large collection, including all the best of the Japanese, Incurved, Reflexed, and Pompon varieties ... ... 2s. 6d. and	3	6
CYCLAMEN persicum giganteum, strong autumn-sown seedlings, splendid stuff for blooming next autumn, 6 for 2s. 6d.	4	6
DAHLIAS, Show and Fancy, new vars. of 1888 (Keynes, &c.), 6 for 5s. 6d.	10	6
" from our magnificent collection of 250 carefully selected varieties, good plants, 6 for 2s. 6d....	4	6
" Pompon, in beautiful variety, 6 for 2s. 6d. ...	4	6
" Cactus-flowered, including the newest and most beautiful sorts, 6 for 2s. 6d.	4	6
" " Mikado, new, beautiful, terra cotta-fawn colour, distinct and charming variety, each 1s. 6d., 3 for 4s.		
" Single-flowered, all the most beautiful sorts, 6 for 2s.	3	6
FUCHSIAS, seven superb new varieties, a charming set, 10s. 6d.		
" select varieties from our splendid collection, 6 for 2s. 6d.	4	6
PELARGONIUMS, single-flowered, Zonal, a set of 9 superb new varieties of 1888 (Pearson), 10s. 6d.		
" Single-flowered Zonal, very choice sorts, from our magnificent collection, 6 for 2s. 6d. ...	4	6
" Double-flowered Zonal, 3 superb new sorts for 1889, 8s.		
" Double-flowered Zonal, in splendid variety, very choice, 6 for 2s. 6d.	4	6
" Double-flowered, Ivy-leaved, magnificent for pot culture, a set of 5 superb new sorts, very fine, 10s. 6d.		
" Double-flowered, Ivy-leaved, most beautiful sorts to name, 6 for 2s. 6d.	4	6
PENTSTEMONS, most beautiful varieties, fine young plants, ready for planting out in the garden, 6 for 2s.	3	6
PHLOXES, Herbaceous, we have a fine collection of these beautiful hardy plants, which we offer in strong stuff ready for immediate planting, 6 for 2s.	3	6

DANIELS BROS.,

TOWN CLOSE NURSERIES,

NORWICH.

TO THE TRADE.

ARALIA SIEBOLDII.—Fresh Seed, just harvested. Price per ounce on application.

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Selection of the above, from Borneo, Manilla (Philipines), Bangkok, Java, Rangoon (Burmah), &c., to the extent of £5 and upwards, packed and shipped (at consignee's risk) on receipt of order with remittance. Address,

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UPPER WILKIE ROAD, SINGAPORE.

Special care given in packing.

NEW VARIETIES ALWAYS ON HAND.

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Special Prices, with Catalogue, Post Free.

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(Limited.)

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NARCISSUS CAPAX, the rare Queen Anne Daffodil, for pots, &c., price per 1000 or per 100.

W. BAYLOR HARTLAND, Seedsman, Cork.

ROSES—CLEMATIS—ROSES—all in pots, can be sent and planted any time; the finest named sorts. See Catalogue, with colours, descriptions, prices of these, and all you want for a Garden, free for 3 stamps. 12 fine TEA and NOISETTE ROSES, 15s.; 12 Hybrid Perpetual ROSES, 12s.; 12 Extra-sized Tea and Noisettes to force now, 30s.; for Arbours, Pillars, Walls, &c.

3 CLEMATIS, in 3 distinct colours, 3s. 6d.; 6 CLEMATIS, in 3 distinct colours, 6s.; 12 CLEMATIS, in 3 distinct colours, 10s. 6d.

WM. CLIBRAN and SON, Oldfield Nurseries, Altrincham; 10 and 12, Market Street, Manchester.

A few Large Healthy Palms.

FOR IMMEDIATE DISPOSAL, LATANIA BORBONICA, CHAMÆROPS EXCELSA and PHŒNIX RECLINATA, 3 to 6 feet high, from 10s. per pair.

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CHEAP BEDDING PLANTS.

GERANIUMS, strong and healthy, autumn struck, from single pots—Vesuvius (scarlet), Jean Sisley, Master Christine, Madame Voucher, 2s. 6d. per doz., 14s. per 100; Happy Thought, Silver Leaf, Bronze Perilla, Henry Jacoby, 3s. per doz., 16s. per 100; Ivy-leaf, splendid doubles, named varieties, and Oak-leaf, sweet-scented, 4s. per doz. VERBENAS, Purple, Striped, Rose-pink, Scarlet, White, 1s. 9d. per dozen, 8s. per 100. CALCEOLARIAS, Golden Gem, 2s. per dozen, 10s. per 100. LOBELIAS, Emperor William, best blue, true from cuttings, 2s. 6d. per 100, 20s. per 1000. DAHLIAS, Single, named, all shades of brilliant colours, from single pots, including White Queen and Parsgon, 2s. 6d. per dozen, 18s. per 100; Double, best named, Show, Fancy, and Pompones, 2s. 6d. per dozen, 18s. per 100; Cactus, Juarezii, Constance, Fire King, 4s. per dozen. VIOLA CORNUTA, Queen of Blues and White Virgin, 4s. 6d. per 100, 35s. per 1000. AGERATUM, Hardy's selected Blue Dwarf, 4s. 6d. per 100, 35s. per 1000. MARGUERITES, Yellow, Large White, Small White, 10s. per 100. MIMULUS, Queen's Prize, splendid colours, 2s. per dozen, 15s. per 100. PYRETHRUM AUREUM, new dwarf, Golden Feather, 2s. per 100, 20s. per 1000. PETUNIA, Prize Fringed, beautiful striped colours, mixed, 5s. per 100, 40s. per 1000. CHRYSANTHEMUM, selection of finest named show varieties, 2s. 6d. per dozen, 18s. per 100, from single pots. Cash. Extra Plants for Carriage. Package Free.

CATALOGUE Gratis.

H. I. HARDY, F.R.H.S., Stour Valley Nurseries, Bures, Suffolk.

FORBES' CATALOGUE for 1889 is the largest, best, most reliable and complete ever issued on Florists' Flowers.

It consists of 112 pages of closely-printed matter, with Prices and full descriptions of all the newest and best Pansies, Violas, Phloxes, Pentstemons, Antirrhinums, Hollyhocks, Delphiniums, Pyrethrum, Potentillas, Auriculas, Dahlias, Pelargoniums, Fuchsias, Petunias, Begonias, Perennials, Stove and Greenhouse Plants, Ferns, &c., all of which are made a leading specialty, and can consequently be had better than anywhere else.

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Free on application.

JOHN FORBES, Buccleuch Nurseries, Hawick, Scotland.

FUCHSIAS, TUBEROUS BEGONIAS.—10,000 FUCHSIAS, just the cream of all the Fuchsia family in flower, habit, and freedom; 12 lovely sorts, 3s. 6d.; 25 sorts, 6s. 6d.; 50 sorts, 12s. 6d.

TUBEROUS BEGONIAS.—We have so improved the quality of our seedlings that we discarded last season all the named singles, the seedlings being much finer; 12, all different shades, large flowers, dwarf habit, 4s.; 12 finer, 6s.; 12 lovely double varieties—all these are named sorts, 21s.

New CATALOGUE of these and all other plants for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

ASPARAGUS.—This delicious Vegetable does not require half the expense often incurred. For direction see Illustrated Seed List, free. Strong Roots, 2s. 6d. per 100.—RICHARD SMITH AND CO., Worcester.

PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.

FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey, and Flower Market, Covent Garden, W.C.

Cheap Bedding Plants.—Special Offer.

WILLIAM BADMAN offers as under, from store pots, all well rooted, and fit for present potting. The present is a good time for making up losses sustained during the winter:—VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6s. per 100; 12 choice named varieties, 8s. per 100. LOBELIA, Bluestone, pumila magnifica, Brighton Blue, 3s. per 100. CALCEOLARIA, Golden Gem, 6s. per 100. HELIOTROPE, Jaun d'Amour, Miss Nightingale, 6s. per 100. AGERATUM, Imperial Dwarf, blue, 5s. per 100. COLEUS VERSCHAFFELTI, bedding crimson, 8s. per 100. IRESINE LINDENII, dark crimson, good bedder, 8s. per 100. PELARGONIUM, Vesuvius, finest bedding scarlet, 8s. per 100; Master Christine, Mrs. Levers, Jenny Dodds, best pinks, 12s. per 100; Henri Jacoby, best crimson, 12s. per 100; Madame Vaucher, Niphetos, white, 12s. per 100; Queen of the Belgians, finest white, 3s. per doz., 20s. per 100; Waltham Seedling, Lucius, Jean Sisley, White Vesuvius, John Gibbons, 12s. per 100. SILVER VARIEGATED, May Queen (Turner's), Princess Alexandra, Flower of Spring, Little Trot, Prince Silverwings, Lady Plymouth, 12s. per 100. GOLD-LEAF, Crystal Palace Gem, Happy Thought, 12s. per 100. BRONZE, McMahon, Black Douglas, The Czar, best bedders, 15s. per 100. TRICOLOR, Mrs. Pollock, 15s. per 100; Sophia Dumaresque, Lady Cullum, Sir R. Napier, 18s. per 100. DOUBLES, F. V. Raspail, finest scarlet; Madame Thibaut, pink; Madame Baltet, Le Cygne, white, 12s. per 100. TROPÆOLUM, Vesuvius, Coccinea elegans, 10s. per 100. FUCHSIAS, in 12 good named varieties, 8s. per 100. PELARGONIUMS, Show and Decorative, from single pots, 3s. per dozen, 20s. per 100.

NOTE.—Not fewer than twenty-five of any one sort supplied at above rate. Packing included. Terms cash.

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LAWSON'S FIELD ROOT SEEDS.

PETER LAWSON & SON, LIMITED,

WHOLESALE SEED GROWERS AND MERCHANTS,

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Will be glad to send, upon application, Special Offers of their Selected Stocks of

SWEDE, YELLOW, HYBRID, & WHITE-FLESH TURNIP SEEDS.

ALSO THEIR SUPERIOR STOCKS OF

MANGEL WURZEL SEEDS,

All of which usually give much satisfaction to their Constituents.

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CALADIUMS, GLOXINIAS. — Lovely CALADIUMS of the finest sorts, splendid varieties, handsome foliage, clean, easily grown; 12 sorts, 6s., 9s., 12s.

Gorgeous GLOXINIAS, rich colours, pretty foliage, lovely flowers; 12 for 6s., 9s., 12s. New CATALOGUE of these and all other plants, 130 large pages, free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

10,000 DAHLIAS—DAHLIAS—DAHLIAS—Strong, healthy, green Plants, now ready, from 3-inch pots, 160 best varieties, 3s. per dozen, 20s. per 100. Send for a List or Sample dozen. Packing free.

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TEA-SCENTED ROSES

SPRING CATALOGUE NOW READY,

Containing New French and other varieties, with Descriptive List of

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CLEMATIS,

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BEDDING PLANTS, &c.,

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FERNS A SPECIALTY.

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CUTBUSH'S MILL-TRACK MUSHROOM SPAWN.—Too well known to require description. Price, 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by parcel post, 1s.

None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.

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To the Trade.

MANGEL WURZEL and TURNIP SEEDS.

H. AND F. SHARPE will be pleased to give special quotation for their fine selected stocks of home-grown MANGEL WURZEL and TURNIP SEEDS of 1888 growth, and raised from picked bulbs. The growth is strong, and the prices will be found very reasonable. Samples may be had on application.

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STRAWBERRIES.—Good Plants of all the best of the new and old varieties. One of the largest Growers in the Trade. Stocks true. Prices reasonable. Send for Special Descriptive LIST free.

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8 ACRES HERBACEOUS and HARDY PLANTS, true to name, not seedlings (which are generally inferior to the type). Send for a Catalogue of all you want for a garden, free for 3 stamps. It includes over 1000 varieties, selected during 15 years' careful study of this class of plant, and an annual buying in of all that seems good, and a weeding out of the poor kinds, with height, time of blooming, and other useful particulars.

12 Hardy HERBACEOUS PLANTS...	...	£0	4	0
50 " " " ...	...	0	14	0
100 " " " ...	...	1	5	0
500 " " " ...	...	5	5	0

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BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Tubers, Named Singles, from 12s. to 42s. per doz.; Unnamed Seedlings, 12s. to 21s. per doz.; Bedding, choicest, 6s. and 9s. per doz.; choicest Named Doubles, from 42s. per doz.; Unnamed, very choice, 24s. and 30s. per doz.; choicest Mixed, 18s. per doz. Order direct from us, to procure our splendid strain. CATALOGUES gratis.

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CUT FLOWERS, BULBS, PLANTS, &c.—Best class of customers in district for good flowers.

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GERANIUMS — PELARGONIUMS — GERANIUMS.—All the finest sorts, from English and Continental raisers, for Pot Culture for Summer or Winter, bought in every spring, tried and inferior kinds discarded. 12 fine Single Zonals, 4s.; 12 fine Doubles, 4s.; 12 beautiful Ivy-leaf varieties, 4s.

PELARGONIUMS, the finest flowers, best habits, most robust growers, 12 fine varieties, 6s.; 12 large Plants, 9s. or 12s. All you want for a Garden may be selected from our new CATALOGUE, free for 3 stamps.

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THE GARDENERS'

ROYAL BENEVOLENT

INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL

AT

The "ALBION," Aldersgate Street,

JUNE 13, 1889,

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Received since last week:—

J. S. DISMOOR, Esq., Stuart House, Gravesend ...	£1	1	0
Mr. C. COOPER, Seedsman, Plymouth	2	2	0
Mr. G. SMITH, Dell Nursery, Birkenhead	1	1	0
Mrs. ARMFIELD, Ravenswood, Edgbaston	2	2	0
Mr. GLEESON, Clumber Gardens, Worksop ...	1	15	0
Mr. F. CASEY, Nurseries, Clapton	1	0	0
Mr. COULSON, Dunstall Gardens, Burton-on-Trent	1	1	0
GEORGE HANBURY, Esq., Portman Square ...	10	10	0
J. N. HICHERS, Esq., Beech Grove, Sunning Hall	2	2	0
Mrs. CRUNDELL, The Moat, Eltham...	5	0	0
LOUIS HUTH, Esq., Possingworth, Sussex... ...	5	0	0
T. H. WOMALL, Esq., Gilston Road, S.W.	3	3	0
L. A. SAMUELLS, Esq., Bushey, Herts (annual) ...	1	1	0
JOHN FRY, Esq., Bolton Gardens, S.W.	3	3	0
JOHN F. FLEMMICH, Esq., Roehampton	10	10	0
Mr. SOUTHGATE, Thorpe Perrow Gardens, Bedale	0	10	0
Mr. GALE, Thorpe Perrow Gardens, Bedale... ...	0	10	0
Sir J. D. HOOKER, The Camp, Sunningdale ...	2	2	0
Mr. J. R. BOX, Seed Merchant, Croydon	1	1	0
Mrs. WILDER, Sulham House, Reading	1	1	0
Mr. MUNRO, Cleveland Gardens, Lyme Regis ...	1	1	0
LOUIS SCHOTT, Esq., James Street, Buckingham Gate	5	0	0
J. F. GORDON, Esq., Woodside, Surrey	10	10	0
JOSHUA SAUNDERS, Esq., Sutton House, Clifton	2	2	0
F. WIGAN, Esq., Clare Lawn, East Sheen	21	0	0
W. STURDY, Esq., Paxhill Park, Surrey	10	10	0
Mr. POTTS, Jun., Elmsede Gardens, Northiam ...	1	1	0
Mr. HARRIS, Woolland Gardens, Blandford ...	0	10	6
J. STUART HODGSON, Esq., 8, Bishopsgate Street	50	0	0
Mrs. HUGHES, Camden Road	3	3	0
JOHN CONNELL, Esq., Bushey Down, Tooting Common	3	3	0
RICHARD OLIVERSON, Esq., Gloucester Square, Hyde Park	10	10	0
HENRY CAZENOVE, Esq., Lilies, Aylesbury ...	10	10	0
C. J. SALTER, Woodhatch Gardens, Reigate ...	0	10	0
Mr. JESSE FOULK, Huntercomb Gardens	2	11	0
Mr. J. THOMSON, Kemnal Gardens, Chislehurst ...	2	6	6
Mr. HUDDY, Tilworth Gardens, Axminster ...	0	5	0
W. B. FAULKNER, Esq., Fairholm, Wimbledon ...	2	2	0
WM. PEECH, Esq., Fern Bank, Roehampton ...	10	10	0
E. BIRD FOSTER, Esq., Anstey Hall, Cambridge ...	5	0	0
ERIC C. SMITH, Esq., 1, Lombard Street	5	0	0
GEORGE BONNER, Esq., Queen's Gate Terrace ...	5	0	0
ARTHUR E. PHILLIPS, Esq., Foxhill, Reading ...	2	2	0
Mrs. MITCHELL, Wandle House, Mitcham... ...	1	1	0
GEORGE CLIFT, Esq., The Laurels, Winchfield ...	2	2	0
Mr. JAS. HUGHES, Northwood Villas, near Birmingham (annual)	1	1	0
H. WILLAN, Esq., Hanley Castle, Worcestershire...	1	1	0
Mr. SALCOMBE, Vineyard Gardens, Ticehurst ...	0	5	0
Mr. J. PEED, Nurseries, Streatham	3	3	0
WM. FOWLER, Esq., Moor Hall, Harlow	50	0	0
HY. J. ATKINSON, Esq., Gunnersbury House, Acton	10	10	0

BIRMINGHAM AND MIDLAND COUNTIES CHRYSANTHEMUM,

FRUIT AND FLORICULTURAL SOCIETY.

THE TWENTY-NINTH ANNUAL EXHIBITION OF CHRYSANTHEMUMS, FRUITS, &c.,

will be held NOVEMBER 20 and 21, 1889.

GREAT CENTENARY PRIZES Open to all England.

SPECIAL INVITATION to the Great Growers of the East, West, North, and South, to meet on intermediate grounds. The Winner of the First Prize will be considered the Champion of the Season.

Fifty-four Pounds Ten Shillings in one Class, as follows :—

48 BLOOMS of CHRYSANTHEMUMS, 24 Incurved and 24 Japanese, distinct, 1st Prize, £25; 2nd, £15; 3d, £7; 4th, £4; 5th, £2; 6th, £1 10s.

Many other Liberal and Open Prizes in proportion.

Schedules will be ready about June 1, and may be had post-free on application to *J. HUGHES, Secretary.*
Northwood Villas, Metchley Lane, Harborne, Birmingham.

TESTIMONIAL TO MR. ARTHUR BLICK,

OF THE LATE

ROYAL HORTICULTURAL GARDENS,

SOUTH KENSINGTON.

It has been proposed by several Gentlemen that the present time is a fitting opportunity for the large body of Nurserymen, Gardeners, and others, who have been in the habit of exhibiting at the Royal Horticultural Society's Shows for many years past, to make some little recognition of the services of Mr. Blick, who for the past twenty-eight years has been employed at the Royal Horticultural Gardens, South Kensington, and who has now, owing to the collapse of the Gardens at South Kensington, been thrown out of a situation on the shady side of his life. The following Gentlemen have kindly consented to form a Committee to carry out the above proposal, viz.—

Mr. W. BULL, ...	King's Road, Chelsea.
Messrs. CARTER AND CO., ...	High Holborn.
Messrs. W. PAUL AND SON.	Waltham Cross.
Mr. H. TURNER, ...	Slough.
Mr. JOHN WILLS, ...	South Kensington.
Mr. F. SANDER, ...	St. Albans.
Mr. F. Q. LANE, ...	Gt. Berkhampstead.
Mr. H. HERBST.	Richmond.
Mr. H. HAWKINS, ...	Twickenham.

The Smallest Subscription will be thankfully received by Mr. J. ALDONS, Florist, Gloucester Road, S.W. *(Hon. Treasurer)*; or Mr. S. M. SEGAR, Royal Exotic Nursery, South Kensington *(Hon. Secretary)*.

N.B. Subscriptions limited to One Guinea.

NOTICE.—We find, owing to an unprecedentedly large demand, that we have as many Orders on hand as will exhaust our Stocks of Pansies, Violas, Dahlias, and Pyrethrums, and consequently we cannot now accept orders for any of these to be executed this Spring.

We are still open to Book Orders for PHLOXES, and numerous other Flowers; full particulars regarding which can be had in our CATALOGUE and COMPETITORS' GUIDE, which we shall with pleasure send Gratis to all who apply for it. It is the most practical and useful book published, and extends to 128 pages of closely-printed matter.

DOBBIE AND CO., Floris's, Rothesay.

20,000 CARNATIONS, PICOTEES, PINKS.—All true from layers; grand double well-marked flowers (not seedlings), splendidly rooted, named, for exhibition or borders. All the good varieties of the most noted raisers.

12 fine sorts, CARNATIONS, 6*s.*; 12 PICOTEES, 6*s.*; 12 PINKS, 3*s.* 6*d.*; 6 of each, 8*s.* 3*d.* Fine Border Carnations, 4*s.* per dozen. See new CATALOGUE of these and all wanted for a garden, free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham, 10 and 12, Market Street, Manchester.

10,000 ALTERNANTHERAS for disposal (surplus).—8 kinds, namely—Amœna Spectabilis; Cæ ilis Amœna; Magnifica; Aurea Nana (new dwarf from America, fine, bright-golden colour). Price on application.

FLORIST, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Tomatos.

SUTTON'S EARLIEST OF ALL and MAIN CROP, good Plants, ready to plant out any time, 12 for 3*s.*; 100, 20*s.*; less by the 1000.

To be had for cash at
R. CLARKE'S, Market Gardener, Twickenham.

100 Herbaceous and Alpine Plants for 25s.

RICHARD SMITH AND CO.'S SELECTION, as above, contains a most interesting and valuable assortment of beautiful and Hardy Plants for the Border or Rockwork, which produce flowers and render the garden attractive all through the year. Descriptive CATALOGUE post-free for 6 stamps.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

FERNS—FERNS—SUCCULENT PLANTS.—Twelve lovely Greenhouse FERNS, good growers, fine habit for rooms or Greenhouses, 6*s.* or 9*s.*; small Ferns for planting in Rockeries, &c., indoors, for fancy pots for table, 4*s.* per dozen; 12 distinct Stove Ferns, the best sorts for general collection, 9*s.* and 12*s.*

SUCCULENT PLANTS.—Handsome, singular, fine for pot plants in carpet beds or for contrast with other Greenhouse Plants. 12 varieties, all named, 6*s.*, 9*s.*, 12*s.*, 18*s.* CATALOGUE of sorts of these and all other plants free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

S. SHEPPERSON,

Florist and Seedsman,

PROSPECT HOUSE, BELPER, DERBYSHIRE,

Offers the following Plants, all well rooted and strong, carriage free, for Cash with Orders:—

INDIAN PINKS.—Double, beautifully striped and blotched, all colours. Strong plants to bloom well, 12 for 2*s.*

CHRYSANTHEMUMS.—The cream only, including new varieties of 1888; 12 distinct sorts, named, 2*s.*

SWEET WILLIAMS.—Light and dark, double and single; strong plants to bloom well, 1*s.* 6*d.* per doz.

FUCHSIAS.—Best varieties only, including new ones of 1888; 12 distinct varieties, named, 2*s.*

PHLOX (special culture), the cream only from Downie, Laird and Sons, Kelway, Ware, and other first-class growers. Six fine varieties for 2*s.*; 12 for 3*s.*; true to name; strong stools to bloom well, 100 in 50 varieties for 20*s.*

CARNATIONS, Picotees, and Cloves, strong layers to bloom well; finest named varieties; 12 distinct colours for 4*s.*; 25 for 7*s.* 6*d.*; also seed from above 1*s.* and 2*s.* 6*d.* per packet.

POLYANTHUS and PRIMROSE, hybrids, Jack in the Green, Hose in Hose, and other rare and curious forms; splendid mixed colours; finest strain grown; 12 for 1*s.* 6*d.*; 25, 2*s.* 6*d.*; 100, 9*s.*; all good blooming plants; also seed from above 6*d.* and 1*s.* per packet.

THE beautiful pure white and pink Malva Moschata, one of the best hardy border plants in cultivation. Strong two-year old plants, 12 for 1*s.* 6*d.*; 25, 2*s.* 6*d.* Seed 6*d.* and 1*s.* per packet.

PRIMULA CORTUSOIDES.—A grand spring flower (hardy). Gardening papers say it would be difficult to find a more beautiful plant for the rockery, greenhouse, or window than this; 4 for 1*s.*; 12, 2*s.*

FANCY PANSIES (unnamed), 6 for 1*s.*; 12 for 1*s.* 9*d.*; 25 for 3*s.*; 100 for 10*s.* All different and first-class sorts.

CARNATIONS, Picotees, and Cloves, strong plants from finest varieties only, including many new sorts, will give a mass of bloom, 12 beautiful varieties for 2*s.* 6*d.*; 6, 1*s.* 6*d.*; 100, 15*s.*

POLYANTHUS, the beautiful pure white (Snowdrift), 6 good plants for 1*s.*; 12, 1*s.* 6*d.*; 50, 5*s.*

THE new Double Scarlet Geum, hardy free bloomer, strong two-year-old plants, 12 for 1*s.* 6*d.*; 25, 2*s.* 6*d.*

TOMATOS, the three best sorts in cultivation; Abundance, Perfection, and Favourite, see Chiswick Great Tomato Trial; 3 plants of each for 1*s.* 6*d.*; 6 each, 2*s.* 6*d.*

COLLECTION of 12 Hardy Border Plants, distinct and useful for decoration and cutting purposes, for 2*s.*

COLLECTION of 12 varieties of showy, free-flowering, and other window plants, 2*s.*

S. SHEPPERSON,

FLORIST,

BELPER.

NEW PEDIGREE SEEDLING ROSES FOR 1889.

ALEX. DICKSON & SONS

Beg to announce that for distribution (the end of May) their

THIRD SET OF NEW ROSES,

ALL OF WHICH ARE FIRST-CLASS NOVELTIES.

MRS. JAMES WILSON, Tea, may be best described as a Yellow "Catherine Mermet," 10*s.* 6*d.* each.

MR. JAMES BROWNLOW, H.P., Two First-class Certificates, 10*s.* 6*d.* each.

LADY ARTHUR HILL, H.P., First-class Certificate, 10*s.* 6*d.* each.

Descriptive LIST post-free on application.

THE ROYAL NURSERIES,

NEWTOWNARDS, IRELAND.

NEW CATALOGUE for 1889.—Near 130 large pages, with prices, descriptions, useful cultural and other hints, of near 7000 of the best species and varieties of plants for the Stove, the Greenhouse, or the Flower Garden, also list of all necessary Sundries; in short, everything wanted for a garden, free for 3 stamps.

SEED CATALOGUE of the finest new and the most reliable old varieties of Vegetables or Flowers, free for 1 stamp.

WM. CLIBRAN AND SON, Oldfield Nurseries, Altrincham; 10 and 12, Market Street, Manchester.

BERMUDA LILIES.

LILIUM HARRISSII

(WARRANTED TRUE).

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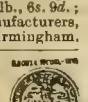
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THE GARDENERS' CHRONICLE,

Vol. IV., Third Series, JULY to DEC., 1888.

W. RICHARDS, 41, Wellington Street, Strand, W.C.



THE

Gardeners' Chronicle.

SATURDAY, MAY 18, 1889.

THE QUESTION OF RAILWAY RATES.

IMPORTANT MEETING OF THE NURSERY AND SEED TRADE.

A SPECIAL meeting of the members of the nursery and seed trade was held on Tuesday last at the "Hotel Windsor," Westminster, to receive the report of a committee appointed at the annual meeting of the Nursery and Seed Trade Association on March 11 last, to consider the revised classifications of merchandise traffic, and the revised schedules of maximum rates and charges applicable thereto, to be charged by the following railway companies:—The London & North-Western Railway, Midland Railway, Great Western Railway, Great Eastern Railway, Great Northern Railway, London, Brighton, & South Coast, South Eastern, London, Chatham & Dover, and London & South-Western Railway. Mr. N. SHERWOOD presided, and among those present were Messrs. Shirley Hibberd, G. Paul, R. C. Smith Carrington (R. Smith & Co.), R. Dean, J. Laing, B. Wynne, A. Veitch, C. Sharman (Carter & Co.), A. Dean, W. Paul, C. Noble, W. J. Jeffries, H. A. Barnard, Mr. Meladi (F. Gibbs & Co.), T. F. Rivers, G. Bunyard, A. H. Pearson, C. E. Pearson, W. H. Williams, W. J. Myatt, F. Moore, H. Hale, H. Pearson, J. Burrell, Dr. Masters, and Mr. F. C. Goodchild (Secretary of the Association).

The CHAIRMAN, in opening the proceedings, said he thought it unnecessary to make any comments as to the reason of their meeting, which had been set forth in the *Gardeners' Chronicle* and other papers. The rates proposed by the railway companies would in a material manner affect the nursery and seed trade. He was sorry to say that the trade did not seem to be generally aware of the important addition to the rates that the new changes would make on goods connected with their trade. Possibly when it was too late nurserymen and seedsmen would wake up to the fact that they were paying 25 and, in some cases, 50 per cent. more than they had hitherto paid.

Mr. F. C. GOODCHILD (Secretary) then ex-

plained the provisions of the Railway Rates Act, and said that either the railway companies might agree to meet their objections, in which case the Board of Trade would embody the revised classification in a provisional order, or, if the companies did not agree, the Board of Trade would hear and determine as between them and the railway companies what ought to be fair rates. In case of disagreement they would have to fight the question out before the Board of Trade. Mr. Goodchild then read the report of the committee.

The committee reported that they had considered all the items in the revised classifications which affect the horticultural trade, and were of opinion that all the articles are wrongly and inconsistently classified. The committee (continued the report) has approached the consideration of the matter not so much in a spirit of antagonism to railway companies, as with a desire to point out to the horticultural trade generally such questions as will affect them hereafter.

Seeds.

The committee find that, according to the proposed classification, seeds are distributed over four classes, viz.:—Class 1, comprises seeds for crushing oil, Hemp seed, and Mustard seed; class 2, agricultural seeds and Canary seeds; class 3, Carraway seeds, Cummin seed, Coriander seed, and Flax for sowing; class 4, seeds except where otherwise provided.

Roots—Bulbs.

They consider it would be fairer to the trade if all seeds were placed in the same class, and that this should be done by raising those in class 1 into class 2, and by lowering those in classes 3 and 4 into class 2. It is proposed to place flower-roots (comprising bulbs, Lily of the Valley crowns, and Spiræas) in class 4; but the committee consider this classification high, and that they should be placed in class 3. These goods are for the most part placed first in husks in paper bags, and then securely packed in crates, and are exceedingly heavy for their bulk. They are so packed that there is little or no fear of them being injured, except by water, and they are in this respect unlike Apples and Pears, which are placed in class 2, and which are more likely to be injured. The value of bulbs has of late years been considerably reduced, and the committee feel that the placing of them in class 4 would operate most unfairly to the trade.

Plants.

The committee find that shrubs, trees, and plants are distributed over three classes, viz.:—Class 3 comprises plants not in pots (except where otherwise provided); class 4 comprises shrubs and trees (except where otherwise provided); class 5 comprises plants and shrubs in baskets, mats, pots, or tubs. They recommend that all should be placed in class 3.

Small Parcels.

Before dealing with the question of rates and charges, the committee wish to call attention to the maximum weight of "small parcels," viz., 560 lb. They consider that although such weight might be a fair one taking the average bulk of all goods classified, it is nevertheless excessive as regards goods in the horticultural trade, and they recommend that as regards "small parcels" the maximum weight should be reduced to 224 lb. If this maximum rate remains as proposed, it will be in the power of some companies to charge an excessive rate both for conveyance and terminal charges. For instance, a parcel of agricultural seeds (class 2) weighing 560 lb. for a distance of 50 miles on the Great Western Railway Company would, according to the proposed classification rates, cost (exclusive of terminal and service charges) 2*s.* 7¼*d.*; whereas, if the company thought fit, they might charge for the same parcel as a "small parcel," in which case it would cost 4*s.* 7*d.* In the former case the proposed terminal and service charges would amount to 1*s.* 7½*d.*, and in the latter case to 2*s.* 4½*d.* Thus, instead of charging 4*s.* 2¾*d.*, the company would be empowered to charge 6*s.* 11½*d.*

The committee consider that the proposals in connection with "small parcels" are most unsatisfactory; that they do not comply with the requirements of the Act in stating the rates to be charged, but leave the matter in such a condition that the trader will be at the mercy of the company, which is contrary to the spirit of the Act, and they recommend that companies should be required to submit further and better proposals as regards small parcels.

Mileage.

The committee find that, according to the proposed rules, the railway companies differ in the number of miles for which they propose to charge different rates. In consequence of this, the labour in checking the charges of the various companies will be considerably increased. In most cases eight calculations will be necessary before this can be done. The committee recommend that only rate per mile should be allowed, and that such rate should be the one allowed by the Board of Trade in the column corresponding with the number of miles.

The committee regret that they are unable to present a comparative statement showing the difference between the existing and the proposed rates, owing to the number of preferential rates now in existence, and the difficulty in arriving at a general average, but from the information before them they are satisfied that the proposed rates will be enormously in excess of those now in use. They recommend that the Board of Trade should be asked to withhold their consent from the proposed rates until they have had an opportunity of satisfying themselves (by whatever evidence they may require) on this point, in the alternative the committee recommend—that the Board of Trade be asked not to sanction any rate which is in excess of the average of those at present in use. If the sanction of the Board of Trade be given to the proposed rates without such evidence being received, the committee believe great injustice will be done to the trade.

Terminals.

The committee wish to call attention to the stational terminals and service terminals proposed to be made by the railway companies, and to recommend that they should be strongly opposed. The Act defines the term "terminal charges" as including "charges in respect of stations, sidings, wharves, dépôts, warehouses, cranes, and other similar matters, and of any services rendered thereat, but nowhere does the Act authorise 'service terminals.' It directs each railway company to fully state in such classification and schedule the nature and amounts of all terminal charges proposed to be authorised." The definition of the term "station terminal" is given in the various schedules as charge for accommodation at terminal stations provided by the company for dealing with merchandise as carriers thereof, together with the following services and expenses, share of general charges and office expenses attributable to such services as are rendered by the company to all descriptions of merchandise alike in performing the duties incidental to the business of a carrier, shunting and marshalling of trucks, and the provision of engines, horses, machinery, plant, and stores used in the services referred to "service terminals," are defined as including "the labour of the servants of the company in loading or unloading, covering or uncovering merchandise, the provision of machinery, plant, sheds and stores used in such services, and also the general charges and office expenses specially attributable to the classes of merchandise in respect of which service terminals are authorised."

The committee consider that on the true construction of the Act only one charge in the nature of a "terminal charge" was intended to be authorised. They further consider that the charges defined by the railway companies under "service terminals" are all included in the charges defined by such companies under "station terminals."

It is part of the duty of a carrier to supply labour to load and unload, "and to cover and uncover" merchandise entrusted to him. The "covering" of merchandise is done not so much for the benefit of the trader as for the benefit of the company, who are bound to take all reasonable care of goods entrusted to them for conveyance.

It is within the knowledge of the committee that much time and trouble is expended on the part of traders in checking railway charges, and in applying for and obtaining repayment of charges wrongly made; and the committee recommend that the Board of Trade should provide for the infliction of penalties on any railway company so overcharging, in like manner as penalties are inflicted on the public for attempts to evade payment to railway companies of charges justly payable to them.

At the request of the Chairman, Mr. Goodchild read a circular from the Railway and Canal Traders' Association, from which it appeared that no objections would be received by the Board of Trade after June 3.

Discussion.

Mr. Pearson (Chilwell) asked if the Board of Trade did not require the railway companies to furnish a schedule of the charges to traders?

The Chairman said it had been decided that they had no power to make the companies do so. They had the option of giving notice to discontinue special rates. It seemed to him most important that they should not have different rates charged by the different companies for terminals and service charges.

Mr. Myatt drew attention to the higher charge for cut flowers, which were no more difficult to carry, and could sustain no more injury than produce for which less charges were made.

Mr. Sharman said that as representing a firm that was largely interested in the carriage of small parcels, he wished to emphasise that part of the report relating to small parcels. He could see a great deal of injustice lurking under the proposals of the railway companies. Though his firm, like others, intended to enter their individual protest against the proposals of the companies, yet he thought a collective protest on their part would have great weight.

The Chairman suggested that a committee should be appointed to wait upon the Board of Trade, and represent their objections. With reference to the question of cut flowers, it was thought not advisable to take objection to too many things, in case the Board of Trade would not recognise them at all.

Mr. Myatt said that if they worked out the matter as regarded the whole of the charges, they would find that they amounted to 25 per cent. more than they did now, and he thought it was doubtful whether in arguing the matter with the Board of Trade they should take any particular instance.

Another speaker drew attention to classification with regard to Vines, for the carriage of which he said some nurserymen were paying less than others.

Mr. Rivers said, that if they went to the Board of Trade they must be prepared with something definite. They would be asked probably—as in the case of the brewers—whether increased charge would not fall upon the consumer.

Mr. Goodchild pointed out that it would not be by means of a deputation that objections would be lodged, but probably it would be necessary for them to be represented by counsel.

Mr. Rivers said that if the cost of carriage was increased, the price of fruit would be increased, and the Board of Trade would be sure to put the question to them.

The Chairman thought that the charge would fall upon the grower. He then submitted the following resolutions:—

"That this meeting, comprising the principal members of the nursery and seed trades, having heard the report of the committee appointed at the annual meeting of the Nursery and Seed Trade Association held on March 11, 1889, for the purpose of taking into consideration the revised classification of merchandise traffic, and the revised schedules of maximum rates charged by the London trunk lines read, hereby confirms the same, and instructs such committee to lodge objections with the Board of Trade in accordance with such report."

"That a guarantee fund be raised for the purpose of carrying out all acts necessary for the purpose of carrying into effect the previous resolution, such fund to be under the control and management of the committee."

The Chairman added that it would cost a certain amount of money if they were to approach the Board of Trade, and it was therefore necessary to form a guarantee fund. He would guarantee fifty guineas.

Mr. Fraser pointed out that something should be said in reference to forest trees.

Mr. Sharman said there seemed to be so many objections to classification and charges, that he would suggest they should make a general sweeping objection, and not enter into particulars.

Mr. Rivers pointed to the absurdity of some of the classifications. Pickaxes, shovels, and agricultural machines were classified with Pears and vegetables.

Mr. W. Paul said that if they were simply to make a general protest they would probably not be listened to. Let them have a general protest, but let them support it by details.

The Chairman explained that the committee would be prepared to receive suggestions, and he presumed that they would be prepared to go into details if necessary.

Several other gentlemen having promised to contribute to the Guarantee Fund, the Chairman put the resolutions, which were carried unanimously.

A vote of thanks to the Chairman and to the Press, concluded the proceedings.

New or Noteworthy Plants.

MASDEVALLIA CHELSONI SPLENDENS, *Veitch.*

This, the first hybrid Masdevallia, was obtained by crossing M. amabilis with the pollen of M. Veitchiana. It was described in 1880. Subsequently Mr. Seden tried the result of reversing the parentage, and by this means produced a second hybrid, which the Messrs. Veitch have sent me on two occasions as M. Chelsoni splendens×. It is now well known that inverted crosses between the same two parents are seldom identical, and that in a few cases they are more distinct than one would *à priori* expect to find. This is what we have in the present instance. In the former case the hybrid proved to be fairly intermediate, the characters of the male parent on the whole preponderating, especially in colour, for the orange tint of M. Veitchiana is particularly well developed in M. Chelsoni×. In the later cross, a somewhat similar result obtains. M. amabilis has now become the pollen parent, and accordingly we find the orange colour has almost disappeared, and is replaced by the brilliant crimson of M. amabilis. In shape the two differ somewhat. M. Chelsoni splendens× has the free part of the dorsal sepal larger, and the lateral sepals united for a greater distance, the free portions thus being shorter. These differences in shape clearly come from M. Veitchiana, the mother plant. The parentage of the two is readily expressed thus:—M. Veitchiana-amabilis for the former, M. amabilis-Veitchiana for the latter cross. Both are very pretty garden plants, but those who appreciate brilliancy of colour will probably consider the later cross a decided improvement. *R. A. Rolfe, Herbarium, Kew.*

LIST OF GARDEN ORCHIDS.

(Continued from p. 555).

(13.) C. Dukeana×, Rchb. f., in *Gard. Chron.*, ser. 3, i., p. 576.—Brazil. A supposed natural hybrid, imported with C. guttata Leopoldii, and which may have C. bicolor for the other parent. Flowered with Dr. Duke, at Lewisham. I have not seen it.

C. elatior, Lindl.=C. guttata.

C. Eldorado, Linden = C. labiata var. Eldorado.

C. elegans, Morr.=Lælio-cattleya×elegans.

C. epidendroides, Hort.=C. luteola.

C. exoniensis×, Veitch = Lælio-cattleya × exoniensis.

C. fausta×, Rchb. f.=Lælio-cattleya×fausta.

C. felix×, Rchb. f.=Lælio-cattleya×felix.

(14.) C. flaveola×, Rchb. f., in *Gard. Chron.*, ser. 3, iv., p. 596.—A hybrid, raised by Messrs. Backhouse & Son, of York, from C. intermedia and C. guttata. Thus it has the same parentage as C. picturata×, or inverted parentage of the same—this point not being recorded.

C. flavida, Klotzsch.=C. luteola.

(15.) C. Forbesii, Lindl., *Coll. Bot.*, sub t. 37; Lindl., *Bot. Reg.*, t. 953; *Bot. Mag.*, t. 3265; Lodd., *Bot. Cab.*, t. 1152; *Epidendrum Forbesii*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 316; *C. vestalis*, Hoffmannsegg, in *Mohl. and Schlecht., Bot. Zeit.*, i., p. 831; *Mælenia paradoxa*, Dumort, in *Mem. Acad. R. Sc. Brux.*, ix., t. 10.—Brazil. Introduced by the Horticultural Society of London, in 1823, through their collector, Forbes. Sepals and petals pale yellow-green, lip yellow, rayed with reddish-purple on disc. Not common in gardens, on account of its somewhat homely colours.

C. Gardneriana, Rchb. f.=C. Walkeriana.

C. Gaskelliana, Sander=C. labiata var. Gaskelliana.

C. Giberziæ, L. Lind. and Rod.=C. intermedia.

C. gigas, Linden = C. labiata var. Warscewiczii.

C. gloriosa, Carrière=? C. labiata var. Warscewiczii.

C. Grahami, Lindl.=Lælia majalis.

(16.) C. granulosa, Lindl., *Bot. Reg.*, xxviii., t. 1; *Flore des Serres*, t. 198; *Ann. de Gand.*, ii., t. 103; *Epidendrum granulosum*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 319.—Brazil (and "Guatemala," according to books). Said to have been discovered in Guatemala, by Hartweg, in 1840, and a single plant sent to the Horticultural Society without any indication of locality; also subsequently sent from the same country by Mr. G. Ure Skinner. This habitat, however, requires confirmation, for I cannot find that any wild Guatemalan specimens are known. But we have at Kew wild Brazilian ones, collected at Parahiba, N.E. Brazil, from which country also the following varieties are reported. I cannot help thinking that Guatemala may be an error.

Var. asperata, Rchb. f., in *Gard. Chron.*, n.s., xxvi., p. 681.—Sepals and petals brownish, spotted with deep purple; front lobe of lip bright purple, bordered with white.

Var. Russelliana, Lindl., *Bot. Reg.*, xxxi., t. 59; *Bot. Mag.*, t. 5048.—Brazil. Flowered at Woburn, and said to be of Brazilian origin. Flowers larger, with deeper colours.

Var. Schofieldiana, Veitch, *Man. Orch. Pl.*, pt. 2, p. 36; *C. Schofieldiana*, Rchb. f., in *Gard. Chron.*, n.s., xviii., p. 808; Warn. and Will., *Orch. Alb.*, t. 93.—Brazil. Flowered with Mr. G. W. Law-Schofield, at New Hall-Hey, Rawtenstall, near Manchester, in the autumn of 1882. A brilliantly coloured variety.

C. guatemalensis×, T. Moore = Epicattleya × guatemalensis.

(17.) C. guttata, Lindl., *Bot. Reg.*, 1831, t. 1406; Lodd., *Bot. Cab.*, t. 1715; *Trans. Hort. Soc.*, ser. 2, ii., t. 8; *C. elatior*, Lindl., *Gen. and Sp. Orch.*, p. 117; *Epidendrum elatius*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 315; *C. sphenophora*, Morr., in *Ann. de Gand.*, iv., t. 175.—Brazil. Sent to the Horticultural Society from Rio de Janeiro, by the Right Hon. Robert Gordon, about the year 1827.

Var. leopardina, Red., in *Lindenia*, i., p. 43, t. 19.—Segments dull yellow, front lobes of lip purple, side lobes white.

Var. Keteleerii, Houllet, in *Revue Hort.*, 1875, p. 350, with plate.—Scarcely differeLt from var. Prinzii.

Var. Leopoldi, Linden and Rchb. f., in *Pescatorea*, t. 43; *Flore des Serres*, t. 1471; Warn. and Will., *Orch. Alb.*, t. 16; Puydt, *Les Orch.*, t. 9; *C. Leopoldi*, Versch., in *Ill. Hort.*, i., *Misc.*, p. 68; Id., ii., t. 69—Brazil; prov. Santa Catherina. Introduced about 1850 by M. Verschaffelt, of Ghent.

Var. Leopoldi immaculata, Rchb. f., in *Gard. Chron.*, n.s., xxvi., p. 326.—Sepals and petals green, without any spots.

Var. Leopoldi odoratissima, Rchb. f., in *Gard. Chron.*, ser. 3, iv., p. 378.—Sepals and petals yellow; side lobes of lip white, disc and front lobe purple.

Var. lilacina, Rchb. f., in *Gard. Chron.*, xvi., p. 38.—Sepals and petals light lilac instead of white, otherwise as in var. Prinzii.

Var. munda, Rchb. f., in *Gard. Chron.*, ser. 3, iv., p. 378.—Sepals and petals yellowish-green, without any spots.

Var. phœnicoptera, Rchb. f., in *Gard. Chron.*, xix., p. 688.—Sepals and petals deep purplish, lip whitish.

Var. Prinzii, Rchb. f., in *Bonplandia*, iv., p. 327; Veitch, *Man. Orch. Pl.*, pt. 2, p. 37, with fig.; *C. amethystoglossa*, Linden and Rchb. f., in *Ill. Hort.*, 1866, t. 538; Warn., *Sel. Orch.*, ser. 1, t. 2; *Bot. Mag.*, t. 5683; *Rev. Hort.*, 1869, p. 212, with plate; *Gard. Chron.*, 1866, p. 315, fig. only; *Epidendrum amethystoglossum*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 319.—Sepals and petals nearly pure white, spotted with rosy purple; front lobe of lip deep amethyst-purple.

Var. punctulata, Rchb. f., in *Gard. Chron.*, xiv., p. 358.—Sepals and petals pale yellow-green, with but few spots.

Var. Russelliana, Hook., *Bot. Mag.*, t. 3693; Id., *Cent. Orch. Pl.*, t. 33.—Sepals and petals brownish-green, spotted with brown above, front lobe of lip purple, side lobes much paler.

Var. Williamsiana, Rchb. f., in *Gard. Chron.*, n.s., xxii., p. 70; Warn. and Will., *Orch. Alb.*, t. 212.—Described as near var. lilacina, but without any spots on the fine purplish sepals and petals. The figure, however, shows some spots on both.

(18.) C. Hardyana, Williams, *Orch. Gr. Man.*, ed. 6, p. 633; Warn. and Will., *Orch. Alb.*, t. 231.—New Grenada. A supposed natural hybrid between C. Dowiana aurea and C. labiata Warscewiczii (gigas), said to have been imported with the latter. It appeared in the collection of Mr. G. Hardy, at Pickering Lodge, Timperley, and afterwards in two or three other collections. One of the grandest Cattleyas known.

(19.) C. Harrisii×, Rchf. f., in *Gard. Chron.*, ser. 3, i., p. 104.—A hybrid raised by the late Dr. Harris, of Lamberhurst, Kent, between C. guttata Leopoldi ♀ and C. labiata Mendelii ♂. Very handsome and distinct.

C. Harrisoniæ, Paxt. = C. Loddigesii var. Harrisoniana.

C. Harrisoniana, Batem. ≃ C. Loddigesii var. Harrisoniana.

C. Harrisonii, P. N. Don. = C. Loddigesii var. Harrisoniana.

(20.) C. Hennisiana, *Gard. Chron.*, ser. 3, v., p. 276 (in note).—A species closely allied to C. Skinneri and C. Bowringiana, but with smaller flowers; segments white, with a faint blush tint; lip entire, rosy-purple, with darker disc. Imported by Mr. W. Hennis, for Mr. J. Charlesworth, Heaton, near Bradford, to whom I am indebted for a specimen. The statement, "flowers yellow," furnished by the natives, has proved erroneous.

C. Holfordi, Hort. = C. luteola.

(21.) C. hybrida×, Veitch, *Gard. Chron.*, 1863, p. 602; *C. Acklandi-Loddigesii*, *Gard. Chron.*, 1863, p. 602.—A hybrid, raised by Mr. Dominy, for Messrs. Veitch, between C. Loddigesii ♀, and C. Acklandiæ ♂. This plant, the first hybrid Cattleya raised, is now believed to be lost.

C. hybrida picta×, Hort. = C. picturata×.

C. imperialis, Hort. = C. labiata var. Warscewiczii. *R. A. Rolfe, Kew.*

(To be continued.)

FRUIT PROSPECTS.

Apples, as already stated, promise to be the greatest fruit crop of the year. The promised fertility of 1889 will prove the more welcome in contrast to the semi-Appleless season of 1888. And it is somewhat singular that the most promising fruit of last year should be the most promising for this. It is also a singular coincidence, that promising as most fruits are this spring, we have still one notable failure. Last season Apples failed, or were devoured by maggots. This season Apricots are either destitute of flower-buds, or what few were formed, have been blighted or blasted by frost. From whatever cause the result is certain—an almost or an entire failure of this luscious crop.

The failure is the more mysterious, as many cultivators have judged the Apricot to be fully as hardy as either the Peach or the Nectarine. Now the season of 1888, or winter and spring of 1889, have furnished us with two tests of hardiness. One was the amount of heat needed to ripen the wood of certain fruit trees; the other, the amount of cold that the wood of certain fruit trees in a state of lesser or greater maturity could endure with impunity. Apricots, Peaches, and Nectarines subjected to this dual test, yield very different and rather unexpected results. There is no sensible difference between Peaches and Nectarines when subjected to identical amounts of heat or cold; but the same forces of light and heat or their opposite do not yield similar results on Apricots and Peaches. In other words, the experience of this spring, the paucity of flower-buds, and the wholesale slaughter of Apricots, prove Apricots to be more tender than Peaches; they need more heat and light to bring them to the same safe stage of maturity than Peaches. Such, at least, is my explanation of the striking disparity between these two fruits this spring—Apricots generally bloomless, crippled by canker or blasted by frost, and Peaches by their side fairly healthy, and pinking the walls over by the profusion and brilliancy of their blossoms.

Plums and Cherries are also blooming profusely, and promise the most abundant crop in direct line of succession and profusion to Apples. In some districts, however, bullfinches and other birds have played havoc with the Gages and the Plums. Neither do I find the growth of Sloes and Damsons as decoys very effective; the buds as well as the flesh of superior varieties being apparently infinitely sweeter than those of the semi-wildlings. As I write I see the Sloes and wildling Plums white as sheets, and a row of Gages close against them stripped barren. Is it because the better sorts have mostly larger, rounder buds, or that the buds themselves are sweeter. Some say it is because they are earlier, and that they disappear on the broad principle—first come, first devoured. But this is not true in fact, as the Blackthorn or Sloe is one of the first to bloom, while most of our superior Plums follow at a considerable—a few at long distances.

After these stone fruits follow Pears, which, according to my observation, will yield a good half crop of blossom. The trees also look clean and healthy, and as the bloom is late, the chances are strongly in favour of a fair if not a full crop. But with Pears especially there is many a slip between the cup and the lip—the promising bloom and the perfected fruit.

Some will estimate the Pear prospects much higher than this. True, there are localities and trees where the Pear bloom almost reaches the full average of the brilliant show of Apples, but these are exceptional. In most gardens and orchards there are many trees thinly bloomed, and more almost flowerless, while yet others are so overcrowded as to have bloom enough and to spare for a dozen other trees, could they but be safely transferred. Nuts do not promise an average, nor bush fruit, unless it be Raspberries, which the damp cool season suited admirably. Black Currants hardly look a full crop, red and white look better, and it is doubtful if Gooseberries will yield more than two-thirds of a crop. Strawberries on the whole appear to have wintered well, though some of the older plantations have lost a good many of their old leaves, though not so many as last season. Last season's runners and two-year-old plants promise well. Hence amid the coming flowers of the year 1889 we may reckon, weather and especially east wind, and late May frosts permitting, a full fruit basket for puddings and dessert. *D. T. F., Bury St. Edmunds.*

LAURELS AND LAURELS.

To most people Laurels are Laurels. It is, perhaps, cruel to dispel the illusion, but it is a fact, nevertheless, that in most cases Laurels so called are not Laurels. Pre-eminently is this the case with the common Laurel. This is a Cherry, not even a Cherry-Laurel, but rather a Laurel-Cherry. The true Laurel is the Bay, Laurus nobilis, the poet's Bay, the aromatic leaves of which formerly served to make crowns for the poets, but which now give flavour to custards! The leaves of this are aromatic and harmless, the leaves of the common Laurel, as it is generally called, are fragrant but noxious. They contain prussic acid, and if used at all for flavouring purposes should be used with very great caution, so that the question of nomenclature is not a mere matter of pedantry.



Fig. 105.—varieties of the laurel cherry: A, caucasica; and, B, caucasica rotundifolia.

At present, however, we would call attention to the varieties of Laurel-Cherry, the common Laurel of gardens, because even among them there are Laurels and Laurels. They are all, so far as we know, seedlings of one species, the Prunus laurocerasus, an evergreen shrub, native of the Levant and Caucasus. This was introduced into English gardens about 1576 from Trebizond. The ordinary Laurel is more or less spring-tender. Of late

years several varieties have been introduced into our gardens under names for which we can find no authority. Neither have we been able to ascertain whence they came. Presumably, therefore, they are mere nursery names never authentically registered, and, therefore, destined to be nuisances for botanists for all time. For horticultural purposes, however, the varieties so unfortunately named are important, for they do refer to distinct varieties having various and desirable qualities. First, there is Caucasica (fig. 105, A), remarkable for its oblong lanceolate leaves of a dark green colour; the habit is pyramidal and compact. It is hardier than the common Laurel, and owing to the amount of leaf-green which it contains, better adapted to shady situations. Of this there is a sub-variety, rotundifolia (fig. 105, B), with obovate oblong leaves, but otherwise not very different. Then there is colchica (fig. 106, A), a handsome variety, and its sub-variety, rotundifolia (fig. 106, B) (the reader will observe the nuisance of the same name for two sub-varieties). Both these are preferable to the common Laurel in hardihood and habit; both bear the shears better where grown on slopes or as hedges.

Lastly, there is a very small-leaved form known as angustifolia (fig. 106, C). There was a time—happily that has passed when this small-leaved variety was known as Hartogia capensis—a totally different plant; but that is a thing of the past, and we will not stir up old grievances.



Fig. 106.—Varieties of the Laurel Cherry: A, colchica; B, colchica rotundifolia; C, angustifolia.

Orchid Notes and Gleanings.

Sarcochilus Berkleyii.

This, a native of the Andaman Islands, is one of the prettiest of the smaller Orchids now flowering at Kew. Compared with S. Hartmannii and the other cultivated species it is very distinct, both in flower and habit; indeed, it is difficult to find any superficial points of resemblance. The plant may be likened to an Aërides, having distichous pale green leaves about 6 inches long. It carries two pendulous racemes of upwards of a score of flowers each, and the flowers measure an inch in depth, scarcely so much in width, and are of a pure glistening white. The lip is of a remarkable shape. It is much compressed laterally, and is surmounted by two narrow wings and a curious horn-like process, which, being purple, furnishes the only bit of colour in the flower; underneath it terminates in a rounded sac, the whole anterior part of the lip connecting with the rest of the flower by a long narrow claw, to which it is jointed at right angles. As may be inferred from the habitat, this Orchid requires stove treatment. It succeeds when placed in a basket of sphagnum suspended from the roof, and grown in the same house as Phalænopsis. *W. B.*

The Phalænopsis.

Some species and varieties of Phalænopsis in Mr. Partington's collection at Heaton House, Cheshunt, are still in great beauty. P. grandiflora, when it is seen in vigour, with its elegant spikes of flowers dangling in the air, is still one of the best. The plants of this species here were in flower in November, and still there were to be counted on one spike fifty-three flowers and flower-buds. Mr. Searing, the gardener, told me that one spike had had sixty flowers on it; he still holds to the potency of salt when sprinkled on the paths, &c.; but there was one other matter which I thought of considerable importance, and probably it may have more weight than the saltness of the atmosphere, and that is the efficient manner in which the house is warmed, for there are no fewer than ten rows of 4-inch hot-water pipes. A house of Masdevallias contained some remarkable specimens, which bristled with flowers just about to open, some of the varieties of M. Harryana being exceedingly fine. As a compost Mr. Searing told me that he used only fibrous peat and crocks, and did not approve of placing sphagnum over the drainage, as it so speedily decays when shut out from the light, and thus causing decay in the roots. A little live spagnum is employed on the surface of the pots, and what is beneath is the above-named compost. The plants had been recently repotted, and had already formed quantities of fibrous roots. *J. Douglas.*

Nursery Notes.

Orchids at Messrs. F. Sander & Co.'s.

It would be difficult for those who have not seen the great Orchid nursery at St. Albans to imagine the degree of completeness of everything required in the culture of special classes of Orchids, or the amount of space devoted to Orchids generally. Now that sufficient time has elapsed to prove the usefulness of late additions and improvements, it is easy to be seen that costly as many of them were, the outlay has been well repaid. An instance of this may be seen in the Cattleya-house—300 feet long and proportionately wide—containing hundreds of specimens of the Cattleyas of the "labiata" section, as well as of other showy kinds. And notwithstanding that these species are drawn from such very different parts of the tropics, they are one and all in good health, the richly tinted flowers of the fine strain of Cattleya Skinneri peculiar to this establishment being finer in size and substance than when grown in less spacious houses, and the pure white C. S. alba has here grown out of the delicate habit which it often appears to have; in the house, too, specially built for growing Cattleya superba, the varieties of C. Eldorado, and other species of the like nature, and of which the basement is arranged as an ornamental water basin, now beautiful with red, white, and blue Water Lilies. The plants are suspended overhead, and have a charming effect, the growth sturdy, and the flowers finer than is often seen, so many failing to grow them satisfactorily.

The Rockeries.—Another innovation is the construction of ornamental rockeries at the entrance to the larger houses, Cattleyas, Lælias and other showy Orchids being planted out on these. The effect of these rockeries at all seasons fully warrants the outlay. As an example may be noted at the present time on the rocks in the largest intermediate house some fine masses of Lælia purpurata of many shades covered with flowers, the fine sprays of Cymbidium Lowianum hanging over from the height. A good

plant of Dendrobium thyrsiflorum Walkerianum has eight spikes of over fifty flowers each; and suspended over the rocks and the ornamental water are many Cattleya citrina and various rare species of Orchids in flower, while beyond stretch numbers of the best strain of Miltonia vexillaria in bloom or bud, their flowers varying from white to rich rose. This importation of Miltonia has been a specially lucky one, some fine forms having since fetched high prices, the best being perhaps that called Leopoldii described in these columns recently. A rockery in the second Cattleya-house has in flower just now in the foreground Anthurium Scherzerianum, and above these some specimens of Lælia elegans, Oncidium splendidum, &c., overhead and alongside being handsomely flowered plants of Bifrenaria Harrisoniæ rosea, B. odora, several of the beautiful Trichopilia lepida, and the beautiful and curious Saccolabium cerinum, with dense heads of yellow flowers having salmon-tinted spurs.

House after house of sturdy well-rooted Cattleyas and Lælias is passed, which show that no part of the establishment has been allowed to get into bad condition. Cattleya Schroderæ, that beautiful species which has never met with the favour it deserves, gives many lovely flowers. The St. Albans' strain of early flowering C. Mossiæ is in great profusion also labiatas of all shades, and occasionally C. præstans, C. Schilleriana, and other species give variety; a remarkable and beautiful novelty, being a fine hybrid of Lælia Perrinii, and probably Cattleya intermedia, which has the rich labellum of the former, but more ample and brighter, is in flower. Other noteworthy plants in flower in the intermediate-houses are a batch of the fragrant Pilumna Wagneriana; some specimens of the beautiful P. fragrans, one with fifteen spikes of three and four flowers each; many Odontoglossum citrosmum, O. læve, the exquisitely pretty white O. ornithocephalus grandiflorus, Oncidium metallicum marginatum, O. micropogon, O. Phalænopsis, O. leucochilum, O. cornigerum, Acineta Humboldtii, the lovely Epidendrum Randii, a new and elegant Epidendrum, in habit like E. tampense; a good stock of Cœlogyne cristata alba, the curious C. Thuniana; many sprays of the elegant white Angræcum Sanderianum, and a host of other interesting things too numerous to particularise.

The Dendrobium-houses have for their main feature a very singular and beautiful collection of D. nobile varieties from a fresh importation; the gem of the whole is an unique variety—D. nobile lateritium—with very large flowers formed something like those of D. Wardianum, but white with the outer halves of the segments tinged pink with salmon, the labellum having its tip similarly coloured, a violet-maroon blotch being at its base, another fine variety, flowering for the first time, is very near to the exquisitely lovely white D. n. Schroderi, and many others are worth distinctive names. Among them, re-imported, is the old, small-flowered, highly coloured D. n. cœrulescens. Other finely bloomed Denbrobes, are D. Freemanni, D. marmoratum, D. capillipes, D. Jamesianum, D. Brymerianum, and plenty of the ordinary species of the season. Of Cypripediums a fine lot of C. Curtisii and C. caudatum, with many hybrids and species, are in bloom, and in the vast lengths of cool houses a great display of Odontoglossum is made, a great number of hybrids, quite filling the end of one of the houses with their fine fragrant flowers, endless in their variety but always beautiful. Batches of O. blandum and O. nævium true, also are in bloom, and with regard to the latter, Mr. Sander has at last discovered its native habitat; a lot of the pretty O. Œrstedii too are in flower, with many O. Pescatorei, O. Cervantesii, O. mirandum, O. triumphans, and some grand specimens of O. Hallii, one having nine strong spikes. The Masdevallias here are in great variety, some fine examples of M. bella, M. hieroglyphica, M. chimæra, M. Harryana and others being in bloom, and some new hybrids in bud are anxiously awaited.

Among new introductions of the first merit recently over, in fine condition, should be noted a few of the beautiful Dendrobium Macfarlanei, which has an upright spike bearing a dozen or so of large flowers, exhibiting a striking resemblance to a white Lælia anceps with violet centre; also another fine undescribed species found with it. Another plant that will be welcomed by collectors is the noble Cymbidium Loise-Chauvierii, which it was supposed could not be made to survive a journey; however, here they are, and some of them safe. Other fresh arrivals of great importance are Phaius tuberculosus, P. Henryi, and P. Humblotii, and very interesting is a lot of the beautiful Zygopetalum graminifolium, imported as found growing on what appears to be trunks of the Tree-Fern Lomaria Boryana; both Orchid and Fern are growing together, and will form beautiful objects. There is a comfortable atmosphere always in the St. Albans Orchid-houses, and a freshness and vigour in the appearance of their occupants, which makes it pleasant to inspect them at all times.

Messrs. W. Paul & Sons' Loughton Establishment.

Waltham Cross has long been the head-quarters of Messrs. W. Paul & Sons' business, and is known far and wide. Less well known is this branch of it on the edge of Epping Forest, of which it was a part not so many years ago, a fact that is curiously emphasised by a notice-board affixed to a post at the nursery gate, which states that the public have the right of entry from—we believe—6 A.M. to 6 P.M. during the summer half of the year, and a few hours less in the other half. So far this right has not led to any interference with the stock in the nursery, two or three visitors a week being the highest numbers recorded. The soil is a heavy loam, with sand in it, and it is of considerable depth, just the kind of soil to promote fibrous roots close at home, and consequently out of which the plants move with compact bulbs in the case of evergreen subjects, and deciduous stock does not get its roots mutilated, as is the case when these stretch long distances from the stem.

The nursery is essentially a home for evergreens, so that although the site is exposed, as befits a hardy tree nursery, it has a warm look even in winter and spring, due to the masses of dark foliage scattered over its area.

Rhododendrons, believed generally to be peat-loving subjects, do well here in spite of their being in the staple, with nothing more than a modicum of rotten dung. The plants usually set well with flower-buds, but last year was wet and sunless, with its usual effect of few buds the next year.

Other "American" plants which do well are Andromeda floribunda; there were some grand plants of this 3—5 feet in diameter, pretty half-globes, the foliage almost hidden by their crop of spikes of Lily of the Valley-like blossoms; A. polifolia, A. Catesbæi, A. pulverulenta, Kalmia glauca, and Ledum buxifolium. Mention should be made of Rhododendron Wilsoni, a compact dwarf-growing species, with flowers of a lilac colour.

The Holly in all its various forms of habit and leaf was a noticeable plant, and the total number of species and varieties grown is eighty-four. We may here specify a few of the more distinct, that were to be observed in fine symmetrical examples up to 10 feet high.

Ilex Lawsoniana is not much known; it has a golden blotch on a dark green leaf, and is very distinct; I. flava, a fine bronze foliage, robust in growth; I. scotica, a spineless leaf; I. balearica, I. nigrescens, a Holly that is of quick growth, has fine green foliage, and is naturally of a pyramidal habit; I. bicolor, with silvery variegation, is a shapely grower. Of the so-called Screw Holly, I. tortuosa, there were many perfect specimens. I. Hendersoni is a very large-leaved variety, brilliant in the sheen on its leaf; it is a fine subject for a solitary specimen; Queens, in gold and silver; Hedgehogs, variegated and green; and others abounded.

Next to Rhododendrons and Hollies in point of numbers rank the various species and varieties of Laurel-Cherry (see p. 620). Of these were noted the dark foliaged Caucasian and the round-leaved Caucasian, which latter is likely to be the Laurel of the future. It has a dark coloured leaf, like the type, is very hardy—much more so than the common Laurel—and is more compact in growth than that. The variety is of French introduction. The Colchic Laurel is a free flowerer, and sets its fruits readily, and the plant, when manured, will produce leaves of 1 foot in length. The narrow leaved Portugal Laurel, one of the hardiest of this section, occupied a good amount of ground, and is evidently thought much of. It is a neat grower.

Phyllirea Vilmoriniana does well, as does also Osmanthus illicifolius, which, by the way, the nursery foreman stated was a capital plant to grow under the shade of trees, and in town gardens, as we also can testify. Sweet Bays and Laurustinus were observed in considerable breadths; and Garrya elliptica in great numbers, from fine strong flowering examples, 5 feet high, down to quite baby plants of as many inches. The plant produces plenty of catkins on plants standing thoroughly exposed, and is therefore not tender, as it is considered to be by some persons. To get this plant to grow well on being removed, it should be transplanted every third year, which is the case here.

An excellent golden variegated form of the Irish Yew took the eye with the brilliancy of its colouring. Other yellow-leaved plants were Thuja occidentalis lutea, a distinct and telling plant, whose variegation is best in the summer months; Cupressus Lawsoniana lutea, a good golden form of the well-known Cypress.

Juniperus sinensis variegata has whitish variegation; Cupressus gracilis may be recommended for its shapely growth, it makes specimens without needing to be cut in; C. Lawsoniana Hallami is the best habited of that section, and has a peculiar blue-green foliage, that would prove to be very telling in big examples. Ginkgo adiantifolia from cuttings was rapidly forming little pyramidal plants, by the constant practice of cutting in the side shoots so as to force the production of a true leader. It must be said that the method adopted appeared to be crowned with success. The most symmetrical trees, however, are from seed.

Weeping Yews on tall, and on no visible stems at all, were observed in numbers—fine, big stuff covering circles of soil of 6 feet in diameter. The best were Taxus Jacksoni and T. recurvata, which seem to be improvements on T. Dovastoni and T. adpressa; at any rate they appeared to be more determinedly drooping and smooth in outline.

Amongst the numerous Conifers grown were noticed many Cryptomeria Lobbi and C. japonica; Abies nobilis glauca and Picea cœrulea, A. Alcockiana, with fine effective glaucous foliage, which comes away well with one leader, and not several as is usual with some varieties. Pinus cembra has a liking for the Epping loam, for we do not recollect ever seeing anywhere else such compact, well coloured plants. The same is equally true of Pinus strobus.

The deciduous forest plants, as red-twigged Limes, Horse Chestnuts, Abele, Black, Italian, and Lombardy Poplars, were all of them, excellent, thrifty examples. Large avenue trees, from which immediate effects would be produced, were noticed in several quarters of the nursery.

The Apiary.

Shallow Frames.

Sufficient experience has now been gained to speak of the value of shallow frames with some degree of certainty. When they were first talked about they were looked upon suspiciously by some, while others thought it was a new thing got up for the benefit of the dealers. Shallow frames have several advantages over deeper ones, which will recommend themselves at once. They are more readily taken to by bees, and are less liable to be broken in the extractor. It is often noticed that the bees fasten them completely round, so that they

are firm slabs of honeycomb. One great advantage of the Scotch octagon-shaped hive is that the supers are shallow, and they are added as the bees require them. No difference ought to be made in the length of the frames, but they ought to be about 5 or 5½ inches in depth. It is very easy for any amateur carpenter to make several boxes about the depth mentioned, but 14½ inches wide; the length is immaterial, but when a size is decided upon it is exceedingly convenient to make them all alike. Nothing is more inconvenient, to the novice especially, than to have the hives and supers of all shapes and sizes.

The next thing to think about is when to super. It is useless to do so till the hives are simply boiling over with bees. The season is backward, and so are the bees. In some seasons the bees are up to their full strength by May 1, but it will not be so this year. Let the hives be very strong, and honey coming in, then supering may be successfully done. It is more than probable that the bee-keeper will think more of increasing his bees than of honey this season. If that is the case, and natural swarms are required, they had better not be supered. Keep feeding them a little longer, and do not drop feeding them all at once, but gradually reduce the quantity. If this is done the bees will begin to get over their late troubles, and swarms may in due course be expected. It is now generally (though not universally) supposed that the best queens are raised under the swarming impulse. At any rate the bee-keeper who has only a few stocks would do well not to try too many experiments this year, but let Nature right itself somewhat, and bees may then get back into a normal state. At any rate we intend following out this advice ourselves. *Bee.*

Plants and Their Culture.

Method of Growing Humea elegans. — This Australian biennial plant is valuable for summer decoration in cool conservatories, in vases, in entrance halls, large rooms, &c. In these positions it does not get the bright colour that is seen in the inflorescence when the plant grows out of doors, but being graceful in appearance it is much liked. The plants require considerable root-space, and also to be uncrowded by other plants, to be seen at their best. To be enabled to get good plants the seed should be sown early in the summer, employing for this purpose shallow pans of light compost, placing these in a frame until germination takes place. The seedlings when large enough to handle should be potted off singly into 3-inch pots, and carefully shaded from bright sunshine, placing them in a house or frame of about 60° till the plants have made some amount of growth, when they should be removed to a cool-house or frame. The plants should be repotted as required, never allowing them to become pot-bound before doing so. A useful size of pot for the last shift is a 9-inch one, mainly using loam, decayed manure, and a few ½ inch bones, which last should be put over the drainage. The plants should not be allowed to get stunted in the early stages, or much of their beauty will be lost by the dying off of the leaves at the bottom of the stems. A shelf in a greenhouse, away from draughts, suits them in the winter months, and the watering must be carefully done. They will, when completing their growth, after the final shift, take abundant supplies of weak, liquid manure, and it is advisable to syringe them twice daily, to keep greenfly in check, but fumigation will be necessary when the plants have reached a large size, taking care to have the foliage dry previous to the operation being done.

Pyramidal and plumose Celosia.—These plants are mostly grown for summer decoration, but they are valuable in the late autumn; and to obtain large plants the seeds should have been sown in April, although useful sized plants may be got by sowing during this month. The plants like plenty of heat, and that of a Cucumber frame suits them. The potting compost may consist of loam, a small quantity of leaf-mould, and some dry cow manure, repotting being done when the roots have reached the pot-sides; 6-inch pots will be found a good size for them, and the size need not be exceeded unless large specimens are wanted. When the pots are filled with roots a cooler house will suit the plants; and supplies of weak liquid manure should be afforded them occasionally.

Capsicums and Solanums.—These useful plants are of easy culture, and should be grown in the early stages in a warm house or frame, being often syringed to keep them free from red-spider; and they should be grown near the glass, and finally shifted into 5-inch pots. When in flower the plants must be kept somewhat drier overhead; as soon as the fruit sets, the plants are benefited by being afforded some good fertiliser; and when fully developed they should be removed to cooler quarters. Green-fly must be kept down by fumigation, or by dipping the points of the shoots. The plants may be raised from cuttings if it be desired to keep any good variety. For further particulars about growing Solanums see a previous Calendar. *Geo. Wythes, Syon House, Brentford.*

Fruits Under Glass.

The Cucumber Frames, Pits, and Houses.—Plants of these may be planted out in frames to follow Potatos and French Beans, putting two plants on a hillock of fresh soil, seeing that the balls of soil are thoroughly moist at planting time; train the bine to the front and the back, and keep the frame close for a few days, and when the day is bright afford the plants a little shading; water liberally, and syringe or sprinkle the plants and the soil when shutting up on bright days, being careful to give air to the frame in the morning before the sun gains much power. Old plants in the houses should be well thinned out, and the shoots stopped, top-dressing with horse-droppings and fresh loam; water thoroughly, and keep the house moist and the atmosphere genial; the night temperature may range from 70° to 75°. Give the house air early in the day after growth has commenced, syringing and shutting up with the thermometer at 85°.

The Pine-pits and houses.—Encourage the swelling fruit with a growing temperature, damping down liberally on sunny days. Shading will be found very necessary this season, when the sun shines out, after so much cloudy weather. Look over the plants carefully before watering, affording them clear diluted sheep's or deer's dung, of the same temperature as that of the house. The night temperature may range from 70° to 75°, and 80° by day, according to the state of the weather, and on bright sunny afternoons the house should be damped down, the plants syringed, closing with the thermometer standing at 90°. Those placed in the fruiting pots this season should not be kept too close or too warm during dull weather, or the growth will be watery, and far from solid; but maintain a growing atmosphere without its being overloaded with moisture; giving air on every fine day. The night temperature may be 65°. Let the house be shaded for an hour or two on very bright days, shutting up the ventilators somewhat and damping the paths, and on sunny afternoons the thermometer without fire-heat may stand at 83° to 85° for an hour or two, a little air being given again later.

Plants showing fruit should be watered with care, and encouraged with a liberal treatment; those for fruiting later should be selected and put together, and afforded a cooler treatment as a sort of rest. Pot any suckers from old stools which may have been heeled-in, and from plants whose fruit has recently been cut. *W. Bennett, Rangemore, Burton-on-Trent.*

The Flower Garden.

Planting Beds and Borders.—In Hants the weather has been all that could be desired for planting operations, and if other parts have been equally favoured the planting and thinning-out of annuals will now be completed; but where this is not the case the work should not be delayed very long. Stocks, Zinnias, Asters, and Phloxes are always the most successful when planted whilst quite small, for if left to get large they take much longer time in recovering from the check. Annuals sown where they are to flower should be thinned-out, and the plants left be made firm in the ground by adding a little fresh soil and pressing it around the roots.

Except Alternantheras and Iresines all kinds of bedding plants may now be planted; and all plants requiring supports should be secured as soon as put out, especially Dahlias and Fuchsias, as both of these suffer seriously if staking be deferred till new roots are made. The only remark I need to make in respect of the putting out of plants that are well established in pots is, that they should be well soaked with water first, else they will continue in a dry state, and fail to start kindly. Seedlings, and plants of every kind that have to be transferred from boxes or pits, and to which little soil adheres, should be well watered; and if partial shade can be afforded them for a few days, should the weather be sunny it will be well. Small twigs of Fir and other evergreens make good shading and wind breaks.

Pinks and Carnations.—These have not done so well as usual, owing to birds, slugs, and excessive rainfall. Mine were often dusted over with soot, and, judging from the improved colour of the "grass," it has not been less effective as a manure, than as a bird and slug-deterrent. The beds now require to have a surfacing of rich soil, and the flower-stems be tied up, placing three small sticks round each plant, and then by twisting the matting round each stick, the whole of the flower-stems are secured, and look much neater than the formidable array of sticks sometimes observed.

Herbaceous Plants.—The idea is prevalent that a garden of herbaceous plants either takes care of itself, or requires very little attention to keep everything in trim order. This is a mistake, for if satisfactory results are to be obtained, quite as much time must be spent on this phase of flower gardening, as on the elaborate forms of bedding out, but then it is more enduring, and of more interest from the constant change of flowers and one should not begrudge the needful labour. At the present time much will require to be done in the way of staking and tying. Pæonies are getting top-heavy with flower-buds, and must be tied up forthwith, and generally a single stake will be found enough for a large plant, looping up the stems lightly. The same applies to Delphiniums, but these grow so strong and tall that extra stout stakes are required, and instead of matting small string is better, and about three girths are required instead of one when the plants have attained their full height, but at present one tie is sufficient. Other tall herbaceous plants need the same attention, and an effort should be made to do each kind as soon as it is large enough to require it. *W. Wildsmith, Heckfield, Winchfield.*

The Kitchen Garden.

Growing Celeriac.—These plants differ from ordinary Celery in that the root is tuberous, and needs no blanching, and is mostly consumed when cooked either cold as a salad, or, like white Celery, it is stewed, and eaten warm. The seeds should be sown in February, and treated in precisely the same way as ordinary Celery, planting out in trenches or in well-manured beds. It requires no earthing-up, although some growers say that better results are obtained by removing a portion of the foliage, and earthing it up like ordinary Celery.

In order to secure crisp roots, abundance of water must be given during dry weather, and if the plants have been otherwise properly attended to, they will be ready for use in September. When sharp frosts are to be expected, the plants can be lifted and arranged regularly in layers like Beetroot, so that the heart-leaves, which are the only leaves reserved at lifting-time, may grow. A suitable place for them is an open shed, or cellar where there is some light.

Leeks.—The early-sown plants will have made rapid progress since they were pricked out, and the beds or lines where they are intended to be grown must now be got ready for them. Manuring can hardly be overdone, and in order that the plants may receive the full benefit of it they may be grown in trenches, where the manure has been dug in as for Celery. It is not necessary to grow many plants after this fashion, a few hundreds being enough for most families. The plants should be placed at a distance of 10 inches apart, so as to allow of a considerable amount of leaf-growth without crowding. The main crop will be planted soon enough if put out in June. *W. M. Baillie.*

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

WEDNESDAY, May 22 { Gardeners' Orphan Fund: *Fête* in Covent Garden Market.

FRIDAY, May 24—Linnean Society: Anniversary.

SALES.

MONDAY, May 20 { Greenhouses, Plants, Stock, &c., at North Cray Place, Bexley, by Protheroe & Morris (six days).

TUESDAY, May 21 { Collection of Orchids formed by the late E. Wright, Esq., Birmingham, at Protheroe & Morris' Rooms.

WEDNESDAY, May 22 { Plants, at Protheroe & Morris' Rooms. Greenhouse and Bedding Plants, at The Nursery, High Street, Barnes, by Protheroe & Morris.

THURSDAY, May 23 { Imported and Established Orchids, Stove and Greenhouse Plants, at Stevens' Rooms.

FRIDAY, May 24 { Second Portion of the Collection of Orchids formed by the late C. Dorman, Esq., Sydenham, at Protheroe & Morris' Rooms. Greenhouse and Bedding Plants, at the St. John's Park Road Nursery, Blackheath, S.E., by Protheroe & Morris.

SATURDAY, May 25 { Greenhouse and Bedding Plants, at the American Nurseries, Leytonstone, by Protheroe & Morris.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—56°.

The late Professor Reichenbach.

No ordinary conventional expressions of regret and eulogy will suffice to convey any adequate idea of the extent of the loss which the horticultural world and those interested in Orchids in particular have suffered in the decease of Professor Reichenbach. We, if we may be allowed to say so, have special reason to treasure his memory with affection and gratitude. For close upon a quarter of a century we have been in weekly, and at some periods, almost in daily communication with him, either directly or indirectly. His regular contributions to our columns began in 1865 and were continued almost weekly, the last appearing so recently as May 4 of this year. His fidelity and loyalty have been as conspicuous and as constant as his knowledge has been great, and what is true of his relations to ourselves is as true in its degree in the case of other of his English correspondents who may be reckoned by hundreds. What we wrote of him some years ago is, with very slight modification of detail, as true and as expressive now as then.

There are few, we wrote in 1871, to whom British horticulturists, and the readers of the *Gardeners' Chronicle* in particular, owe profounder homage than to the Orchid King. Having acted as viceroy for a number of years, the Professor ascended the throne, vacated on the death of Lindley, amid the unanimous assent of his colleagues and his subjects, and worthily, most worthily, does he fulfil his regal duties. Nor does our Orchid King share the exclusiveness sometimes manifested by those in high positions; on the contrary, we doubt whether the President of the United States himself is more accessible than our Professor. Does a new Orchid arrive?—forthwith it is despatched to Professor Reichenbach. Does a stranger make his appearance without his passport or visiting card?—forthwith he is forwarded to the Hamburgh Professor for identification, verification, or baptism, as may be required. Does any question arise concerning that most intricate and difficult family, the Orchidaceæ?—Professor Reichenbach acts as the universal referee and umpire. He is never too busy to reply when an Orchid is in the case. Be the petitioner gentle or simple, it makes no difference; the answer is cheerfully and speedily given; often, too, accompanied by a strikingly apt allusion or a witticism (sometimes a sarcasm) rendered the more pungent by the Teutonic English in which it is framed. It does not often happen that a botanist devotes himself for many years so exclusively to a single family in the way the Professor Reichenbach has done; but the devotion has manifest advantage, as giving the naturalist a knowledge of detail unattainable by others of more discursive range of study.

It must not, however, be supposed from our remarks that Professor Reichenbach was exclusively an orchidographer. He is best known to horticulturists in this field, but botanists have to thank him for the zealous collaboration he gave to his father's grand undertaking—the *Icones Floræ Germaniæ et Helvetiæ*—a work devoted to the description and illustration of the plants of Central Europe, and of which Heinrich Gustav Reichenbach, the younger, edited the latter volumes, and illustrated them with his own hand, contributing no fewer than 1,500 drawings. The first volume of this extensive and valuable publication which Professor Reichenbach edited, was, naturally enough, that devoted to the Orchids of Europe. It bears the title *Tentamen Orchidographiæ Europeæ*, and is dated 1851. "For ten years," says the Professor in the preface of that volume, "I had devoted myself to the study of Orchids." Since 1841, then, our Professor had most diligently studied Orchids, often in association with Lindley, who repeatedly acknowledged his obligations to the subject of this notice. In consequence it is scarcely possible to take up a set of volumes of periodical botanical literature, German, French, or English, or any work devoted to the enumeration of the floras of distant lands, without meeting traces of the Professor's industry and research. Our own columns in particular have been enriched with very numerous descriptions of the Orchids that have been from time to time introduced into cultivation. Of separate publications we may mention the well-known *Xenia Orchidacea*, which has appeared in occasional fascicles from 1851, with about 900 drawings from the Professor's pencil, and the *Observations on the Orchids of Central America*.

Professor Reichenbach is also the author of the synopsis of Orchid lore contained in the sixth volume of *Walpers' Annales*.

Professor Reichenbach always took a lively interest in horticultural exhibitions, both on the Continent and in this country, and was frequently called on to act in the capacity of judge, especially where Orchids or new plants were concerned. At the several Horticultural and Botanical Congresses Professor Reichenbach generally took a prominent part.

To this testimony there is not much to add. He was born at Leipsig on January 3, 1823. His graduation essay on the origin and structure of Orchid pollen was published in 1852, and from that time to the present he has incessantly been at work among Orchids, although as already remarked not exclusively so. He died at Hamburgh on May 6, having been Professor and Director of the Botanic Garden since 1863.

Reichenbach was possessed of remarkably distinct individuality, which was as remarkable as his curiously crabbed handwriting which few could decipher. Short and massive in stature till his recent illness, with a keen penetrating glance and aquiline nose, his features revealed something of the impetuous temper of the man, and his occasional biting sarcasm. His devotion to Orchids amounted to a consuming passion; not a scrap, nor a note, nor a sketch however rough, came amiss to him if it related to an Orchid. To him meals and clothes were necessary evils, but his herbarium was a prime necessity of existence. The amount of his work was prodigious. Of its quality the botanists of the future will judge better than we. One thing, however, is obvious, and especially so to those who have had the opportunity of comparing his work with Lindley's. In Lindley's time Orchids were, it may be said, counted by the score, while in our times the estimate has to be made by the hundred, if not the thousand. Lindley, with his clear perception, logical mind, and relatively small material, was able to draw sharply defined, expressive characters in few words, arranged with rare skill. Reichenbach, with a totally different frame of mind, was overburdened with the ever-increasing mass of material. His descriptions and comparisons were often singularly felicitous, his knowledge of detail enormous, but lacking co-ordination and precision. He never gave us in a compendious form, a complete synopsis of the genera and species. It is greatly to be hoped that his immense collections and notes will fall into competent hands (at Kew if possible), for collation and revision — a task that will, however, require years of concentration, for his publications are not only extremely numerous, but scattered through a wide range of publications in almost all European languages.

Of his self-denying labours and the constant services he rendered to Orchid growers in all parts of the world we have already spoken. Some recognition, but none that can be fairly deemed adequate, were conferred on him in this country by his election as one of the foreign members of our Linnean Society; and as an honorary Fellow of the Royal Horticultural Society. A Veitchian Medal was awarded to him in 1885, on the occasion of the first Orchid Conference; and last year, at Ghent, where the Professor acted as President of the Jury, His Majesty the King of the Belgians presented him, at the instance of the Botanical and Agricultural Society of Ghent, with a Medal specially struck in his honour. Moreover, his merits were recognised by numerous orders and distinctions conferred on him by foreign Governments, though we believe a gift of a dried Orchid gave him more gratification than honours such as these, for, as he once remarked to the writer of these lines, "I cannot eat the honour."

We cannot yet fully realise the immensity of our loss, but we can and shall always hold his memory in deep respect and profound gratitude.

Gardeners' Orphan Fete. — This unique festival will be held, as we have already mentioned, in the Wholesale Flower Market, Covent Garden, on Wednesday evening next, from eight till midnight. The tickets are issued at 5*s.* each, and those who disburse that sum will have the satisfaction of knowing that about 90 per cent. will go direct to the orphans. That's one thing. Those who go to see a "flower show" will find one to which they are unaccustomed. Those who go to see a show of flowers will see such a one as, in its way, the world could not surpass. The fine ladies and gentlemen will be

there in their hundreds, and this time in the interests of the orphans, we trust they will not leave their purses at home.

Railway Rates.—We desire to call the special attention of the trade, and of all those who are dependent on railway carriage for their parcels, to the report of the meeting in another column. The



The late PROFESSOR H. G. REICHENBACH.

gods help those who help themselves, and if those concerned do not take vigorous action they will forfeit that right so dear to Britons of grumbling, and grumbling when one is in the wrong is not very satisfactory to any one.

The Iris Lecture.—One of the best and raciest lectures yet given before the Royal Horticultural Society was delivered by Professor Foster on Tuesday last. It consisted in a general review of the species (except those of the Xiphion group), of their structure and adaptations to the climatic conditions under which they grow naturally. The lateness of the season prevented so full a display of representative species as might have been desired; nevertheless a goodly array was forthcoming from the collections at Kew, from Mr. Barr, and others. Professor Foster, after calling attention to the large number of different kinds of Iris, and to the fact that each kind maintained its existence by virtue of its being adapted to special conditions, insisted on the value of studying in the several cases the conditions under which a wild plant lived in its native home as a preliminary to cultivating it in a garden. In illustration of this, he described as types of three great groups of Irises, I. germanica, I. sibirica, and I. pseud-acorus, pointing out the features in each by which it seemed to be adapted to the conditions under which it lived. He then described in detail the various broad-leaved Flags of South Europe, I. germanica and its allies, pointing out that they were all adapted for a sunny situation, and relatively a dry, not too rich soil. He passed on to the I. biflora group, and so to the dwarf Irises, I. chamæris, I. pumila, &c., and while insisting that these for the most part needed still sunnier situations, and still drier, scantier soil, made some remarks on the great number of different forms in cultivation, incidentally insisting that many were natural or artificial hybrids, and commenting on the great difficulty of giving to each of these cultivated forms its appropriate name. The features of the dwarf Irises of East Europe, I. Nolette, I. balkana, I.rubro marginata, led the lecturer to the Irises of Asia Minor and Central Asia, those of the Oncocyclus group, I. iberica, I. susiana, &c., and the allied group of Regelia, I. lineata, Korolkowi, &c. These, he insisted, needed all the exposure to sun possible in this country, and were benefited by an imitation of their native clime in the form of a

glass covering, not in winter, but in summer. A few remarks on the Evansia group, represented in China and Japan by I. tectorum and I. fimbriata, and in North America by I. cristata and I. lacustris and the representation in North America of the Sibirica group by I. Coliniana, brought the lecture, which will be published in full in the Journal of the Society, to a conclusion. Mr. Baker testified to the great value of Professor Foster's work as a cultivator, a systematist, and a physiologist. Dr. Masters alluded to the fact that Iris germanica throve well in the dirtiest parts of London, and pointed out the peculiarities of structure which enabled the plant to exist under such conditions. The discussion was continued by Sir Charles Strickland, Mr. C. B. Clarke, and the Chairman, Mr. Thiselton Dyer, Director, Royal Gardens, Kew.

Work.—Tuesday was a busy day for the horticulturists. In addition to the meetings of the four standing committees of the Royal Horticultural Society, there were meetings of the Rose Conference Committee, as well as of the National Rose Society, a Council meeting, Professor Foster's lecture on Iris, and a very important meeting to consider the question of Railway Rates. Of most of these mention will be found in our columns, as well as of the shows at the Crystal Palace, the Botanic, Bath, and elsewhere. In the midst of Tuesday's proceedings came the announcement of the death of Professor Reichenbach. If, under these circumstances, some correspondents find their communications crowded out they will, we are sure, be ready to forgive us.

"Kew Bulletin."—The May number contains an account of the yellow-flowered Delphinium Zalil, the flowers of which are used for dyeing silk, and which has already been noted in these columns. A report on Tasmanian timber follows, showing that many of them have great value for constructional purposes. Among food curiosities may be mentioned Lily flowers; no smaller quantity than 7,000,000 lb. are exported from Chiu Kiang. The species employed are Lilium bulbiferum and Hemerocallis graminea, the dried flowers of which are employed for flavouring soup. The bulbs of Lilium cordifolium are also used for the starch that they contain. P'u-êrh Tea, used in Yun Nan, South-west China, consists of the leaves of a shrub which cannot, for want of adequate material, be accurately identified, but which is supposed to be the Assam Tea plant. The Yam Bean (Pachyrhizus angulatus), a Central American leguminous plant, is valuable for its edible pods, which form a good substitute for French Beans, and whose tuberous roots are also edible, and furnish starch. Lastly, a complete list of British and Colonial gardens, with the names of their officers, is given. The Edinburgh Botanic Garden is something more than a University garden, while we are afraid Glasgow is, or was till recently, something less.

The Paris Exhibition.—The collection of fruit trees, says our French contemporary, *Le Jardin*, is unique both as to number and variety. The plantation is made around the Trocadero, in proximity to a small model kitchen garden, and a demonstration of the utility and best methods of sewage irrigation. On the esplanade of the Invalides M. Godefroy has furnished a fine conservatory with Tree Ferns of extraordinary dimensions.

Aloe plicatilis.—Mr. W. Harrow says: "One of the principal attractions in the Cambridge Botanic Gardens just now is this Aloe, which is in flower. This old specimen is perhaps one of the largest, if not the largest specimen to be seen in the country. A large percentage of the members of this genus grow up with single stems, but this one belongs to the class having branching stems, and form themselves in the course of time into specimens of tree-like dimensions; though a variety of this species, called major, growing in the same house, does not seem to have this habit, but may do so when it grows older; the latter is by far the most imposing of the two. The leaves are disposed so as to resemble a fan, and measure in the spread 3 feet across, the plant being 2 feet 6 inches in height, while A. plicatilis forms a fan spreading but just about half the width. There are upwards of 150 flowering peduncles upon it this season, and each raceme would average thirty flowers apiece, which gives a total of 4500 flowers, roughly calculating. There is no sure method of ascertaining the age of this specimen, but judging from the rate of growth of this species, it must be upwards of 150 years old."

Andromeda formosa.—Messrs. T. Cripps, of Tunbridge Wells Nurseries, send us a very dense spike of this fine white-flowered "American plant." The plant has a compact habit of growth, and forms naturally a half-sphere, when uncrowded, in open situations, and when in flower it is very attractive. Peat is not essential for its culture; any free, porous loam, free from lime, suiting it.

Pyrus japonica.—A fine symmetrical bush of this plant is just now in full flower at Aldenham House, Elstree. Some two or three years since Mr. Beckett moved the bush from a border, and gave it a prominent position on the lawn, no small undertaking, as the plant was of immense size, and it has certainly repaid the trouble, for few objects could be more beautiful than it is now.

Rose Shows in 1889.—The following notices of shows are kindly supplied by Mr. E. Mawley:—July 2, Boston, Sutton; July 10 and 11, Brighton, Ealing; July 17, Bedford; July 26 and 27, Wilmslow.

"The Chrysanthemum Annual" ought to have been noticed long since, but as Chrysanthemums are now to be had in bloom for nearly three-fourths of the year, it can hardly be called unseasonable to allude to the little book even now. It is edited by Mr. L. Castle, which is a guarantee of painstaking care, and is devoted to a review of the work of the past year, and to a reprint of some of the papers read at the various meetings during the past year. It is to be hoped that the establishment of Conferences will do service to the literature of horticulture by securing at once a greater accuracy and less discursiveness on the part of the writers, and by inducing them to confine their lucubrations to those departments in which they are really competent to give information. As it is, we too often meet with references to Hebrew, Greek, and Latin authors, as well as to abstruse questions in vegetable physiology, when it is often obvious that the writer's personal acquaintance with these matters is of the most indirect kind. When a paper is prepared for a Conference, and has to be read before a critical audience, this tendency to discursiveness is checked, and the writer is likely to confine himself to those points upon which his own personal experience is likely to be of value.

Patchouli.—The *Journal of the Agricultural and Horticultural Society of India*, to hand, contains a paper by Mr. L. Wray on the cultivation of this plant (Ocimum basilicum var. pilosum.) The culture is almost entirely confined to the Chinese in the Straits Settlements, who grow the plants from cuttings in rows on raised beds. The plant seldom or ever produces flowers, so that Mr. Hardonin, who has cultivated the plant for thirty years, has never seen or even heard of a flower.

Chinese Plants.—The last issued part of the *Journal of the Linnean Society* is occupied with the continuation of Messrs. Forbes and Hemsley's enumeration of Chinese plants. So abundant however have been the novelties received since the issue of the first parts of the enumeration, that it is to be hoped a supplementary volume will be prepared. The mountains of Central China also are yielding so many novelties of great beauty and interest that we hope some energetic nurseryman will send out collectors. A rich harvest awaits him. It is most interesting also to find the wild types of many plants known previously only in a cultivated state; thus we have had occasion to notice the discovery of the wild form of Skimmia Fortunei (japonica of gardens), of the Chinese Primrose, of the Keteleeria (Abies) Fortunei, and others. In the present number, several new Rhododendrons are mentioned, and our garden Azalea indica, known to botanists as Rhododendron indiicum, appears under twenty-five synonyms. It is fair to say, however, that some of these are surely sufficiently distinct to form varieties, as for instance A. amœna. Of the wonderful Primulas of this region we have previously spoken.

Adonis vernalis.—Mr. Ware sends us a flower of this species in which the flower is wholly composed of scales, the outermost petal-like, in many rows, the innermost green. It is a handsome flower, but so double that seeds are out of the question. It is quite worth propagating by division or cuttings.

Index of British and Irish Botanists.—Among the names mentioned in the last instalment, prepared by Messrs. J. Britten and G. S. Boulger in the May number of the *Journal of Botany*, we find the following:—

"Hoy, Thomas (fl. 1790—1809). F.L.S., 1788. Gardener at Syon. Member of first Council, R. Hort. Soc. 'An intelligent and successful cultivator,' Brown, in *Mem. Wern. Soc.*, i., 26. Hoya Br."

"Humphreys, Henry Noel (1810—1879): b. Birmingham, 1810; d. London, June, 1879. Artist. *Gallery of Exotic Flowers*, 1855. Drew for *Floral Cabinet* and Moore's *Mag. Bot. Jacks.*, 117; *Garden*, xviii., 1880, p. xii., with portr."

"Hunneman, John (d. 1839): d. London, March, 1839. A.L.S., 1831. Ass. Bot. Soc. Edinb. Sweet, *Brit. Fl. Garden* iii., 276; 3rd Report, Bot. Soc. Edinb. 14, 52; *Proc. Linn. Soc.*, i., 36. Hunnemannia, Sweet."

Lichens.—When it was first announced that lichens consisted of a green Alga living in association with a parasitic fungus, it is no wonder so astonishing a statement was received with incredulity. Specially the systematic lichenists opposed and ridiculed the notion. Some still do; other said, "do it"—make a lichen—combine an Alga and a fungus, and produce your lichen. This was done by Bornet and others, but still there remained some who were not convinced. Such persons should read M. G. Bonnier's article in the *Annales des Sciences Naturelles*, wherein M. G. Bonnier shows conclusively that the development of lichens can be effected artificially—that the process can be watched day by day, and all the stages noted.

Eel Worms.—Dr. Ritzema Bos continues his researches into the life history of these creatures, and into the injuries caused by them to various plants. Having in a previous paper noted the disease as it affects Rye, Wheat, and bulbous plants generally, Dr. Ritzema Bos now continues his observations on various species of Scilla, Spergula, Lucerne, Buckwheat, &c.

Tiarella cordifolia.—Mr. Ware sends us a specimen of this plant, which at this season is very ornamental. It is allied to the Saxifrages, and bears a tuft of roundish leaves, from the centre of which is sent up a slender erect cluster of small creamy-white flowers, the anthers being tipped with pink, producing a charming effect when seen in the mass.

Fertilisation of the Flowers of Gladiolus.—M. Musset announces to the French Academy of Sciences that while most of the Irids are cross fertilised, and consequently require insects or some other agents to convey the pollen to the stigma, in Gladiolus segetum, owing to the peculiar movement of the styles during their growth, close fertilisation is effected by the ultimate position of the stigmas beneath the anthers so as to retain any pollen that may fall from them.

Electricity and Germination.—In order to study the influence of voltaic electricity, Mr. H. N. Warren placed pads of cotton, saturated with a dilute solution of salt, and sown over the surface with common mustard seed, upon the platinum plates connected with four constant ferric chloride cells. In less than twenty-four hours germination over the positive plate was distinctly visible, and at the end of a week the growth was upwards of an inch in height and of an intense green colour. In the same time on the negative plate germination had only commenced, and the growth was almost white. On reversing the current the previously flourishing growth became bleached and speedily withered, whilst the other gradually assumed a green colour, flourished for a time, and then also withered. The bleaching of the growth in the neighbourhood of the temporarily negative plate is thought to have been due to the small but constant liberation of chlorine, and it seems evident that this factor must be excluded from the experiment before correct conclusions can be drawn as to the relative influence of the positive and the negative current on germination. [This statement should be compared with that by Mr. Bridgeman in *Gard. Chron.*, 1873, p. 142]. (*Chem. News*, April 12, p. 170, cited in the *Pharmaceutical Journal*).

Gardeners' Orphan Fund.—On the 30th inst. the gardens of Hardwick, Bury St. Edmunds, over which Mr. D. T. Fish presides, will, by permission of G. M. Gibson-Cullum, Esq., be opened to the public at a small charge. The proceeds are to be devoted to the fund.

Disa pulchra and D. crassicornis.—We have been shown specimens and illustrations of these two beautiful South African terrestrial Orchids by Mr. James O'Brien, of Harrow-on-the-Hill, who has at last had the good fortune to procure alive a few tubers of these and other rare Disas. D. pulchra is a noble species with spikes near 2 feet in height, each bearing from twelve to eighteen large rosy-crimson flowers all expanded at once, the spikes and leaves resembling somewhat those of Gladiolus Colvillei. D. crassicornis has large white flowers spotted inside with purple, both are said to be very fragrant, and will be noble companions to our favourite D. grandiflora. Spikes of D. racemosa which was illustrated in the *Gardeners' Chronicle*, May, 1888, prove it to be fine, as also the blue D. lacera, the white and rose D. tripelaloides, and the bright orange-scarlet D.porrecta.

Cattleyas and Lælias at Messrs. J. Veitch & Sons.—Visitors in town should not omit to inspect the grand Orchid collection of Messrs. J. Veitch & Sons, King's Road, Chelsea, whose great Cattleya-house contains such a splendid show of Lælias and Cattleyas as has never been witnessed before in the metropolis. The great specimens of Lælia purpurata bear about 400 flowers, Cattleya Skinneri almost as many, and the showy Cattleyas of the labiata section still more. A visit disclosed the presence of an extraordinary display in all the departments of the Orchid collection, as well as in the general nurseries. One grand specimen of Dendrobium nobile had 420 blooms. In our next issue we shall note the more striking of the Orchids, &c., in bloom.

Orchid Culture in Italy.—A catalogue of Mr. Ross's collection of Orchids at the Castello de Poggio Gherardo, near Florence, recently illustrated in our columns, has been published, comprising no fewer than 976 entries.

Bananas.—The Banana is the fruit of fruits among these people (natives of the Amazon), and in both the green and the mature state affords the chief article of their food. Of the eating Banana, the "Madura" of the tropics, our markets (says Dr. Rusby) know nothing. Our Bananas are chiefly the cooking Bananas in the regions where they grow. They are cooked by boiling, frying, and roasting. Ripe Bananas are sliced lengthwise and fried in butter or olive oil. Partially ripe ones are boiled for two or three minutes with the skin on and eaten with honey or syrup. Perfectly green ones are peeled and roasted in the ashes; eaten with butter they constitute one of the most delicious and wholesome of all starchy foods. The varieties for eating ripe in a raw condition are numerous, named, and of entirely distinct flavours. In general the smaller they are the more delicious. The finest of all is the little Lady-finger, with the skin scarcely thicker than brown paper.

The Bulb Garden.

LILIES.

Anyone, who from time to time, notices the advertisement of sales of Lilium auratum must wonder what becomes of the tens of thousands of bulbs that are annually imported and offered to the public; and those who have to do with their culture here must also be astonished at the rapid increase and growth of this Lily in Japan as compared with its behaviour in this country, for instead of multiplying with us, and growing freely, it dies away in most places, and is soon lost from the borders. Can anyone tell us why this is, and furnish a remedy? This is not only the case in beds and borders, but the bulbs are also fickle and uncertain in pots, though now and then we meet with, or hear of, some remarkably fine specimens, although I fear they do not hold their own long. Outdoors here we have several splendid clumps, which have been in the same positions for years, and yet these have had no more care and preparation before planting than was bestowed on others. I am inclined to think that situation must have much to do with the success of those just referred to, which are shaded till the afternoon, while others, more exposed, dwindle and die; and yet nurserymen and others grow them out in the open. Perhaps someone can inform us how they are cultivated and managed in Japan, and what kind of soil they are planted in there, as the thing seems to be to imitate their methods. I have tried them in mixtures of peat and loam, and in each separate, but results have been much the same. In beds or borders, after well breaking up the soil, we surround the bulbs with sharp sand, before covering them in. Lilium candidum is quite at home here, and increases so freely as to crowd the bulbs and push each other out of the ground, and not only is this so in our borders, but it is the same in the cottage gardens where these bulbs are planted. As yet we have not attempted L. Harrisii out of doors, and I shall be glad to hear whether this superb Lily is adapted for that mode of culture, but judging from its freedom in pots, it would seem hardy and vigorous enough to take care of itself. As a plant for greenhouse decoration it is beyond praise, and with very little forcing it may be had in bloom early, and a long succession of its lovely flowers kept up. All the lancifolium sections are of easy culture in pots, if rightly treated, that is by gradually ripening them off in the autumn and repotting the bulbs soon after the stems die away, for if left much later than that, the large fleshy roots which soon begin to form get injured, weakening the growth and lessening the bloom. *J. S.*

Vegetables.

NOTES ON CABBAGE.

It is vexing and disappointing to have good breadths of Cabbage that give every promise of good hearts, and at the last moment, instead of hearting, run to flower. The cause of this may, to a certain extent, be owing to a severe check caused by frost, or to sowing the seed at too early a date. Not unfrequently the evil may be traceable to bastard seed. I will give an instance. My earliest bed contains something like 1400 plants, and includes half-a-dozen different kinds. Of Ellam's Early I have 300 plants, and none has run to seed, and our first (very good) was cut on Easter Monday. Early Evesham, Stuart & Mein's No. 1, Early Enfield, and Wheeler's Imperial, are all turning in well, and only two plants have bolted, while the sixth variety, of which there are 250 plants, fully three parts have, or will soon, run to seed. I usually make two sowings; the first on July 20, and the second one three weeks later, and so soon as the plants are large enough they are at once transferred to a piece of rich but firm ground. Of the two sowings and plantings of Cabbage, only one variety has disappointed my expectations. *H. Markham.*

The Hardy Fruit Garden.

Practical Suggestions.—The weather having been all that could possibly be desired during the time Peach and Nectarine trees were in full bloom, an excellent set of fruit has resulted, and at present the prospects of a crop are good. As growth is very active, disbudding must be proceeded with. Do not allow the trees to make too much wood, as it weakens the fruit. I advise begnining early with the thinning of the shoots, and examining the trees three or four times at intervals of about fourteen days. Look to young trees which were planted late, and see that they do not suffer for want of water, especially where heavily cropped. Give a thorough soaking if water be needed, and mulch with light manure.

Raspberries.—This is a good time to go over Raspberry beds. Single out the canes, leaving from six to eight of the best to fruit. When new plantations are to be made in the autumn, a sufficient quantity of young canes may be left between the rows, to be lifted in due season. Autumn fruiting stools should also receive attention, being thinned out to six or eight of the strongest canes, so that there may be a better chance of obtaining larger and finer fruit.

Late Grafts.—These must be looked over, and moistened or smeared over should the clay have cracked; the grafts will also benefit by having a little moss placed over the clay, and damped occasionally. *H. Markham, Mereworth Castle, Kent.*

Home Correspondence.

The Gardeners' Royal Benevolent Institution.—I shall be pleased if you will permit me to say a few words in aid of the above deserving institution. I am in receipt of a circular, headed "a most special and important appeal," in which it states that this year the institution attains its fiftieth or jubilee year, and that to mark such an event in a special manner, the committee are making strenuous efforts to raise the sum of £3000, so as to enable them to place the whole (seventeen) of the unsuccessful candidates at the last election on the pension list, £3000 being required to meet the great extra annual expense, without trenching on the reserve funds. The circular states that £1500 is promised, leaving a like sum to be secured by the day of the Festival (June 13), otherwise nearly the whole amount will be lost, and the scheme fall through. As a gardener, I would, therefore, appeal to your readers to assist in raising a sum sufficient to avert such a disaster. I know that gardeners as a class are poor men, and many are but "passing rich on forty pounds a year;" still, if all the gardeners whose names appear in the *Garden Annual* contributed a small donation, the desired sum would be obtained. *Pathfinder.*

Myosotis alpestris grandiflora.—This is much superior to the ordinary form of M. alpestris, and has proved very useful here for spring bedding this season. M. dissitiflora having suffered severely during the past winter, I filled the centres of the beds with the above variety about six weeks since. It has flowered in conjunction with the older variety, and being of taller growth than that, it raises the centres of the beds, giving them a better appearance than if they were filled with M. dissitiflora only. As it is perfectly hardy it may be relied on in cold positions, where M. dissitiflora is not always trustworthy. I sow the seed on moist soil as soon as it is ripe. *W. H. Divers.*

The Marechal Niel Rose is hardy.—There are so many persons who, from unsuitable soil, over manuring, producing growth that never ripens, wrong position, or what not, never get this Rose to do any good outside, and their complainings are so loud and oft reiterated that it is quite time some one should say a good word for the much maligned yellow beauty. Those who read their *Gardeners' Chronicle* will remember a notice of Mr. Frank Cant's Rose Nursery at Colchester, which appeared in these pages last October. In that notice it was stated that many plants of Maréchal Niel occupy a long border of perhaps 25 yards wide in a perfectly exposed open site. These bush plants

are never protected in winter, and appear to be rather severely pruned, but they never fail to produce some thousands of fine blooms every season; and it is from these plants that the blooms in the winning stands of this well-known Rose exhibitor are cut. As a bedding Rose, M. Niel is not very suitable, owing to the blooms hanging their heads, Daffodil fashion, and for this purpose it should not be chosen, as there are many better; but when it is grown in good deep holding soil like that at Colchester, as bushes for cutting blooms from, it proves quite satisfactory. These Colchester Roses enjoy an almost maritime climate, the German Ocean not being more than 16 miles away, so that frosts are not so severe as at places further inland, but hard frost may always be kept from the main stem and branches by moulding-up. *M.*

A FORCING STRAWBERRY. — That fine continental variety, Auguste Nicaise, is worthy of extensive cultivation, especially at this time of year. In this locality it is scarcely known, and, therefore, a reference in these pages to its good qualities may not be out of place. To those who require a luscious strawberry of large size at this time of year for forcing, there is, in my estimation, none better; the colour is bright, and in regard to size and weight, I have found that ten and eleven weigh one pound. I have enclosed a fruit or two for you to see that my statement is not incorrect. We have six to eight fruits on a plant of the size enclosed, which renders a shelf of them very attractive to the eye, and for the table they are much esteemed. *C. Penford, Leigh Park, Havant.* [Although the fruits were much damaged in transit, it was easily to be seen that the size was very great, the shape cockscomb, and colour bright.—Ed.]

NEW DOUBLE VIOLET QUEEN VICTORIA.—This appears to be one of those valuable plants which occasionally appear amongst us as being something new without much heralding, and which gradually win their way to general favour by their sterling qualities. It is several shades darker in colour than the favourite Marie Louise, and does not commence flowering until that variety is nearly over; the flowers are also larger, but its vigorous habit and hard, dark-coloured foliage will probably prove one of its chief recommendations, in which respect it bears a nearer resemblance to the single Russian varieties than Neapolitans. A plant given to me last summer has been growing in a cold frame with the varieties Marie Louise and Parma, and while the foliage of these two kinds has suffered severely during the winter, the variety in question looked the picture of health all the time. *W. H. Divers, Ketton Hall.*

VITALITY OF SEEDS.—On April 19 I sowed in a box in a warm frame a quantity of Cucumber seeds and Tomato seeds received from my brother in Massachusetts, U.S., in December, 1879. Of the Cucumbers 95 per cent. vegetated in ten days; the Tomatos were slower, but 60 per cent. have vigorously vegetated. At the same time and place I sowed seeds of Canna indica, raised by myself five years ago; these seem to have all vegetated. I also sowed seven seeds of a fine zonal Pelargonium, fertilised and ripened by myself six years ago; these have all vegetated vigorously. In an adjoining spot in the open I also sowed seeds of Broccoli, Cauliflower, Wallflower, and East Lothian stock, ranging from eight years to five years old, and all have vegetated in surprising proportions. In vexatious contrast to these facts, I have obtained one plant from a shilling packet of Verbena seed, five plants from a similar packet of Hollyhock, and three plants from a similar packet of Carnation seed, and so on, these last being obtained from the seedsmen just now. *G. Paul, Knaresborough.*

CUCUMBERS.—The difference in quality of these, and of degree in bearing, are very noticeable, and the latter is strikingly exemplified in a house of plants we have now, the plants having been raised and treated precisely alike, and planted at the same time in the same kind of soil; and while Veitch's Perfection is laden with fruit, Masters' Prolific bears very reluctantly; and there is no comparison in the appearance of the Cucumbers, for while Veitch's is long and handsome, with but little neck, Masters' comes unshapen, with swollen end and pinched middle. The flavour of Veitch's Cucumber is far superior to that of the other, and it is very crisp and tender, resembling in the way the good old Sion House or Lord Kenyon's, which has never been beaten for winter work. Telegraph is a good variety, but Veitch's Perfection is an improvement on it, and I can strongly recommend it to those who want a really good Cucumber. *J. Sheppard.*

FLOWERS OF TAN.—Four years ago this spring I met with a good example of the fungus known to gardeners as Flowers of Tan, and to botanists as Fuligo varians. It was growing on sawdust, by the side of a sawpit, on Whipsnade Heath, 3 miles from here. I carefully brought the fungus home to my garden, with a quantity of the sawdust on which it was growing, and transferred the fungus (with its sawdust), to a prepared sawdust matrix in my garden, where the fungus speedily perished. At the present time I have the fungus growing close to the spot where the old fungus was placed by me four years ago. I suppose the fungus-spores must have hibernated in the ground for four years, as the fungus is not common, and I have only met with the example mentioned in this district. *Worthington G. Smith, Dunstable.*

DAFFODIL BULBS.—The summer of 1887 was memorable for its great heat, which matured most things. I lifted some Emperor and Empress Narcissus bulbs in July, and by an accident they were out of the soil packed in chaff from August of that year until November, 1888. They were then potted, after being for nearly seventeen months from the soil, and are now in full health. The fact is, the parcel was lying at a railway cloak room, hidden by other lumber. *W. B. H.*

ROSE LAMARQUE.—If "A. D." will give this Rose a trial, he will find that it surpasses any other white Rose for indoor or outdoor purposes. Sometimes the flowers have a pink tinge at the centre, and at others yellow, owing to the positions in which the blooms hang when developing. The former colour is mainly due to the fact that the blooms receive direct sunlight when they are close to the glass; the yellow tinge is more fully developed when the blooms hang down at some distance from the glass. This intrusion of colour at the centre is regarded as a defect in a white flower, but when the blooms are half-expanded they may then be said to be a pure white. I know of no other Rose, excepting Gloire de Dijon, that flowers so profusely as Lamarque. It has an additional advantage, and that is, the blooms are borne in clusters of fives and sevens. These bunches can be cut with long stems, and as the foliage is usually of the deepest green, the effect produced by such clusters of bloom with their foliage is very good. Cuttings of this Rose strike freely at this time of the year if taken off about 4 inches long, put into pots of sandy soil, and which should be plunged in a slight bottom-heat, keeping close for a week or ten days, and giving shade to the frame during sunshine. As a climber, Lamarque makes vigorous growth on the roof of a greenhouse, throwing long shoots, which produce fine flowers the following year. I am of the same opinion as "A. D." regarding Niphetos—that it is loose-petalled when expanded; but in the bud state, or half-expanded, it has few equals. *S.*

THE DAFFODIL ROT.—I think the entire cause of disease in bulbs is attributable to want of proper cultivation. Grow Daffodils in good pasture loam, and in beds that are well trenched and drained, and if a little rough and stony, all the better; and if manure is applied at all, let it be well worked in, beneath the bulbs, so that the roots, but not the bulbs, approach it; and by all means let it be that from a spent hot-bed, or manure which has been placed in a heap for two or three years to rot. Is Mr. Dod experimenting with any sort of stimulants? If so, it is easy to account for the ill-effects he deplores. Does he grow his Daffodils in proximity with coarse herbaceous plants, and allow them to remain undisturbed for two or three years? I won't dispute the fact that if I allowed my roots of Ard-Righ, or any other variety of Daffodil that blooms as early, and naturally goes to rest early also, to remain for three years in the soil in proximity to a coarse-growing herbaceous plant, it would suffer and become water-logged, to use a nautical term, more particularly if the soil was heavy and cold, and consequently rain would get down between the divisions of a dormant, undisturbed clump, and impure basal tunic of the bulbs, as Mr. Dod mentions—rot, of course, ensuing, just as in the case of injudiciously watering an auratum Lily prior to its root formation, when it would go off between the scales. There is less danger of this rot being noticeable while the bulbs remain round and shapely, because there are then no crevices as receptacles for water lodgments. If Daffodils are grown in a natural way in grass on slopes, or on the flat, the summer rains, which fall while the bulbs are at rest, pass quickly away; and in such situations 500 bulbs of a variety may be taken without the slightest sign of disease being observable. Under cultivation in a garden the natural method has to be changed, and when we grow Daffodils between herbaceous plants, we are often tempted to put water heavily in dry weather, to the destruction of the bulbs which are dormant. In Holland, I think Daffodils suffer from the disease which is there produced by over-feeding, else they would never have lost so much money over bulbs of the N. moschatus section. I have never suffered much loss here, although I foolishly at one time tried stimulants and sea-sand, but I now avoid everything of the like character, and employ only what may be called natural aids. It is no doubt easy for us to kill all wild species of Daffodils by kindness. The double variety of Cernuus (I don't think we know what variety it is exactly the double of) is a great sufferer from over-feeding. I send you some bulbs of Ard-Righ, Countess of Annesley, and Golden Plover, that you may see how they work here for existence. You will also notice that where you now see the brown spot on the top of the flower-stem, this was quite close to the soil six weeks since, when we gathered the bloom; and it is only because that the South of Ireland is favourable for the growth of Daffodils that the White Trumpet section—so scarce in England up to 1884—is now so plentiful; and I do not believe there will ever be introduced a better Daffodil for forcing purposes than Irish King or Ard-Righ, when it can be produced cheaply. *W. H. Hartland, Cork.*

PARSLEY.—Mr. Bishop says on p. 532 that he is at a loss to understand why it is Parsley so often perishes in the winter, whereas he has been gathering it from unprotected beds in the open all the winter. He then points out what is essential to secure a supply. I must take exception to Mr. Bishop's dictum, as I had a fine bed of Parsley up to the end of November, 1888, and which stood right in the centre of the kitchen garden, fully exposed, from which I quite expected to be able to gather a supply throughout the winter, but was sadly mistaken as the whole bed went off as described by Mr. Fish on p. 429, although it was protected with a rude kind of frame. I also had some nice two year old plants which Mr. Bishop says are so essential; they were at the margin of a border also fully exposed; these decayed away first, as they got no protection. In my case what Mr. Bishop deems an essential, turned out as much a failure as the other. I have had long experience in different parts of Lancashire, and have never yet been able to winter Parsley without protection, special treatment, and preparation of the soil. Mr. Bishop's locality must be very favourable to the growth of Parsley; for here and in many other parts of the country all Parsley will not endure in winter in the best quarters which can be afforded it, and he would be at a loss to keep Parsley with the simple treatment which he described. *G. Corbett, Heaton Grange, Bolton.*

BORDER CARNATIONS FROM CUTTINGS.—I have read with interest "A. D.'s" note at p. 597, and think he fails to understand the nature of these plants. My own experience leads me to believe they may be readily struck from cuttings. At the end of November, I put in a number of cuttings into a bed in a cold frame, and treated them similarly to Mr. Harper's, described at p. 565. By the end of March they were well rooted. I also inserted in the same cold frame a number of Cerastium and Pansy cuttings, and the rooting proved as successful as the former. I concur with "A. D." that Pelargoniums would not root so freely (if any) in a cold frame in the dead of winter; but then these are tender perennials, with a far more delicate constitution than the Carnations, Pansies, &c. I should advise "A. D." to give Mr. Harper's method a fair trial, and he will discover that it has decided advantages. *J. Noble, 165, Knight's Hill, West Norwood.*

VIOLETS.—Having read with considerable interest the correspondence on Violet culture in recent numbers of the *Gardeners' Chronicle*, and at one time been a successful grower of them, I should be very glad to know from your correspondent, Mr. Heath, or any one else, the best mode of treating these plants in smoky districts. In those places where they did well with me they were away from

the smoke of towns and factories. My next experience in Violet growing was at a place within a few miles of some great manufacturing towns in the West Riding of Yorkshire, and close to a colliery. Here I made beds of new loam of medium texture, and enriched them with farmyard manure. I then obtained a fresh stock of plants, which grew a little, but towards the time of putting them into frames in autumn these gradually dwindled away. In my present situation Violet growing is more perplexing still; for last spring I prepared a border facing west and planted it with offsets, which grew very well for a time; then came a change of wind, which filled the air with smoke from the copper works about three miles distant, with the result that the plants assumed a sickly appearance, and never recovered from the effects of it. *Nil Desperandum.*

HONESTY, LUNARIA BIENNIS VARIEGATA.—In the issue of the *Gardeners' Chronicle* for May 11th, I notice your correspondent, "E.," speaks highly and justly so of the old variety for the front of shrubbery borders and herbaceous borders, but I find the somewhat new and variegated leafed form is but little grown, although it is in most points superior to the old one, being of a more compact habit of growth, and the flowers much brighter and more freely produced. The variegation is not much seen the first season, but on re-commencing the next year it becomes very marked, and continues to improve till the end of the flowering season. At the present time, May 13, it is one of the most conspicuous plants in our herbaceous borders. I may mention that the seed is sown early in April where it is to remain; and with us it seeds as freely as the common Honesty. *E. Beckett, Aldenham House, Elstree.* [In some flower stalks sent by Mr. Beckett, the leaves have a large amount of their surface of a creamy white, and the flower spike possesses more flowers than we find in the green-leafed plant.—Ed.]

THE FRUIT CROP.—The weather, changing as it did on the 4th from cold to a considerable degree of warmth for the season, has done an immense amount of good to the fruit crop, for Plums, Pears, and Cherries were just about to open their blossoms, which are in abundance on most trees. The set has been rapid, for in the space of three or four days after expansion the petals began to drop, and the embryo fruit to swell rapidly on Plums and Cherries, which must, barring frost, carry heavy crops. Apples are equally full of flower-bud, and some of the sorts are unfolding fast. That which injured the crop so much last year was the maggot, but as yet there are no signs of this depredator. *J. S.*

FRUIT PROSPECTS IN SUSSEX.—These are now very encouraging, notwithstanding the appearances of a short crop at one time. Peaches and Plums have set well, and are free from insects; Pears have a good average show of bloom; Gooseberries are a heavy crop, and will be much earlier with us than usual. We gathered some for cooking on May 10. Here at Ashburnham we get late frosts very severe, water being on all sides of us, and we are only a few feet above sea-level; but we have suffered less this year from late frosts than has been the case for the last six years; at the same time sunshine is rare. *H. R. H.*



Fig. 108.—Cypripedium curtisi. (see p. 630.)

CYPRIPEDIUM CURTISI.

(Fig. 108).

This is a comparatively recent introduction among Cypripediums, and one which is still unknown to many horticulturists. The collector, whose name it bears, found it growing in Sumatra, at elevations varying from 3000 to 4000 feet. In general appearance it at first reminds one both of C. ciliolare and C. superbiens, but it may be easily distinguished from these two species by characters which are better seen than described. It begins to flower at the end of January, and remains in good condition until the middle of March, and sometimes later. It is a dwarf growing and compact plant, having elliptical leaves prettily marbled above with dark green patches on a pale green ground. The flowers are usually borne singly on dark purple, slightly hairy, rather tall scapes, and have a broadly ovate-acute upper sepal slightly recurved at the apex; a comparatively broad white margin surrounds a greenish central area which is traversed by very deep green veins, which become brownish towards the base, on each side of which there is a conspicuous tinge of pink. The slightly deflexed petals are recurved at the tips, and fringed on the margin with short stiffish hairs. The ground colour is for the most part of a pale mauve, and copiously spotted with very dark purple, except at the base, where there is a large, very dark, and nearly blackish-purple stain, in which the spots become obscured. The lip is of a dull wine-purple colour, with deeper-coloured veins, and has a somewhat long shank, the incurved lobes of which are of a bright crimson, covered with shining dark purple warts. On the whole, it is a very pretty species, and well worth the attention of cultivators. *J. Weathers.* [A specimen of this plant with twin flowers was shown at the Drill Hall, Westminster, on Tuesday, May 14, by Sir Trevor Lawrence, M.P. (see Report, p. 630). Ed.]

SOCIETIES.

ROYAL HORTICULTURAL.

Tuesday, *May* 14.—The meeting of the various committees of the above Society held in the Drill Hall, James Street, Westminster, was fairly attractive with Roses, Narcissi, Orchids, and other objects, and with the still further attraction of a lecture on the Iris by Professor M. Foster, the subject-matter of which will be found in another column. It may be said to have been well attended by horticulturists of all kinds, and the public generally.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. R. Dean, J. Laing, W. Goldring, T. Baines, T. W. Girdlestone, E. Mawley, J. Walker, B. Wynne, W. Holmes, W. O. Leach, F. Ross, R. Lindsay, R. B. Lowe, C. Noble, J. Fraser, G. Paul, and S. Williams.

Mr. F. Ross, Pendell Court Gardens, Bletchingley, contributed a flower-head of Crinum Kirkii, having some six or eight opened flowers. The flower is scented, is of good size, and each segment pure white, with a prominent full rosy-lake line right down it from apex to base; it is very pretty; the leaves are long and strap-shaped, dark green. He also had flowering shoots of Rogiera (= Rondeletia) cordata, with large heads of flowers, pink, with a collar of yellow in the throat. It is a stove evergreen, and well worthy of consideration, as its flowering season is of long duration.

A very elegant group of Japanese ornamental foliaged Maples was sent by Messrs. J. Veitch & Sons, Royal Exotic Nurseries, Chelsea, S.W. These are remarkably pretty plants, and look very well in the garden. The most noteworthy of those exhibited may be named:—Acer palmatum septemloburm elegans, which has foliage of dull green, the young leaves being red; A. sanguineum tricolor, dull red; A. polymorphum aureum, pale green,

with a yellow tinge on the unfolding leaves; A. palmatum ribesifolium, which is well named: the foliage is very compact, bright green, and toothed; and A. palmatum roseo-marginata, the leaves of which are small, green, and edged with red, the appearance of this last being very light and graceful; from the same firm there were a double Amaryllis named Multiplex, the specimen shown bearing one fully expanded flower, and three buds; the colour was light scarlet. This is quite a new departure, and may develop into something worthy of cultivation, but this first flower is not so elegant as the single forms. Aciphylla squarrosa in flower, the spike being strongly protected by long and strong spiney bracts, resembling the leaves of the plant; Cydonia Maulei represented by cut branches densely clothed with bright red flowers, smaller than those of C. japonica; Asplenium amabile with small rigid pinnules; and a specimen of Dracæna Doucetti, which has long linear leaves of green and yellowish white.

Mr. J. Walker, Whitton, made a good show with a collection of cut Tulips, forms of the Parrot Tulips predominating. Others were Tulipa elegans alba, pure white with a narrow edge of crimson, as in a Picotee, and a very pretty flower it is; T. retroflexa, rich yellow, with expanding segments, and T. vitellina, pale yellow, and of closer habit, showing a more even flower. The rich colours of T. fulgens and of T. Gesneriana were conspicuous, and the straggling T. cornuta was plentiful. Other well known varieties were also included.

Roses were represented by two very good groups. Messrs. Wm. Paul & Son, Waltham Cross, contributed a highly creditable lot of about four bush-trained specimens, bearing grand flowers, and in the front were half-a-dozen boxes of cut blooms, the whole being edged with Adiantum. The following were the best plants:—Madame Fanny de Forest (fine), Captain Christy (very large), Magna Charta, Ulrich Brunner, Paul Neron (large), Dr. Audry, Violette Bouyer, Madame Mortel, Joachim de Bellay, and Madame G. Luizet; while in the boxes there were some similar varieties, but we may add Grace Darling, Rosièriste Jacobs, Merveille de Lyon, Marie Finger, and Garden Favourite. Standards were shown of Silver Queen, a new H.P. of robust habit, bearing a number of good-sized full blooms of a delicate salmon pink; it is but slightly scented. The recent Crimson Beauty (H.P.) was also represented, and there was a plant of a Tea, yellow and pink, named Corinna.

The second group was that of Messrs. H. Lane & Son, Great Berkhamsted, who showed some twenty bush-trained specimens, very well grown and flowered. The varieties were of the usual exhibition type, and included as the best Souvenir d'un Ami, Madame Barney, Ulrich Brunner, Perfection de Mont Plaisir, Etié Morel, Magna Charta, &c.

A collection of hardy herbaceous plants was sent by Messrs. Barr & Son, King Street, Covent Garden, in which was included a number of Irises of the biflora, olbiensis, and pumila types, which, however, need not be particularised. Iris iberica was also shown, and is very striking, recalling I. Soworowi. The standards are pale lilac, lined with a darker shade, the falls being spotted, and lined heavily with dark brown on a dull yellow ground, and with an almost black spot in the centre. Other plants were Parrot Tulips of T. Gesneriana major, T. fulgens, Anemone coronaria vars., bedding Pansies, A. fulgens, Doronicum plantagineum excelsum, Epemediums, &c.

A number of cut Daffodils and Narcissi were also shown from Messrs. Barr, the N. poeticus and N. p. ornatus, &c., predominating.

Mr. R. Dean, Ealing, had a bedding Pansy Golden Crown, which is a good rich yellow, with a dark eye; and Mimulus grandis, having rich red flowers, freely produced; also Primula Sieboldi laciniata, one of the prettiest forms of this plant; and Bedfont Yellow Wallflower, to which reference has been made on former occasions.

Mr. H. B. May, Dyson's Nursery, Edmonton, had specimens of Pteris cretica nobilis, a dwarf and heavily crested form. Primula Sieboldi vars. were shown from M. Lemoine, Nancy, but contained no specially fine forms; and Mr. Wythes, gr. to the Duke of Northumberland, Syon House, Brentford, showed flowering branches of the remarkable Cunonia capensis, bearing spicate racemes of white flowers sweetly scented. It is of easy cultivation, and is a very pretty plant, forming a greenhouse tree.

Some varieties of Anemone coronaria fl.-pl., were sent from Caen, France, but arrived too late for exhibition. They did not equal those of St. Brigid, frequently referred to in these columns.

Sir T. Lawrence, M.P., exhibited Anthurium Burfordiense, a brilliant scarlet lacquered spathe with white spadix, which is tipped with yellow; A. Leodense was less brilliant.

Messrs. Ryder & Son, Sale, Manchester, again showed new varieties of Primula Sieboldi, viz., Maiden's Blush, Champion, Beauty, and Distinction, besides a varied collection of older varieties.

A very choice fimbriated white Pink, Her Majesty, was shown by Mr. F. Hooper, Widcombe Hill, Bath.

The Director of the Royal Gardens, Kew, placed several species of Ophrys in bloom on the table, grown in the garden there; these were O. fusca, O. lutea, O. tenthredinifera, O. muscifera, O. Bertolonii, and O. Branceforti. The following species of Iris, I. Olbiensis, I. italica, I. biflora, I. ceracensis, I. balkana, I. pumila, and I. lupina were shown. Other plants from these gardens were Allium Jesdianum, a pinkish-coloured flower in corymbs; Narcissus Bernardi, from roots presented by Lady Godolphin Osborn; and Lotus peliorynchus, with reddish flowers.

Some well flowered Indian Azaleas, of half specimen size, were shown by Mr. C. Turner, Royal Nurseries, Slough.

Messrs. J. Laing & Sons, Stanstead Park Nurseries, Forest Hill, showed two new varieties of tuberous Begonias—Duchess of Teck, a primrose-yellow, very double, and of large size; Stanstead Park Gem, a very brilliant scarlet, also large and double.

Messrs. Paul & Son, Cheshunt, had a nice collection of alpine plants, a pan of Trichium grandiflorum in full flower being fine; Ramondia pyrenaica was also good.

Orchid Committee.

Present: Dr. M. T. Masters, F.R.S., in the Chair; and Messrs. J. O'Brien, J. Douglas, F. Sander, L. Castle, E. Hill, C. Pilcher, J. Dominy, H. M. Pollett, and H. Ballantyne.

Undoubtedly the feature which eclipsed other exhibits was the beautiful and interesting hybrid of Messrs. J. Veitch & Son, the result of pollinating Cattleya Mossiæ by Lælia (= Brassavola) Digbyana. The result must be pronounced as one of the greatest triumphs of Mr. Seden and Messrs. Veitch, as the new plant, which has been named Lælia Digbyana-Mossiæ, is an excellent combination of the parents, taking the grandly fringed and large lip from the Brassavola and the colouring of the Cattleya. The plant had four leaves, which are about 8 inches long, and dark green with a brown, flush, and short pseudobulbs, and bore one flower measuring 5 × 6 inches, which is of the delicate rosy-lilac, characteristic of Cattleya Mossiæ, and had its sepals in the form of that parent, but the petals and lip partook markedly of the Brassavola, the petals showing the peculiar toothing of the margin; in form they are oblong elliptic. The lip is large, being 2½ by 3 inches, as it grows without any flattening; it has the expanded lobes of just the same colour as the other segments, beyond which, just outside the throat, is a zone of white, while on the front of the median lobe are a few deep crimson splashes, clearly borrowed from C. Mossiæ; the throat is yellow, with dense minute lake spots at its very base in the interior, the lilac colour prevailing on the exterior. This plant, which has now flowered for the first time, is about seven years old. We hope shortly to be able to lay before our readers an illustration of this remarkable hybrid. Messrs. Veitch also had Masdevallia caudata Estradæ, with small flowers, yellow exteriorly and on the tails, while the interior is purple-lilac.

From F. G. Tautz, Esq., Studley House, Shepherd's Bush, W. (gr., Mr. Cowley), were Odontoglossum egregium, whitish-yellow, with rosy and brown markings and spots; a good white form of O. crispum and O. Schillerianum, well represented by very well grown specimens, the last-named has small flowers of yellow with brown spots, and is not particularly attractive.

A well-grown vigorous plant of Cypripedium Mastersianum, with one flower, and C. Carrierii (Veitchii × venustum), which has the dorsal sepal triangular, white, with numerous green lines, the petals brownish with rose tips, spotted on the brown portion with large brown marks, and the lip projecting, rosy-brown, lined with a greenish hue, were from R. J. Measures, Esq., Camberwell.

A pretty group of varieties came from the President's garden, Burford Lodge; these consisted of the following:—Lycaste Harrisoniæ Buchanani, a dwarf species, with lip and throat of a rich red purple colour interiorly, which were lined and chequered with orange; the sepals are lilac, and petals white, and pressed close to the central portions of the flower. Dendrobium tortile roseum was a small plant, full of bloom, the petals and sepals are rosy-lilac, and the lip creamy-white; D. signatum is a lemon-yellow flower, with a rich red stain at the base of the lip; the pseudobulbs are long and slender, giving the plant naturally a prostrate habit; Cypripedium Curtisi (figured in our present issue, p. 629) carried a spike of magnificent twin flowers; a nice bit of C. bellatulum was well bloomed; Ponthevia maculata, a botanical variety, with flowers white spotted with greenish-brown, crest and lip being yellow; the petals were about half an inch long, and the whole plant was covered with short white soft hairs; Odontoglossum excellens chrysomelanum is a yellow-ground flower with a paler lip; all parts of the flower are blotched with red-brown. The sweet-scented Epidendrum glumaceum was there, and Acineta maculata with two spikes of about 14 inches in length. It is pale blush, minutely but densely spotted.

Saccolabium cerinum was contributed by Mr. F. W. Moore, Botanic Garden, Glasnevin. The plant possessed a spike of bloom 6 inches long, 2 inches of this being set densely with closed flowers, which are green when unopened, but turn to a deep orange afterwards. A curiosity.

Some grand masses of Masdevallias in flower, and a plant of Phalænopsis grandiflora grown in Mr. Searing's usual excellent style, came from C. J. Partington, Esq., Heaton House, Cheshunt.

A form of Odontoglossum citrosmum roseum, in which the sepals and petals were of a very pale shade of salmon, came from Messrs. Heath & Son, Cheltenham.

Calanthe Tracyana was shown in a small example with two flower-spikes by Mr. W. Gordon, Amyard Park Nurseries, Twickenham. The colour was pale lilac. R. B. White, Esq., Ardarroch, N.B. (gr., Mr. R. C. Fraser), showed cut blooms of Cattleya Mendelii and Lælia purpurata, flowers of large size especially the latter.

Lælia purpurata and Cattleya blooms were shown by Mr. W. Hill, Tulse Hill.

Fruit Committee.

Present: T. F. Rivers, Esq., in the chair; and Messrs. Ph. Crowley, R. D. Blackmore, J. Lee, S. Ford, J. Cheal, Sir C. W. Strickland, A. H. Pearson, G. Norman, G. Wythes, T. J. Saltmarsh, F. D. Lane, H. Balderson, H. Weir, W. Bates, G. W. Cummins, and G. Bunyard.

Some fine fruits of Strawberry La Grosse Sucrée, which were from plants grown in 4½-inch pots without manure, were sent by Mr. W. C. Leach, Albury Park Gardens, Guildford; Radishes from the Society's gardens at Chiswick, of no particular merit; and Mr. R. Gilbert, Burleigh Park Gardens, Stamford, showed Multum in Parvo Broccoli, which has a well closed in head, and looks like a Cabbage till cut open; the head is oblong. Mr. George, Putney, showed "Wood Wool" (which is simply fine shavings), as a packing material, for which it is doubtless very useful.

ROYAL BOTANIC.

May 15.—This was a pretty exhibition in its general effect, but on examination in detail there were some weak items to be observed. In several classes there was only one exhibitor, and in others all the prizes were not awarded.

The show of Orchids was poor, there being no competition in any class. Mr. A. Howard, gr. to H. Little, Esq., Twickenham, received the two 1st for amateurs; and Mr. James, Castle Nursery, Norwood, stood similarly for nurserymen. The specimens from Mr. Howard were neat and well grown. Cymbidium Lowi, Lycaste Skinneri vars., Cattleya Skinneri, and Dendrobium thyrsiflorum being the best. In Mr. James' plants Oncidium sarcodes, Dendrobium nobile, Cymbidium Lowi and Masdevallias Lindeni, and Harryana may be named.

For stove and greenhouse and fine foliage plants, Mr. James led well in the nurseryman's section, his flowering specimens making a very good show—Azaleas, Anthurium Scherzerianum, with yellow spadices; Dracophyllum gracille, and various Heaths, some in large examples, and a fine piece of Anthurium Scherzerianum may be named. He also led for six Cape Heaths, with the usual favourite varieties in fair specimens.

To Mr. Chapman, gr. to J. Spode, Esq., Hawksyard Park, Rugely, fell the chief honour for stove and

greenhouse plants in the amateurs' section, who showed the fine plants which won prizes for him at the Crystal Palace show on the previous Saturday. Mr. R. Scott, gr. to Miss Foster, The Holme, Regent's Park, was a good 2nd in the larger class for ten; Eriostemon pulchellum, Hibbertia Reidii, Clerodendron Balfourianum, and Epacris miniata splendens were noticeable plants. This exhibition also received a leading prize for Azaleas in good specimens. Mr. A. Offer, gr. to J. Warren, Esq., Handcross Park, Crawley, being 2nd here, but was well to the front for six exotic Ferns and also for six fine foliage (amateurs), a specimen of Anthurium crystallinum being a strong feature; Phœnix reclinata, Cycas revoluta, Alsophila australis, and Cyathea medullaris were also fine. Mr. Butler, gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, W., was a close 2nd for foliage plants, Areca Baueri and Cycas revoluta being his strong features. For Ferns he was a fair 2nd with smaller specimens, Davallia bullata and Lomaria gibba being the best.

For a collection of hardy herbaceous plants, Mr. T. S. Ware received 1st. A flower spike of Lilium giganteum was a conspicuous object; other plants being varieties of Primula Sieboldi, Pæonies, Spiræas, Ranunculus, &c. 2nd, Messrs. Paul & Son, Cheshunt, with Polemonium Richardsoni, Solomon's Seal, Arnebia echioides, Thalictrum aquilegifolium, &c. The same firm took 1st for a collection of Alpines, in which were Andromeda polifolia, Edrianthus serpyllifolius, Ramondia pyrenaica, Gentiana acaulis, and others.

Messrs. H. Cannell & Sons, Swanley, Kent, had fine vigorous Calceolarias well flowered, and took the leading place for them.

Miscellaneous exhibits were numerous. Messrs. Ryder & Son, Manchester, sent cut blooms of Primula Sieboldi vars., and Marguerites (Bronze Medal).

Messrs. J. Carter & Co., High Holborn, had Cinerarias well bloomed (Small Bronze Medal). Mimulus, and a very creditable collection of well

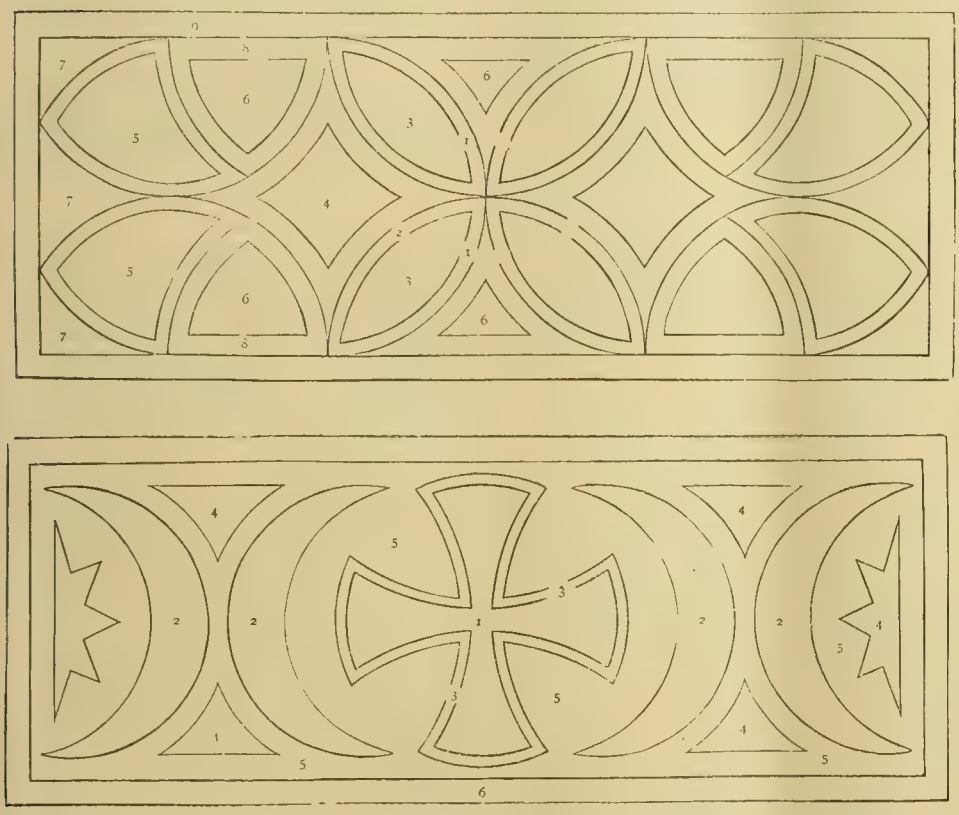


Fig. 109.—DESIGNS FOR CARPET BEDS. (SEE P. 633.)

Roses were finely shown. Messrs. Paul & Son, Cheshunt, led in the two classes with very well grown specimens, bearing flowers of fine form and colour. Mr. W. Rumsey, Waltham Cross, was 2nd in both cases, also showing well, Souvenir d'Arthur de Sansel, Ulrich Brunner, Madame Marie Rhodocaule, and J. S. Mill, being fine.

Mr. C. Turner, Royal Nurseries, Slough, contributed a fine lot of show and fancy Pelargoniums, leading well for the show varieties with Mr. Phillips, Langley Broom, Slough, as a good 2nd. These conditions were reversed for the fancies, and Mr. Phillips also had a fine lot in the amateurs' division, the fancies being exceedingly well bloomed. Mr. C. Turner had as his finest Mrs. Potter, Princess Teck, Kingston Beauty, M. Desmoulin, and Gold Mine; while of Mr. Phillips we may select Mrs. Potter, Delicatum, The Shah, Lady Isabel, and Kingston Beauty.

Azaleas, from Mr. C. Turner, won lots for him in two classes, viz., for six (nurserymen) and twelve (open); he had very showy and well-flowered plants, Sinensis, Jean Vervaen, Charmer, Grandis, Etendard de Flandres, and others, being the best.

grown plants of Lilium Harrisii, which made a capital display (Large Bronze Medal).

Mr. Searing, gr. to C. J. Partington, Esq., Heaton House, Cheshunt, had richly-coloured Masdevallias, and Messrs. H. Cannell & Sons, sent a few good tuberous Begonias.

Mr. G. T. White, Winchmore Hill, contributed Brassavola caudata and cut blooms of Cattleya Mossiæ.

Roses were extensively contributed by Messrs. W. Paul & Son, Waltham Cross, in fine specimens of favourite varieties, for which a Large Silver Medal was given, and a Small Silver Medal was given for Roses to Messrs. Lane & Son, Great Berkhamsted.

Messrs. J. Peed & Son, Norwood Road, S.E., had a good lot of Anthuriums (Small Silver Medal).

Mr. B. S. Williams, Upper Holloway, N., had a small group of Azaleas. Amaryllis, and Anthuriums.

A good group of ornamental Japanese Maples, in good condition, was sent by Messrs. J. Standish & Co., Ascot, who were granted a Silver Medal.

Messrs. J. Veitch & Sons, Chelsea, sent a varied group, consisting of Japanese Maples, the new double Amaryllis, Epiphyllum Makoyanum, Aciphylla squarrosa, Gloxinias, &c. (Silver Medal.)

Messrs. F. Sander & Co., St. Albans, had a few well-grown Orchids. There was a fine Miltonia vexillaria, Oncidium metallicum marginatum, Dendrobium thyrsiflorum, Odontoglossum hebraicum excellens, with heavy crimson-brown markings; and Catasetum discolor, with a spike of several greenish-brown flowers, lip large, fingered on the lateral lobes, and the column yellow; also Dendrobium nobile lateritium, with rose-pink tips and a very dark colour to the throat.

Messrs. H. Low & Co. also had Orchids for which a Silver Medal was given. Cypripedium bellatulum was plentiful, C. hirsutissimum was represented by fine pieces, and also Dendrobium thyrsiflorum and D. densiflorum.

A Large Silver Medal was given to Messrs. J. Laing & Sons, Forest Hill, for a good collection of Begonias and other plants arranged with a background of Dracænas, Crotons, and Palms.

From Mr. B. S. Williams was an extensive group of Orchids prettily arranged, which won a Silver Gilt Medal. The most conspicuous were Cymbidium Lowi, Cattleya Mossiæ, Lælia purpurata, Bertolonias, fine Masdevallias, and Cattleya Lawrenceana.

Various exhibits which did duty at other shows are not mentioned, and want of space precludes the publication of the list of Certificates, which will be given next week.

CRYSTAL PALACE.

This usually fine display of foliage and flowering plants took place on Saturday May 11. The objects staged or stood on the floor of the transepts and auditorium facing the organ, equalled in number those of any previous exhibition at the same season. The foliage plants were noticeable for freedom from insects and for vigour; Indian Azaleas were generally well bloomed, but we noticed that some very old acquaintances of dilapidated exterior appeared in other collections. There are so many beautiful varieties now, that anything mediocre should be put aside at once.

New Holland plants were fairly well bloomed, as were likewise Cape Heaths; but no new species of exhibition plant was noticed. Orchids were rather numerously shown in small examples, but with few rarities amongst these.

Praise must be given for the excellent Mignonette of Mr. Bird and Mr. Brown; some Mauve Beauty, Intermediate Stocks, shown by the latter, were very handsome. The richly coloured well grown herbaceous Calceolarias of Mr. A. Carter, and the fineness of colour in Messrs. Carter & Co.'s Cinerarias, arranged with Lilium Harrisii in pleasing combination, deserve especial notice. The bush Roses of Messrs. Paul & Son, Cheshunt, Mr. C. Turner, and Mr. Rumsey, were greatly admired features of the show, and were sensibly placed low, where everyone could see them.

Stove and greenhouse plants (nine), from Mr. W. Chapman, gr. to J. Spode, Esq., Hawkesyard, Rugeley, justly won for him the leading position in the open class, and in the amateur's section he again led with six. All were well-grown and evenly flowered specimens, the most noteworthy being Tremandra ericæfolia, Darwinia tulipifera, a fine Anthurium Scherzerianum, Statice profusa, Aphelexis grandiflora, Dracophyllum gracile, Ixora Dixiana, and Erica profusa. In the open section the 2nd place was accorded to Mr. W. Finch, gr. to J. Marrott, Esq., Queen's Road, Coventry, who had fair plants of Boronia elatior, Erica Cavendishii, Tabernæmontana coronaria fl.-pl., and Darwinia fuchsioides; and Mr. H. James, Castle Nursery, West Norwood, took 3rd, with two good Azalea indica, and a large piece of Erica Cavendishii. In the amateurs' class, Mr. A. Offer, gr. to J. Warren, Esq., Handcross Park, Crawley, was 2nd, but his plants were not fully flowered; 3rd, Mr. N. Penfold, gr. to Rev. Canon Bridges, Beddington, with Anthurium carneum and Boronia elatior in good samples.

Mr. Offer was a successful competitor in several classes, especially among the amateur classes, where he was leading for six greenhouse Azaleas, six fine foliaged plants, six stove and greenhouse Ferns, and six Dracænas, showing without exception well-grown and creditable plants. Of the specimen Ferns Davallia Mooreana, Alsophila excelsa, and A. australis, were grand, especially the first-named, securing a decided victory over those of Mr. W. Parrott, gardener to W. Wright, Esq., Denmark Hill, who had specimens of no mean order in

Asplenium nidus-avis, Lomaria gibba, and Adiantum formosum. The honours for five foliaged plants were secured by Mr. Offer with Phœnix reclinata, and Latania borbonica in robust health, and Dieffenbachia illustris and various Crotons made a pleasing relief by the bright hues of their foliage. Mr. J. Ford, Wexham Park, Slough, came in as a very good second here with Pandanus Veitchii, Phœnix rupicola, and Latania borbonica, as his finest specimens, and he occupied a similar place for Azaleas.

The Dracænas shown were excellent samples of the usual favourites, such as Lindeni, porphyrophylla, Massangeana, &c., and similar varieties were shown by Mr. J. Rodbourne, Coombe House, Croydon, who ran a very close 2nd.

In the open division Mr. Offer won the premier award for nine Crotons, with capitally grown specimens of large size, and with well-coloured foliage, in a good competition, undulatus, Challenger, Warreni, Queen Victoria, and Mortii being worthy of special note. The 2nd place was well won by Mr. J. R. Bird, gr. to J. A. Causton, Esq., Alleyn Park, West Dulwich, in whose collection the finest varieties were Andreanus, Weismanni, Evansianus, interruptus, and Queen Victoria.

Mr. Bird bettered his position for Dracænas, leading in a good competition with such favourites as Lindeni, Wilsoni, Thomsoni, &c., against Mr. Penfold with Goldieana, Baptistei, salmonea, &c., who took 3rd in the amateurs' class.

In addition to the already enumerated successes of Mr. Penfold, this exhibitor was to the fore in the amateurs' class for Crotons, and in the open classes for fine-foliaged plants (Palms and Ferns excluded), and for stove and greenhouse Ferns. Very fine were the foliage plants, being well grown, vigorous, and clean. The Palm-like Carludovica Drudei was shown, and excited considerable attention, and other plants which may be selected were Cycas undulata, Phormium tenax, Veitchii, Phyllotænium Lindeni, and Alocasia Veitchii, all of which were highly creditable examples of cultivation. Mr. Offer was placed 2nd, and he also had a very satisfactory exhibit, in which Cycas circinalis, C. revoluta, Alocasia metallica, Buonapartea stricta, and Pandanus Veitchii figured well.

Mr. Penfold had an easy victory with the Ferns, showing grand samples of Microlepis hirta cristata, Davallia Mooreana, and Asplenium nidus-avis among others. Mr. H. James was 2nd here, and 3rd in the former class; among his Ferns a specimen of Dicksonia antarctica and Lomaria gibba were the most prominent; and in the foliage plants a well-grown specimen of Theophrasta imperialis was the chief object.

Mr. James' name was frequently met with in the prize list, and he received first honours in three classes, viz., Sarracenias and Nepenthes, where he had no competitor, and for cut blooms of stove and greenhouse plants. He was the only exhibitor of Ericas, and was awarded 2nd for small plants; and in the open class for Azaleas he received a similar award; Mr. C. Turner, Royal Nurseries, Slough, securing the 1st position, with some really excellent specimens, evenly and fully flowered, and the individual flowers large and of good substance and colour. Duc de Nassau, Duchesse de Nassau, Reine de Flandres and Etendard de Flandres being represented by fine plants. He also had 1st for eighteen good smaller plants.

Orchids were not such a satisfactory display. H. H. Little, Esq. (gr., Mr. Howard), The Barons, Twickenham, had a good little group in the open class, and had no competitor; he was awarded 1st for two plants of Cymbidium Lowii, and a very prettily rose-coloured form of Lycaste Skinneri were specially noticeable, other plants being Cattleya Skinneri, C. citrina, Miltonia vexillaria, varieties of Odontoglossum crispum, &c. In the amateurs' class this exhibitor was again 1st, and had some pretty specimens, Cymbidium Lowii, Lycaste Skinneri var., and Dendrobium thyrsiflorum being the best. Mr. J. Douglas, gr. to Mrs. Whitbourne, Great Gearies, Ilford, was 2nd, having Dendrobium Paxtoni and Cypripedium Lowii as his best.

Caladiums made a very good show, the fine specimen plants of Messrs. J. Laing & Sons, Forest Hill, justly winning the leading place. The varieties shown were the usual exhibition favourites, and Mr. W. Monk, gardener to J. R. Higgins, Esq., Eastlands, Dulwich, was second with smaller but well-grown plants. A group of plants arranged for effect, consisting of Dracænas and Crotons, with Ericas, Adiantum, and various orchids to the front occupied the ground in front of the stage. Messrs. J. Laing & Sons were the exhibitors, and won the 1st prize without competition.

Pelargoniums made a very brilliant and pleasing display. Mr. C. Turner carrying off the 1st prize in the class of nine show and decorative, and again for nine fancy, each in pots not larger than 8-inch. There was no competition, but the award was justly made, the plants being flowered remarkably well. The varieties were just the usual favourites as the Shah, Emily Little, Jenny Howlett, Comtesse de Choisièul, Rosette, Ed. Perkins, Czar, &c.

In the class for 18 shows in 6-inch pots, the place of honour was accorded to Mr. D. Phillips, Langley Broom, Slough, whose plants were of very even growth, and made a very good show. Mr. C. Turner was a very close 2nd, his plants being a trifle less even. The varieties were the same as those just named.

An excellent lot of pot Roses (eighteen) were contributed, in the open class, by Messrs. Paul & Son, Old Nurseries, Cheshunt; Wm. Rumsay, Joyning's Nursery, Waltham Cross; and Mr. C. Turner, each receiving prizes in the order of the names. The plants were well flowered, and the collections embraced the usual exhibition favourites. Amateurs did not come out at all well.

Calceolarias were very well shown, the colours being pleasingly varied. Prizes fell to Mr. A. Carter, gr. to Alderman Evans, Ewell, Surrey, in the amateur's section, and to Mr. Long, gr. to H. C. Barker, Esq., Streatham, in the open class.

Special prizes were offered by Messrs. Sutton & Son, Reading, for Gloxinias and for Cucumbers, Messrs. Bird, Hopkins & Read receiving prizes for the first named; while for Cucumbers Messrs. Lockie, Newell, and Trussler took the awards in the order named. Messrs. Carter & Co., High Holborn, London, offered prizes for Cucumbers, which were won by Messrs. Lockie, Taylor, and Offer. Mr. H. James, as the winner of the greatest number of points in the whole show, received a "Myticuttah Pruner" from the Standard Manufacturing Company, Derby.

Other exhibits in the miscellaneous class, must be passed over for want of space.

BATH FLORAL FETE.

Wednesday, *May* 15.—As usual, the Orchids made a special feature. The group staged by Mrs. General Studd (gr., Mr. G. Cypher), not for competition, was a grand display, tastefully arranged; some superb varieties of Lælia purpurata, Cattleyas, &c., in it showed up to great advantage, with their edging of Caladium argyrites, Panicum, and Isolepis. Mr. Cypher was awarded a Cultural Certificate for a finely flowered mass of Dendrobium Bensoniæ, and the group was specially commended by the judges.

For a group of Orchids arranged for effect, as in most of the other classes, the Rev. E. Handley was 1st, with a very effective group of fine things, well grown and well staged. The Lælia purpurata Williamsii, to which was awarded a First-class Certificate, is a very richly-coloured variety, and the beautiful light-coloured form of Lælia Wyattiana superb; the whole was a fine exhibit. In the same class R. B. Cater, Esq., was 2nd.

For six Orchids, the Rev. E. Handley was 1st, with a grand specimen of Aërides Fieldingii, a fine Cymbidium Lowianum, Cypripedium barbatum biflorum, with twenty-four flowers, &c. The same gentleman was also 1st for four Orchids, the Cattleya Skinneri and the Lælia purpurata being very fine. In the same class Mrs. Gouldsmith was 2nd. The Rev. E. Handley was also 1st, with Cypripedium bellatulum as a new plant; Mr. Gouldsmith was 2nd, with a beautiful Cattleya Mendelii superba. Mrs. General Studd receiving First-class Certificate for Cypripedium bellatulum roseum.

For single specimen Orchid's the Rev. E. Handley was again 1st with a noble Lælia purpurata with some two dozen flowers; Mr. R. B. Cater, 2nd, with a fine Cattleya Mendelii grandiflora. In the same tent Messrs. Geo. Cooling & Son, of Bath, arranged a very extensive group of plants, comprising Orchids and Roses, Azaleas, Heaths, &c., and Messrs. R. Veitch & Son, of Exeter, a similar display, in which the Japanese Maples and Indian Azaleas were perfect. Some interesting Sarracenias and Orchids were also in Messrs. Veitch's group.

The large tent, containing the classes for Azaleas, stove and greenhouse plants, &c., was literally a blaze of bloom, the whole of the exhibits being of great merit. As usual, wherever he exhibits, Mr. Jas. Cypher, of the Exotic Nursery, Cheltenham, scored well, his Darwinia tulipifera, Erica Cavendishii, and E. ventricosa magnifica, which were in the 1st for nine, being magnificent; the 2nd prize lot of C. W. Mackillop, Esq. (gr., Mr. A. Taylor), being not far behind them, and might show out anywhere.

Colonel Phippin, Salisbury, was 1st for nine fine foliage plants; and J. Canning Doherty, Esq., Bath, was 2nd.

In the class for group arranged for effect, W. Pumphrey, Esq., Bath, secured the 1st prize, with a very tastefully arranged group of various flowering and foliage plants; and in the same tent the Calceolarias, Cinerarias, and arrangements of cut flowers on the side stages with large foliage and flowering plants in the centre were very effective.

MARKETS.

COVENT GARDEN, May 16.

Business brisk, with prices unaltered. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2 0	4 0	Peaches, per doz.	6 0	24 0
— Canada and Nova Scotia, per barrel	10 0	17 0	Pine-apples, Eng., lb.	1 6	2 0
Grapes, per lb.	2 6	4 0	— St. Michael, each	2 0	8 0
Lemons, per case	12 0	21 0	Strawberries, per lb.	2 0	4 0

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	6 0	...	Mustard and Cress, punnet	0	4 ...
— French, bundle	2 0	8 0	Onions, per bunch	0	5 ...
Beans, Jersey French, per lb.	3 6	...	Parsley, per lb.	1	0 ...
Beet, red, per dozen	1 0	2 0	Peas, French, per qt.	4	0 ...
Carrots, per bunch	0 6	...	Potatos, per cwt.	4	0 5 0
Cauliflowers, each	0 3	...	— kidney, per cwt.	4	0 5 0
Celery, per bundle	1 6	2 0	— new French, lb.	0	6 ...
Cucumbers, each	1 0	...	Rhubarb, bundle	0	6 ...
Endive, per dozen	3 0	...	Seakale, punnet	2	6 ...
Green Mint, bunch	1 0	...	Shallots, per lb.	0	6 ...
Herbs, per bunch	0 6	...	Spinach, per bushel	2	0 ...
Leeks, per bunch	0 4	...	Tomatos, per lb.	2	0 ...
Lettuce, per dozen	1 6	...	Turnips, per bunch, new	0	5 1 3
Mushrooms, punnet	1 6	...			

Potatos.—Beauty of Hebron, 70*s.* to 80*s.*; Imperators, 60*s.* to 65*s.*; Dunbar Magnums, 130*s.*; Lincoln, do., 70*s.*; and Dunbar Regents, 110*s.* to 120*s.* per ton. Large supplies of new Potatos from Malta, St. Michael's, and the Canaries.

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Ficus elastica, each	1 6	7 0
Arum Lilies, p. doz.	6 0	12 0	Fuchsias, dozen	6 0	12 0
Azaleas, dozen	18 0	30 0	Genista, dozen	8 0	12 0
Begonias, dozen	4 0	12 0	Lily-of-Val., per doz. pots	10 0	18 0
Calceolarias, dozen	6 0	9 0	Lobelias, dozen	4 0	6 0
Cineraria, per dozen	6 0	12 0	Marguerites, doz.	6 0	12 0
Cyperus, per dozen	4 0	12 0	Mignonette, doz.	6 0	12 0
Dracæna terminalis, per dozen	30 0	60 0	Musk, dozen	4 0	6 0
— viridis, per doz.	12 0	24 0	Nasturtiums, doz.	3 0	5 0
Erica, various, doz.	12 0	30 0	Palms in var., each	2 6	21 0
Euonymus, in var., per dozen	6 0	18 0	Pelargoniums, dozen	9 0	15 0
Evergreens, in var., per dozen	6 0	24 0	— Ivy-Leafed, doz.	4 0	9 0
Ferns, in var., doz.	4 0	18 0	— scarlet, doz.	4 0	6 0
Foliage plants, various, each	2 0	10 0	Roses, H.P., doz.	12 0	24 0
			— Fairy, doz.	9 0	12 0
			Spiræa, doz.	9 0	15 0
			Stocks, dozen	4 0	6 0

Bedding Plants in variety from 1*s.* per doz.; per box, 1*s.* 6*d.* to 2*s.* 6*d.*

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0	Narcis., white, 12 bun.	2 0	6 0
Anemone, Fr., 12 bun.	1 0	3 0	— double, 12 bun.	4 0	6 0
Arum Lilies, 12 blooms	2 0	4 0	Pansies, 12 bun.	1 0	3 0
Azaleas, 12 sprays	0 6	1 0	Pæonies, bun.	0 4	0 8
Blue Bells, 12 bun.	0 9	1 6	Pelargoniums, 12 spr.	0 6	1 0
Bouvardias, per bun.	0 6	0 9	— scarlet, 12 spr.	0 4	0 6
Camellias, white, 12 blooms	2 0	4 0	Polyanthus, 12 bun.	2 0	4 0
— red, 12 blooms	0 9	2 0	Primroses, 12 bun.	0 6	1 0
Carnations, 12 blms.	1 0	2 0	— dbl. white, 12 bun.	0 6	1 0
Cowslips, 12 bun.	0 6	1 0	Primulas, dbl., 12 sp.	1 0	1 6
Eucharis, per dozen	3 0	6 0	Ranunculus, 12 bun.	1 6	3 0
Gardenias, 12 blooms	1 0	4 0	Roses, Tea, per doz.	1 0	3 0
Heliotropes, 12 spr.	0 6	1 0	— coloured, dozen	2 0	4 0
Lilac, white Fr., bun.	3 0	5 0	— red, per dozen	2 0	6 0
— 12 bun.	4 0	6 0	— Safrano, dozen	1 0	2 0
— lilac-coloured, p. bunch	3 0	5 0	Spiræa, 12 bun.	6 0	8 0
Lily-of-Val., 12 spr.	0 6	1 0	Stephanotis, 12 spr.	2 0	4 0
— French, bunch	0 9	1 6	Tuberoses, 12 blms.	1 0	2 0
Maiden Hair Fern, 12 bun.	4 0	9 0	Tulips, 12 bun.	3 0	4 0
Marguerites, 12 bun.	3 0	6 0	Violets, Parme, Fr., bunch	3 0	4 0
Mignonette, 12 bun.	3 0	6 0	Wallflowers, 12 bun.	2 0	4 0

SEEDS.

London: *May* 15.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, E.C.,

write that the present spring season is now approaching an end. Stocks of Clover seed remaining over are small in comparison with other years, and prices generally close at a moderate level. New Scarlet Runner Beans are exhausted; a few bushels of good sound yearlings are now obtainable at cheap rates. For Rape seed more money is asked. In Mustard seed there is no change. A good inquiry prevails for large Blue Peas. Haricot Beans are now very cheap. For Hemp seed the tendency is upwards. The sale for Canary seed is slow.

FRUITS AND VEGETABLES.

STRATFORD: *May* 14.—Both trade and supply have been good during the past week. Carrots, household, 26*s.* to 32*s.* per ton; do., cattle feeding, 16*s.* to 18*s.* do.; Mangels, 13*s.* to 17*s.* do.; Swedes, 15*s.* to 20*s.* do.; Onions, Dutch, 3*s.* 9*d.* to 4*s.* 6*d.* per bag; do., Egyptian, 5*s.* to 7*s.* per cwt.; Watercress, 7*d.* per dozen; Lettuces, common, 9*d.* per score; do., best, 10*d.* to 1*s.* per dozen; Radishes, 6*d.* to 1*s.* per dozen bunches; Spring Onions, 3*s.* to 4*s.* do.; Mushrooms, 10*d.* per basket; Cucumbers, 3*s.* to 6*s.* per dozen; spring Cabbage, 2*s.* 9*d.* to 3*s.* per bushel.

POTATOS.

BOROUGH AND SPITALFIELDS: *May* 14.—Rather larger supplies; moderate demand; prices in favour of buyers. Scotch Regents, 80*s.* to 130*s.*; English, 60*s.* to 105*s.*; Magnum Bonums, 65*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.*; other varieties, 60*s.* to 80*s.* per ton.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending May 14.	Accumulated Temperature. Above 42°, for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1889.	Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1889.	Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	5 +	65	0	+ 31	+ 15	2 —	101	16.9	33	22
2	5 +	67	0	— 1	+ 11	1 —	78	8.5	35	24
3	2 +	64	0	— 28	+ 8	2 +	71	8.0	13	22
4	2 +	81	0	— 61	+ 116	9 +	75	7.3	25	24
5	3 +	79	0	— 64	+ 64	6 +	70	10.9	12	22
6	2 +	83	0	— 66	+ 76	0 av.	73	8.1	14	22
7	5 +	78	0	+ 2	— 21	8 +	84	15.9	21	25
8	3 +	77	0	— 28	0	9 +	78	10.8	14	23
9	0 av.	67	0	— 73	+ 88	1 —	71	12.6	36	29
10	1 +	62	0	— 16	— 51	3 +	94	13.8	20	21
11	0 av.	63	0	— 30	— 13	4 +	83	13.6	20	28
12	0 av.	74	0	— 20	— 16	3 —	81	9.0	53	35

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending May 14, is furnished from the Meteorological Office:—

"The *weather* has varied considerably in different parts of the kingdom. At the commencement of the period it was fine and dry as a whole over Great Britain, but dull and rainy in Ireland and the north-west of England. Subsequently, however, the weather became very gloomy and unsettled over England, with large quantities of rain at many of the northern and eastern stations, while it remained fair in most parts of Scotland and improved somewhat in Ireland. During the earlier days of the period thunderstorms occurred in various parts of northern England, as well as at some of the Scotch stations.

"The *temperature* has continued above the mean in nearly all districts; in Scotland the excess has been 5°, but in most parts of England, 2° or 3°. The highest of the maxima, which were recorded on the 9th in England, and on various dates in Ireland and Scotland ranged from 62° in 'Ireland, N.,' and the 'Channel Islands,' to 74° in 'Scotland, N.,' 'England, E.,' and 'England, S.,' and to 75° in the 'Midland Counties.' The minima were very uniform over the kingdom generally, and several degrees above the mean for the time of year; the lowest readings, which occurred on somewhat irregular dates, ranged from 34° in 'England, S.W.,' to 42° in the north-east and east of England, the west of Scotland, and the 'Channel Islands.'

"The *rainfall* has been more than the mean in Ireland, the west of Scotland, and in most of the English districts, but in the north and east of Scotland and in the 'Channel Islands,' the fall has been slight. Over eastern, central, and north-western England, the excess has been very large.

"*Bright sunshine* has been less prevalent than it was last week over Ireland, the west of Scotland, and the greater part of England, but more so over the north and east of Scotland, and in the 'Channel Islands.' The percentage of the possible amount of duration ranged from 12 to 36 over England, and from 21 to 35 in Scotland, while in Ireland it was 20, and in the 'Channel Islands,' 53."

NOTICES TO CORRESPONDENTS.

AMERICAN PEAT: *Nils Jönston.* It seems to be very suitable for Orchid growing, not readily decaying in warmth and moisture.

APPLES ENGLISH AND COLONIAL: *J. Paterson, New South Wales.* The fruit had been excellent when sent off, but owing to loose packing, and possibly heat on shipboard, it was quite spoiled. Packed in sawdust, and placed in a cool (not ice) chamber, fruit would travel well from the Antipodes. Consignments arrive in excellent condition when each fruit is wrapped in soft paper and the whole packed tight, no other packing being used. In your case much free space was given.

APPLE SHOOTS: *C. Sheppard.* These are smothered with caterpillars, as may be expected after a comparatively mild winter, and the neglect of all precautions against the ravages of insects by the ordinary gardener. You can do nothing now, and before the autumn you would do well to buy Miss Ormerod's *Manual of Injurious Insects*, so as to know what precautions to take. If this manual cost £5 instead of a shilling or two, it would still be cheap.

BOOKS: *H. G. Table Decoration*, by W. Low (Chapman, Hall & Co.)

CUCUMBER PLANTS: *Fungoid.* The plants are suffering from a slime fungus—Didymium dædaleum, concerning which Mr. Worthington Smith wrote. See our issue for March 23 last, where an illustration of the fungus is also to be found.

LADY SPRAYS OF FLOWERS: *A. B. C.* These are usually worn on the left side, and when not made straight it is the rule to curve them slightly, so that the tip shall point towards the right, and *vice-versâ*. As these sprays are mounted on wire, it is easy for the wearer to bend them in any desired way.

MUSHROOMS: *A. D.* Yes; these may be shown in a collection of culinary vegetables.

NAMES OF PLANTS: *W. Alison.* 1, Odontoglossum crispum, a poor variety; 2, Dendrobium Pierardii; 3, D. cretaceum; 4, D. crepidatum (the one with yellow lip).—*J. W. W.* Lord Anson's Pea, Lathyrus magellanicus. The Saxifraga, shortly.—*Reader.* Corydalis tuberosa.—*G.* Orobanche minor, a parasitical plant introduced with the peat-probably.—*G. P.* Apparently forms of Magnolia Soulangeana.—*J. Harding.* 1, Acacia longifolia; 2, A. Riceana; 3, A. dealbata.—*B. J. P.* Lachnea scutellata (Peziza scutellata).—*O. Thomas.* Antholyza æthiopica.—*C. P. & Co.* The Mat-grass (Nardus stricta.—*T. N.* 1, Tradescantia repens; 2, T. r. variegata; 3, Mesembranthemum cordifolium variegatum; 4, Selaginella cæsia; 5, Pteris serrulata; 6, specimen insufficient.—*C. W. R.* Stanhopea tigrina.—*T. H.* Cereus speciosissimus; Anthurium Scherzerianum album.—*Tyro.* 1, Adiantum cuneatum grandiceps; 2, not found; 3, Eupatorium riparium; 4, Pyrus salicifolia; 5, Mespilus; 6, Berberis Darwinii; 7, Picea orientalis.—*F. G., Midhurst.* 1, Ledum buxifolium; 2, Ledum latifolium.—*G. Nottage.* Cœlogyne conferta.—*Eversfield.* Gongora galeata.—*C. E. C.* Streptosolen Jamesoni.—*S. Postings.* Ixia crateroides.—*W. C. & S.* Posoqueria multiflora.—*F. B.* 1, Adiantum hispidulum; 2, Adiantum, frond immature—send a fully-developed one; 3, A. excisum; 4, Cystopteris fragilis; 5, Polystichum angulare; 6, Alosorus crispus.—*D. Home.* Magnolia Lenné. You had better get the plant of Rhododendron hybridum, flowers of which were sent, named by a nurseryman who makes them a specialty.

PANSY: *Victor.* Very fine, showy flowers, of the fancy section.

PEACH SHOOTS: *C. H. H.* Use methylated spirits with a small brush or pencil. Petroleum may be used in the same way. These scale insects would infest your trees much less if a winter dressing were used all over the trees—say of petroleum emulsion, Gishurst's Compound Soap, or a mixture of clay, cowdung, sulphur, and soft-soap.

PELARGONIUMS: *H. G.* The damage seems to be caused by something burning the leaves. Probably a strong manure has been used and allowed to fall on the leaves.

PLANS FOR OBLONG BEDS: *A Subscriber.* We furnish two of these on p. 631, which look satisfactory when suitably planted with carpet plants.

THE POTATO: *S.* See *Gardeners' Chronicle*, vol. xxvi., 1886, December 4 and 11, in which issues will be found accounts of the Potato Tercentenary and other information about the tuber. For the returns of its cultivation in European countries the only trustworthy statistics are those issued by the governments of those countries.

TO KEEP FLIES OUT OF LIVING ROOMS: *S. H. S.* The leafed-shoots of the common Elder, are said to have that effect. In Hungary, where flies are a great annoyance in the house, and to animals, Elder shoots are in common use in various ways during the summer.

TOMATOS: *H. P.* Your plants are attacked by a fungus, similar to that which causes the potato-disease. You had better burn the affected plants.

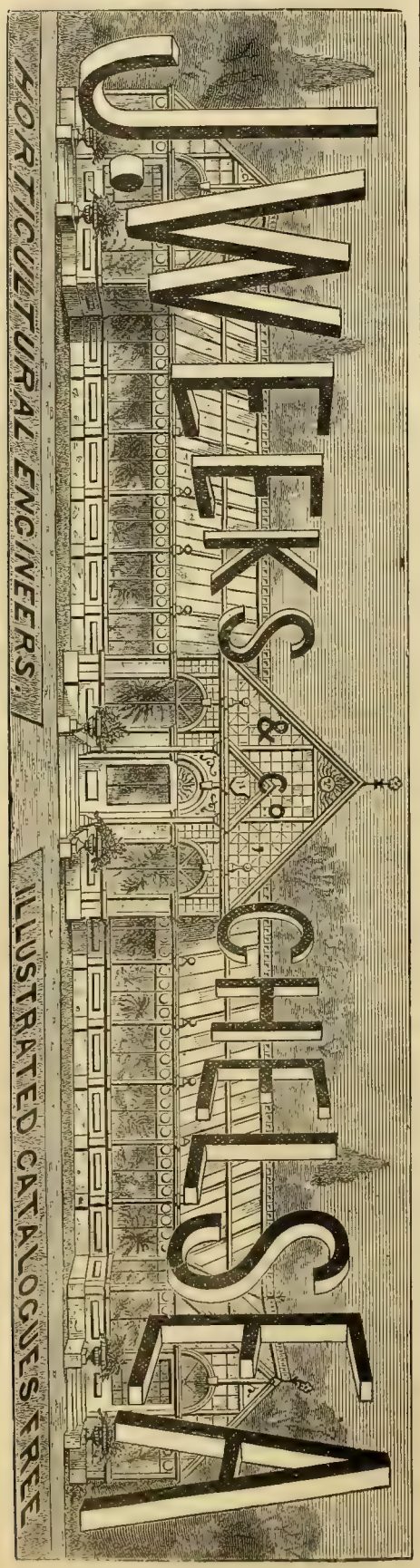
VINE BORDER: *Vines and Grapes.* The Vine wants all the warmth it can get from the sun in this country, therefore we make shallow Vine-borders, drain them well, and aërate them by means of drains of various kinds. The sunheat will readily penetrate the soil of such borders, if the surface be kept in a crumbly condition, and the substratum is not close and pasty. If you put on to your border 6 inches of wet raw dung from the bottom of the dung-pit, how is sunheat to reach the roots? We think that shanking in Grapes, and the abortive bunches found on ill-ripened shoots are due very frequently to such ill-advised practices. Use the dung-water diluted with water, and expose this in tanks open to the sun, so that it shall get warmed before being put on the soil; and if the summer should be very warm, and the border shallow, a thin coating of Mushroom-bed dung, or something similar, may be put on to prevent excessive evaporation; and this is only to be recommended because in your case the border is a narrow one.

COMMUNICATIONS RECEIVED.—H. J. Ross.—A. W.—J. W. W.—Nils. Jönston.—W. J B.—M. de la D., Angers.—Professor Crépin, Brussels.—H. V., Paris.—W. R. (many thanks).—G. S.—Dr. D., Hamburgh.—Ireland & Thomson.—W. T. T. D. J. H.—G. N.—J.—J. Patterson, Tamworth.—N. S. W.—T. H. P.—Messrs. Backhouse & Son.—T. W. G.—Visitor.—W. B. H.—J. Filby.—H. J. R.—W. S.—W. Straton.—Bobers and Schroder.—Andrew Taylor.—Mungo Chapman (next week).—J. R.—D. T. F.—J. J. W.—J. G. Baker.—H. W. W.—J. D.—W. H.—A. D.—H. H. D.—Ilminster.—J. E. and K. A. (next week).

DIED, on April 6, at Freeland, Perthshire, JAMES ROUTLEDGE, aged fifty-seven years; for thirty-one years Head Gardener to C. L. Wood, Esq., of Freeland.

—— On the 11th inst., MAUDE, daughter of Mr. J. GIBSON, The Lodge, Victoria Park, London, N. aged fourteen years.

—— We also regret to announce the death of the wife of Mr. Charles PENNY, of Sandringham Gardens, Norfolk, on Wednesday, May 8.



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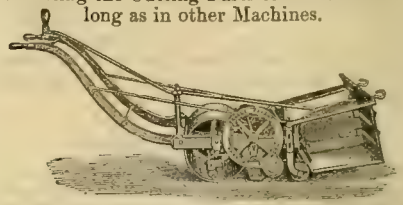
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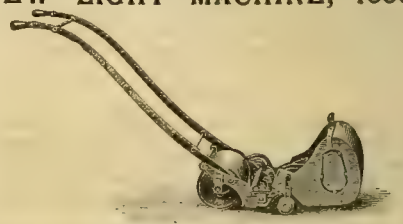
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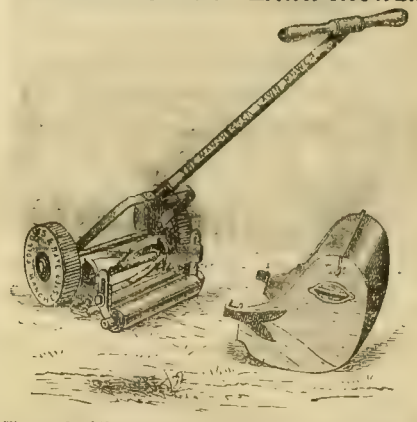
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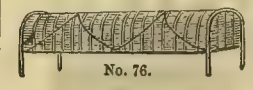
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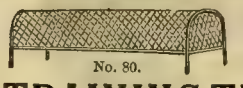
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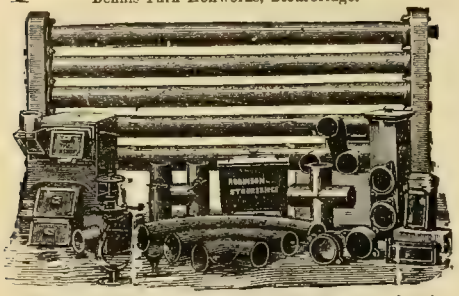
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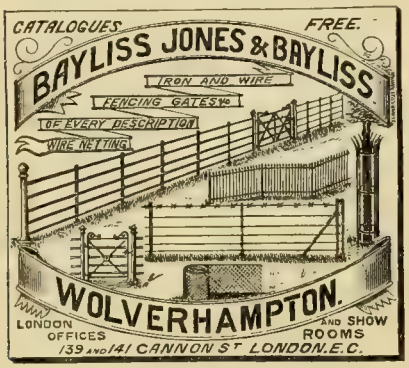
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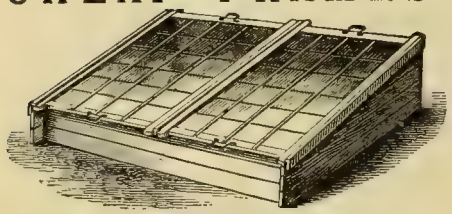
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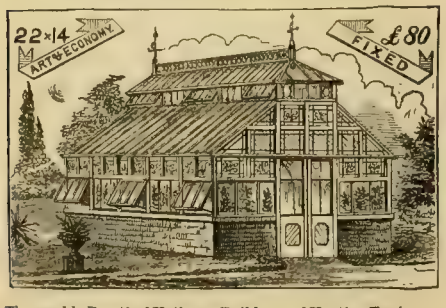
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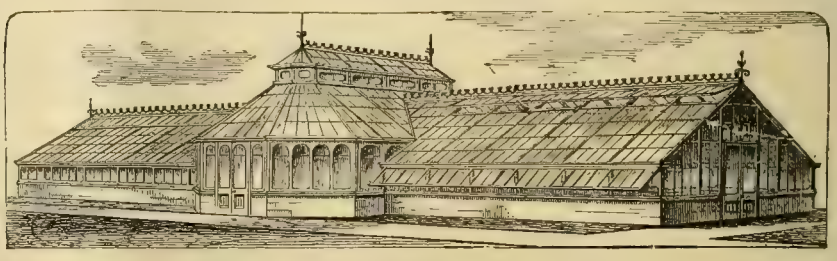
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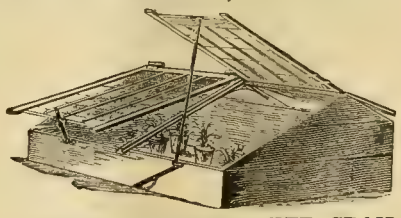
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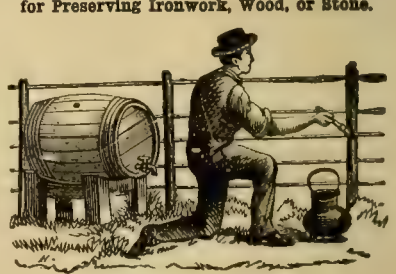
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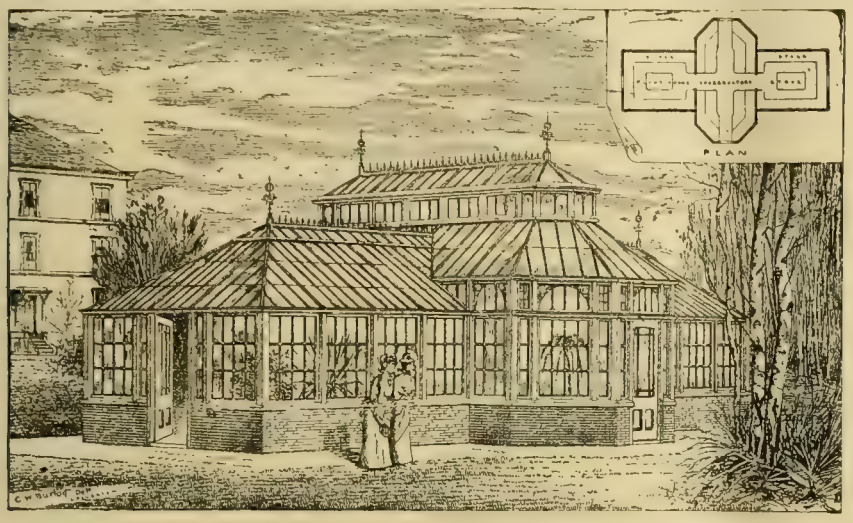
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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

Now ready, in cloth, 11s. 6d.

THE GARDENERS' CHRONICLE, Vol. IV., Third Series, JULY to DEC., 1888.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

BATH and WEST of ENGLAND SOCIETY
(ESTABLISHED 1777) AND
SOUTHERN COUNTIES ASSOCIATION.
EXETER MEETING, 1889, commencing WEDNESDAY, June 5, and terminating MONDAY, June 10.
HORTICULTURAL DEPARTMENT.—In requesting assistance for the above Society's EXHIBITION at EXETER, by the LOAN of PLANTS, &c., the Steward of the Horticultural Department begs to state that, in order to obviate the objections so often made against the system of Exhibiting Plants in Competition for Money Prizes, it has been determined to give Sums of Money, in proportion to the importance and value of the Plants exhibited, as Gratuities to Exhibitors, Gardeners, &c.
All Plants must be staged in their allotted places on TUESDAY, June 4, or not later than 10 A.M., on WEDNESDAY, June 5.
N.B.—The Tent in which the Plants will be exhibited is closed with glass ends, and well ventilated, so as to afford perfect security to the most delicate Flowers.
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BRUCE FINDLAY, Manchester.

WILMSLOW and ALDERLEY HORTICULTURAL SOCIETY.
This SOCIETY will hold its FIRST SHOW in Wilmslow, on FRIDAY and SATURDAY, July 26 and 27 next. Prizes to the amount of ONE HUNDRED and TWENTY-FIVE POUNDS will be given. Schedules from
T. W. MARKLAND, A. W. LOBENHOFFER, } Hon. Secretaries.

CARTERS' FLORISTS' FLOWERS.—INVINCIBLE.

PRIMULA.—CARTERS' HOLBORN PRIZE MIXED.—The Best in the World—*vide* awards. New seed. In sealed packets, price 2*s.* 6*d.* and 3*s.* 6*d.* per packet, post-free.

CINERARIA.—CARTERS' BRILLIANT PRIZE MIXED.—The Best in the World—*vide* awards. In sealed packets, price 2*s.* 6*d.* and 3*s.* 6*d.* per packet, post-free.

CALCEOLARIA.—CARTERS' VICTORIA PRIZE MIXED.—The Best in the World—*vide* awards. In sealed packets, price 2*s.* 6*d.* and 3*s.* 6*d.* per packet, post-free.

CARTERS, SEEDSMEN by Royal Warrant to H.M. The Queen and H.R.H. the Prince of Wales, 237 and 238, HIGH HOLBORN, LONDON, W.C.

Plant Novelties.

JOHN LAING AND SONS Descriptive CATALOGUE of PLANTS, &c., embracing all the best Novelties, will be sent post-free on application.
The Nurseries, Forest Hill, London, S.E.

SAML. HILL, Junr., COMMISSION AGENT, has DEMANDS for Choice CUT FLOWERS in any quantity. Returns weekly. Address 21, Charlotte Street, Fitroy Square, W., and Stand 363, Covent Garden Flower Market, W.C.
S. H. has for DISPOSAL a fine Stock of CARNATION Souvenir de la Malmaison, established in 48-pots. Price on application.

HENRY SQUELCH (late Squelch & Barnham) RECEIVES CONSIGNMENTS of good Black Grapes, Muscats, Cucumbers, Tomatos, and Beans; also all kinds of choice Hothouse Flowers. H. Squelch's trade being especially for First-class Hothouse Produce, and he having a connection amongst the best Houses in London and Country, is able to command highest Market Prices. Account Sales furnished daily, and accounts settled weekly, or as desired.
Empties and Labels Supplied. Bankers' and other references.
North Row, Covent Garden Market, W.C.

HOOPER AND CO. (Limited), are in a position to guarantee the highest Market Prices for EUCHARIS, LILY of the VALLEY, ROSES, ORCHIDS, ARUM LILIES, and every description of Cut Flowers. Communicate with Commission Department.
HOOPER AND CO. (Limited), Covent Garden, London, W.C.

AUSTIN ROBERTS is prepared to RECEIVE CHOICE FLOWERS for Disposal at best Market Prices. Quick Sales, prompt returns, and Weekly Settlements. Good references. Boxes and Labels supplied.
26, Russell Court, Catherine Street, Strand, London, W.C.

MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, London, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied.
Telegraph Address—"COMMISSION, SIDCUP."

J. W. BARNHAM (late of Squelch & Barnham) RECEIVES ON COMMISSION, GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found.
Long Market, Covent Garden, W.C.

To Gardeners, Nurserymen, &c.

CUT FLOWERS or PLANTS in Bloom REQUIRED daily. Roses, Maidenhair Fern, Lilies, or any Choice Flowers. Cash on receipt of parcels.
Address, FLORIST, Cornelius, 37, Northcote Road, Clapham Junction, S.W.

PEACHES, FIGS, MELONS, GRAPES, CUCUMBERS, TOMATOS, &c. Highest Market Prices guaranteed. Prompt Cash.—HENRY RIDES, Covent Garden.

WANTED, TULIPS in variety. State price per 100.
GARDENER, Milburn, Esher.

Pine Suckers.

WANTED, a quantity of the above. State sorts and price.
Box 59, Post Office, Hull.

T. M. Please return Original Testimonials sent in reply to your advertisement of May 4, to EDWARD BARNES, Bath House Avenue, Norwich Road, East Dereham.

Pure White Dahlia.

SNOWFLAKE, very free bloomer, splendid for Wreaths, Church Decoration, &c., price 8*s.* per dozen. Extra strong plants. Package free. Cash with order. Worth 2*s.* 6*d.* each.
J. E. DIXON, 21 and 23, Lord Street, Gainsborough.

SUTTONS' FLORISTS' FLOWER SEEDS.—Sutton's Perfection Calceolaria, 3*s.* 6*d.* and 5*s.* per packet; Sutton's Superb Cineraria, 2*s.* 6*d.* and 5*s.* per packet; Sutton's Prize Gloxinia, 2*s.* 6*d.* and 5*s.* per packet; Sutton's Prize Cyclamen, 2*s.* 6*d.* and 5*s.* per packet; Sutton's Prize Begonia, 2*s.* 6*d.* and 5*s.* per packet; Sutton's Superb Primula, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet. All Flower Seeds sent free by Post.
SUTTON'S SEEDS GENUINE ONLY DIRECT FROM SUTTON AND SONS, The Queen's Seedsmen, READING.

ORCHIDS, ORCHIDS.—Distinct kinds, selected not for botanical curiosities, but their beauty, either for cutting or house decoration and the best to grow; 6 for 15*s.*, 21*s.*, or 30*s.*; 12 for 30*s.*, 42*s.*, or 60*s.* CATALOGUE of these and all other plants free, for 3 stamps.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

New Bouvardia.

MRS. ROBERT GREEN, a very distinct variety, of robust habit, very free flowering, and distinct in colour, being of a pleasing shade of salmon-pink, closely resembling Carnation Miss Joliffe in colour.
H. B. MAY has much pleasure in offering the above, which should become a general favourite Price, &c., on application.
Dyson's Lane Nursery, Upper Edmonton.

To the Trade.

FOR SALE, several thousand DOUBLE PRIMULA, well-rooted young plants, in 60's. Price, 40*s.* per 100.—C. B. MANSFIELD, Llysourn Gardens, near St. Clears, Carmarthenshire.

CUT LILIES OF THE VALLEY.—Large quantities, from Open Ground, of my well-known, large-flowering variety, 3*s.* 3*d.* per 100. Box included. For Cash only.
J. JANNOCH, Lily Nursery, Dersingham, King's Lynn, Norfolk.

LATANIA BORBONICA, fine specimen for Sale, 8 feet across, 7 feet high, thirteen leaves. Price 5 guineas, free on rail.
W. H. DIVERS, Ketton Hall, Stamford.

CHOICE FLOWER SEEDS.—Primula, Cineraria, Calceolaria, &c., saved from the most refined and beautiful strains in existence. *Priced Lists Free.*
DICKSONS (*Limited*), The Royal Seed Warehouse, CHESTER.

SEND FOR New Illustrated CATALOGUE of Conservatories, Greenhouses, Garden Frames, Propagators, and Hand-lights, post-free, for 6 stamps, to be deducted from first order.—CHARLES FRAZER, Palace Plain Works, Norwich. Great Reduction in Prices.

NICOTINE SOAP.—An effectual eradicator of all insect pests affecting plants, without injury to foliage. Jars, 1*s.* 6*d.*, 3*s.*, 5*s.* 6*d.*; Tins 15*s.* 6*d.*, 25*s.*, 95*s.*
All Seedsmen and Florists.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

PASTUPLANTA, the best Artificial Manure. It enriches the soil with the fertilisers drawn from it by plants; no unpleasant smell; admirably adapted for all pot plants. In bags: 112 lb., 19*s.*; 56 lb., 11*s.* 3*d.*; 28 lb., 6*s.* 9*d.*; 14 lb., 4*s.*; 7 lb., 2*s.* 3*d.* In tins, 1*s.* each. Sole Manufacturers, PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

Fruit, Flowers, and Vegetables.

THOMAS, Covent Garden Market.
Telegraph Address, "THOMASES, London."
Telephone, No. 2822. See large Advertisement, p. 647.

SALES BY AUCTION.

Thursday Next.

A fine Collection of ORCHIDS in FLOWER and BUD, comprising grand forms of Odontoglossum Alexandræ, Cattleya Mendelii, C. Mossiæ, Lælia purpurata, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 30.

On view morning of Sale, and Catalogues had.

Thursday Next.—A Further Portion of the Paragon House COLLECTION of ORCHIDS (largely without reserve).

MR. J. C. STEVENS has received instructions from F. Briesemann, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 30, at half-past 12 o'Clock precisely, a further portion of his well-known COLLECTION of ORCHIDS, including many species of great rarity and value.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 12, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS for this Sale will SEND LIST AS SOON POSSIBLE.

The Crawford Collection of Orchids.

MR. J. C. STEVENS has received instructions from W. H. S. Crawford, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY, June 12 and 13, at half-past 12 o'Clock precisely each day, without the least reserve, the COLLECTION of ORCHIDS formed by the late W. H. Crawford, Esq., of Lakelands, Cork, consisting of about 700 specimens, some being fine exhibition plants, many of great rarity and value, comprising, amongst other fine things:—

- Dendrobium nobile majus
- ,, ,, nobilius
- ,, splendidissimum
- Lælia anceps alba
- ,, Dawsonii
- ,, Hillii
- ,, Williamsi
- ,, Brysiana
- ,, callistoglossa
- ,, purpurata Russelliana
- Masdevallia, Bull's blood
- ,, Harryana magnifica
- ,, Veitchii
- Oncidium macranthum
- ,, splendidum
- Phalænopsis, several hundred plants
- Sophronites, fine pans
- Anguloa Ruckeri
- ,, ,, sanguineum
- Cattleya aurea
- ,, Mossiæ Rothschildiana
- ,, Remeckiana
- ,, Wagneri
- Cœlogyne Massangeana
- Cypripedium Druryii
- ,, Leeanum superbum
- ,, Leuchorrodum
- ,, Morganiæ
- ,, Mrs. Canham
- ,, Œnanthum superbum
- ,, Schroderæ
- ,, Sedeni candidulum
- ,, Selligirum majus
- Dendrobium Ainsworthii

On view mornings of Sale, and Catalogues had.

Leytonstone, E.—Sale this Day.

IMPORTANT ANNUAL SALE. 20,000 beautifully-grown GREENHOUSE and BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The American Nurseries, High Road, Leytonstone, E., THIS DAY, SATURDAY, May 25, at 1 o'Clock precisely, 20,000 BEDDING PLANTS, exceedingly well grown, comprising 5000 Geraniums of the best sorts, Choice Decorative Plants, 5000 Pelargoniums, fine plants; Ferns, Palms, and a great variety of other plants.

May be viewed the day prior and morning of Sale. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and High Road, Leytonstone, E.

Tuesday and Wednesday Next.

THE DOWNSIDE COLLECTION OF ORCHIDS.

Highly important TWO DAYS' SALE of the remaining portion of this renowned Collection of ESTABLISHED ORCHIDS, including many plants matchless in point of rarity; the whole being remarkable for culture and condition. By order of Wm. Lee, Esq., who has sold the Estate, and is relinquishing the cultivation of Orchids. Absolutely without reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY NEXT, May, 28 and 29, at half-past 12 o'Clock precisely each day, absolutely without the least reserve, by order of Wm. Lee, Esq., who has sold the Estate of Downside, and is relinquishing the cultivation of Orchids, the remaining portion of this extremely valuable and celebrated COLLECTION of ESTABLISHED ORCHIDS. It is difficult from such a collection to mention all plants of merit, but special attention is called to the following:—

- Cattleya Trianæ Leeana
- ,, ,, Archduchess
- ,, ,, Normani
- ,, ,, Emiliæ
- ,, ,, Emperor
- ,, ,, Empress
- ,, ,, alba
- ,, ,, Dodgsoni
- ,, ,, magnifica
- ,, Percivaliana alba
- ,, ,, rubra
- ,, Gaskelliana rubra
- ,, Mendelii Leeana
- ,, ,, Selborniensis
- ,, ,, elegans
- ,, ,, rosea odorata
- ,, Mossiæ Southgatei
- ,, ,, aurea glandiflora
- ,, labiata, autumn-flowering
- Lælia Amesiana
- ,, purpurata Williamsii
- ,, elegans Dayana
- ,, calistoglossa
- ,, anceps Schroderiana
- Cymbidium giganteum
- Odontoglossums, a large and choice selection of fine plants
- Oncidium prætextum Leeanum
- Dendrobium Kingianum album
- ,, crassinode album
- ,, micans
- Cypripedium cœnanthum superbum
- ,, insigne albo-marginatum
- ,, microchilum
- ,, vernixium
- ,, alba-purpureum
- ,, Wallisii
- Vanda Sanderiana
- ,, tricolor Patersoni
- ,, ,, planilabris
- Trichopilia tortilis alba
- ,, suavis alba
- Epidendrum Wallisii
- Cœlogyne cristata alba
- Masdevallia, the original Bull's Blood

The Plants can be inspected by appointment at Downside prior to the Auction, and will be on View in the Sale Rooms on the morning of Sale. Catalogues may be had on application to Messrs. PROTHEROE AND MORRIS, Auctioneers, Estate Agents, and Valuers, 67 and 68, Cheapside, London, E.C.

North Cray.—Thursday Next.

Unreserved CLEARANCE SALE of ORCHIDS, GREENHOUSE PLANTS, and GLASS ERECTIONS, by order of the Executors of Mr. J. H. Bath.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Manor Farm, North Cray, Kent, on THURSDAY, May 30, 1889, at half-past 12 o'Clock precisely, without reserve, the remaining Portion of the extensive COLLECTION of ESTABLISHED ORCHIDS, comprising 1000 of the beautiful Odontoglossum Alexandræ, the whole of the GREENHOUSE PLANTS of the usual description, the erections of nine GREENHOUSES, 3000 feet of Hot-water PIPING, and other effects.

May be viewed two days prior to Sale. Catalogues had on the Premises; of Messrs. MAY, SYKES, AND BATTEN, Solicitors, 2, Adelaide Place, London Bridge, E.C.; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next, May 31.

ORCHIDS IN FLOWER.

SPECIAL SALE, instead of the last Tuesday in the Month, as usual.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 31, at half-past 12 o'Clock, a large quantity of ORCHIDS in FLOWER, from various Collections, of the usual description.

Also SACCOLABIUMS, DENDROBIUMS, AËRIDES MITRATUMS, A. ROSEUM, and ODONTOGLOSSUM ALEXANDRÆ, received, together with 500 ONCIDIUM JONESIANUM. The whole for Sale without reserve.

On view morning of Sales, and Catalogues had.

The Foston Hall Collection of Orchids.

Important Sale of this exceedingly choice COLLECTION of ESTABLISHED ORCHIDS, by order of H. J. Cumming, Esq., who is leaving Foston Hall.

Entirely WITHOUT RESERVE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, June 4, 1889, and following day, if necessary, at half-past 12 o'Clock precisely, without reserve, the above exceedingly choice COLLECTION of ESTABLISHED ORCHIDS. Among the numerous plants, special attention is drawn to the following:—

- Odontoglossum Chestertonii (Lee's grand variety).
- ,, crispum Dormanianum
- ,, Pescatorei, fine yellow, heavily spotted
- ,, Patinii, very rare
- ,, vexillarium superbum, and others
- Oncidium ornithorrhynchum album
- Dendrobium nobile Sanderianum
- ,, ,, nobilius
- ,, ,, elegans
- ,, ,, Cooksoni
- ,, splendidissimum grandiflorum
- ,, Leechianum
- ,, euosmum leucopterum
- ,, Guibertii
- ,, Phalænopsis
- ,, falconeri giganteum
- Miltonia bicolor
- Masdevallia Veitchii grandiflora
- ,, Harryana, special varieties
- Cypripedium Charles Canham
- ,, euryandrum
- ,, Schroderii
- ,, aduanthum superbum
- ,, Arthurianum
- ,, vexillarium
- ,, Morganiæ
- ,, leuchorrodum
- ,, Leeanum superbum
- ,, Thibantianum and many others.
- Phalænopsis leuchorroda
- ,, speciosa, grand and rich varieties
- ,, Schillerianum superba
- ,, amabilis Dayana
- Cattleya Trianæ Buckhousiana
- ,, ,, Dudgsonii
- ,, exoniensis
- ,, labiata, autumn flowering
- ,, Skinneri alba
- Lælia anceps Williamsii
- ,, ,, Dawsonii
- ,, elegans Wolstenholmii, original plant.

No Plants will be sold privately prior to the Sale.

On view the morning of sale. Catalogues had of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Finchley Road, N.W.

Absolutely without reserve. The LEASE of a compact and old-established FLORIST'S BUSINESS, by order of Mr. W. A. Clingo, who is leaving the neighbourhood; also the STOCK, HORSES, VANS, and UTENSILS IN TRADE.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the Waverley Nursery, St. John's Wood, close to Marlborough Road Station, on THURSDAY and FRIDAY, June 13 and 14, at 12 o'Clock precisely each day, the whole of the STOCK of GREENHOUSE and BEDDING PLANTS, of the usual description; 1000 MYRTLES in various sizes. Also the UTENSILS IN TRADE used in connection with the extensive jobbing business attached to the Nursery; two powerful CART-HORSES, nearly new Market VAN, CARTS, and Sundries.

The LEASE of the old-established business will be offered on the first day, without reserve, immediately preceding the Sale of Stock. The Property comprises a Block of Land, 11 Span-roof and Lean-to Greenhouses, Pits, large Stabling and Potting Shed. Lease about 11 years unexpired, with promise of renewal. Rent £80 per annum.

May be viewed. Catalogues had of Mr. Clingo, on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Stoke Newington, N.

MESSRS. BRAY, YOUNG AND CO. will SELL by AUCTION, at the Mart, Tokenhouse Yard, Bank, E.C., on FRIDAY, May 31, at 1 o'Clock precisely, the improved LEASEHOLD GROUND RENT of £21 per annum, secured upon Cleveland Lodge, Bethune Road, and St. Kilda's Nursery adjoining; term 85¼ years, held at £10 per annum; and a NURSERY GROUND, with Residence and Glasshouses, let at £50 per annum, and held for a similar term at a ground rent of £12 per annum.—Solicitors, Messrs. ROSCOE AND HINCKS, 23, Christopher Street, Finsbury Square, E.C.

Particulars and conditions may be obtained at the Mart; of the Solicitors; and of the Auctioneers, 6, Warwick Court, High Holborn, W.C., and High Street, Hampton Wick.

FOR SALE, a well-stocked NURSERY (Freehold), in a growing neighbourhood, 5 good Greenhouses (well-heated), Potting-shed, Stable, and Cottage. Death cause of selling. Price £1500. For further particulars, apply, F. H. R., 230, Peckham Rye, S.E.

TO BE DISPOSED OF, MILL STREET NURSERY, situate in centre of Derby, including ten well stocked Greenhouses. Good going concern, with excellent connection. Satisfactory reasons for retiring.

For further particulars, apply to J. WOOD, George Street, Burton-on-Trent.

NURSERY, consisting of 6 Greenhouses, 1 large Show-house 110 feet long, fronting main road. Heated with Hot-water, about 2 miles from Birmingham, close to a station. Rent £35, or would SELL.

Apply, 22, Great Charles Street, Birmingham.

FLORIST.—Capital opening for steady person. Ground, Hot-house, and every necessary appliance. Rent £30. No opposition.

Apply, J. H. HARMAN, Estate Office, Clacton-on-Sea.

FIRST-CLASS WEST-END PREMISES, one door from Piccadilly, of the net annual value of £810, and held direct from the Freeholder for a long unexpired term, together with or without the Goodwill of the Old-established Seed Business of Thomas Gibbs & Co., or Offers for the Trade and Use of the Name, apart from the Lease, might be entertained.

Apply on the Premises, 26, Down Street, Piccadilly, W.; or to Messrs. EDWIN FOX AND BOUSFIELD, 99, Gresham Street, Bank, E.C.

TO BE LET, with immediate possession, a good GREENGROCER, SEEDSMAN, and FLORIST BUSINESS, consisting of a seven-roomed House with nice large Shop, and an acre of first-class Garden Land, well stocked, at a yearly rental of £25. The above business is situated in a healthy, growing, provincial town, with good train service, 30 miles from London. Satisfactory reasons for leaving.

For price of Stock, Fixtures, &c., apply to GOOD CHANCE, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

THE ROYAL PALACE GARDENS CO., having erected a large Indian Saloon, would be glad of any large PALMS or TREE FERNS that any Lady or Gentleman may have, and which are too big for their houses. Gladly pay all costs of removal, &c. Any person having any for Sale, kindly send their lowest prices.

TAYLOR, Royal Palace, Blackpool.

10,000 ALTERNANTHERAS for disposal (surplus).—8 kinds, namely—Amœna Spectabilis; Cœcilis Amœna; Magnifica; Aurea Nana (new dwarf from America, fine, bright-golden colour). Price on application.

FLORIST, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

DAFFODILS.—HARTLAND'S famous Bulbs, grown within 10 miles of the sea, soil limestone, 3 feet in depth, resting on gravel.

Prices very moderate, Bulbs magnificent. Delivery, July and early August, a good month in advance of the Dutch deliveries. Write for quotation.

WM. BAYLOR HARTLAND, Old Established Seed Warehouse, 24, Patrick Street, Cork.

FRESH SPHAGNUM MOSS, large Crowns, 5*s.* per large bag.

JOHN BURNS, Fellside, Kendal.

FOR DISPOSAL AT ONCE, a quantity of large PALMS, and mixed STOVE PLANTS.—Apply, Mr. ALLEN, Gardener, Swallowfield Park, Reading, Berks.

50 Open Air FERNS in 10 var., 1*s.* 6*d.*; splendid crowns ROYAL FERNS, 6*s.* per doz., 3 ft.

VANSLEY POND, Kenwyn Street, Truro.

DOUBLE SCARLET GERANIUM H. V. RUSPAIL, in thumbs, 20*s.* per 100; 48's, 20*s.* per 100, cash.—G. POULTON, Fountain Nursery, Angel Road, Edmonton.

ASPARAGUS.—This delicious Vegetable does not require half the expense often incurred. For direction see Illustrated Seed List, free. Strong Roots, 2*s.* 6d. per 100.—RICHARD SMITH AND CO., Worcester.

A few Large Healthy Palms.

FOR IMMEDIATE DISPOSAL, LATANIA BORBONICA, CHAMÆROPS EXCELSA and PHŒNIX RECLINATA, 3 to 6 feet high, from 10*s.* per pair.

GARDENER, Holly Lodge, Stamford Hill, London, N.

TO OFFER, autumn-stock GERANIUMS of the following kinds, from store pots:—Vesuvius, H. V. Raspail, Queen of the Whites Improved. 10*s.* per 100 for cash.—W. G. BAILEY, The Nurseries, Bexley, Kent.

LILIUM AURATUM.—A grand lot of really magnificent Bulbs, 11 to 14 inches in circumference, starting with growth, fine for planting out, or late flowering in pots. Very low price to clear.

WILLIAM DENMAN, 7, Catherine Street, Covent Garden, W.C.

AN ACRE of PYRETHRUMS, POTENTILLAS, PÆONIES, PHLOXES, PENTSTEMONS, PANSIES, VIOLAS, propagated from cuttings or divisions from the finest-named sorts gathered from all raisers, not inferior seedlings. See CATALOGUE of these and all you want for a garden, out or inside, free for 3 stamps.

Undernamed, all in 12 sorts:

12 Pyrethrums, 4*s.*; 12 Potentillas, 5*s.*; 12 Phloxes, 3*s.* 6*d.*; 12 Pentstemons, 3*s.* 6*d.*; 12 Pansies, either Show or Fancy, 3*s.*; 12 Violas, 2*s.* 6*d.*; 12 Pæonies, 9*s.*; 12 Hollyhocks, seedlings, from five named sorts, 4*s.*; Delphiniums, seedlings, from fine named sorts, 4*s.*

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

GUIDING STAR—GUIDING STAR.—16*s.* per 100, strong, healthy plants.

Private Roadway, Covent Garden Flower Market, or J. W. E. WEBB, The Vineries, Chase Road, Southgate, N.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have just received large Importations of ORCHIDS from East India and Mexico, including a fine lot of VANDA AMESIANA, V. CŒRULESCENS, V. CŒRULEA, CYPRIPEDIUM BELLATULUM, DENDROBES in variety, ODONTOGLOSSUM ROSSI MAJUS, LÆLIA FURFURACEA, EPIDENDRUM VITELLINUM MAJUS, &c.

Lists, with Prices and Full Particulars, on application.

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

Autumn struck.

BEDDING GERANIUMS,
Established in single pots, well hardened off: –
ZONALES, PINKS, 16*s.* per 100.
SCARLETS, AMABILIS, 16*s.* per 100.
SILVER-EDGED, 16*s.* per 100.
SILVER TRICOLORS, 20*s.* per 100.
BRONZE, 20*s.* per 100.
HAPPY THOUGHT, 16*s.* per 100.
DAHLIAS, SINGLES, 2*s.* 6*d.* per dozen.
Packed free and put on rail for cash with order.
CHARLES BURLEY, Brentwood Nurseries.

CALADIUMS, GLOXINIAS. — Lovely CALADIUMS of the finest sorts, splendid varieties, handsome foliage, clean, easily grown; 12 sorts, 6*s.*, 9*s.*, 12*s.* Gorgeous GLOXINIAS, rich colours, pretty foliage, lovely flowers; 12 for 6*s.*, 9*s.*, 12*s.* New CATALOGUE of these and all other plants, 130 large pages, free for 3 stamps.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Tubers, Named Singles, from 12*s.* to 42*s.* per doz.; Unnamed Seedlings, 12*s.* to 21*s.* per doz.; Bedding, choicest, 6*s.* and 9*s.* per doz.; choicest Named Doubles, from 42*s.* per doz.; Unnamed, very choice, 24*s.* and 30*s.* per doz.; choicest Mixed, 18*s.* per doz. Order direct from us, to procure our splendid strain. CATALOGUES gratis.
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CHEAP BEDDING PLANTS. GERANIUMS, strong and healthy, autumn struck, from single pots—Vesuvius (scarlet), Jean Sisley, Master Christine, Madame Voucher, 2*s.* 6*d.* per doz., 14*s.* per 100; Happy Thought, Silver Leaf, Bronze Perilla, Henry Jacoby, 3*s.* per doz., 16*s.* per 100; Ivy-leaf, splendid doubles, named varieties, and Oak-leaf, sweet-scented, 4*s.* per doz. VERBENAS, Purple, Striped, Rose-pink, Scarlet, White, 1*s.* 9*d.* per dozen, 8*s.* per 100. CALCEOLARIAS, Golden Gem, 2*s.* per dozen, 10*s.* per 100. LOBELIAS, Emperor William, best blue, true from cuttings, 2*s.* 6*d.* per 100, 20*s.* per 1000. DAHLIAS, Single, named, all shades of brilliant colours, from single pots, including White Queen and Paragon, 2*s.* 6*d.* per dozen, 18*s.* per 100; Double, best named, Show, Fancy, and Pompones, 2*s.* 6*d.* per dozen, 18*s.* per 100; Cactus, Juarezii, Constance, Fire King, 4*s.* per dozen. VIOLA CORNUTA, Queen of Blues and White Virgin, 4*s.* 6*d.* per 100, 35*s.* per 1000. AGERATUM, Hardy's selected Blue Dwarf, 4*s.* 6*d.* per 100, 35*s.* per 1000. MARGUERITES, Yellow, Large White, Small White, 10*s.* per 100. MIMULUS, Queen's Prize, splendid colours, 2*s.* per dozen, 15*s.* per 100. PYRETHRUM AUREUM, new dwarf, Golden Feather, 2*s.* per 100, 20*s.* per 1000. PETUNIA, Prize Fringed, beautiful striped colours, mixed, 5*s.* per 100, 40*s.* per 1000. CHRYSANTHEMUM, selection of finest named show varieties, 2*s.* 6*d.* per dozen, 18*s.* per 100, from single pots. Cash. Extra Plants for Carriage. Package Free.
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H. AND F. SHARPE will be pleased to give special quotation for their fine selected stocks of home-grown MANGEL WURZEL and TURNIP SEEDS of 1888 growth, and raised from picked bulbs. The growth is strong, and the prices will be found very reasonable. Samples may be had on application.
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HARTLAND'S NEW "GOLDEN QUILLED" DOUBLE SUNFLOWER,
"SOLEIL D'OR."
Strong Plants, 1*s.* 6*d.* each; Extra Clumps, 2*s.* 6*d.*; post-free for cash. The clumps can be divided for quantity. It is one of the finest things introduced to English gardens for years. For cutting purposes and harvest festival decorations superb.
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NEW PEDIGREE SEEDLING ROSES FOR 1889.

ALEX. DICKSON & SONS

Beg to announce for distribution (the end of May) their

THIRD SET OF NEW ROSES,
ALL OF WHICH ARE FIRST-CLASS NOVELTIES.

MRS. JAMES WILSON, Tea, may be best described as a Yellow "Catherine Mermet," 10*s.* 6*d.* each.

MR. JAMES BROWNLOW, H.P., Two First-class Certificates, 10*s.* 6*d.* each.

LADY ARTHUR HILL, H.P., First-class Certificate, 10*s.* 6*d.* each.

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THE ROYAL NURSERIES,
NEWTOWNARDS, IRELAND.

CHOICE FLOWER SEEDS.

DANIELS' SPECIAL STRAINS

FOR PRESENT SOWING.

The following have been grown specially for our retail trade, and are recommended as the very finest strains procurable for exhibition or decorative purposes:—

	Per packet—*s.*	*d.*
AURICULA, choicest alpine, very fine strain ...	1	0
CALCEOLARIA hybrida, a superb strain of beautifully tigred and spotted flowers ... 1*s.* 6*d.* and	2	6
CINERARIA hybrida, very choice ... 1*s.* 6*d.* and	2	6
,, ,, ,, new dwarf, large-flowered	2	6
CARNATION and PICOTEE, from stage flowers, will produce 80 per cent. of fine, double blooms, 1*s.* 6*d.*, 2*s.* 6*d.* and	5	0
,, ,, choicest yellow, fine	3	6
HOLLYHOCK, Chater's Superb Double, 12 distinct varieties, 5*s.*; 6 ditto, 2*s.* 6*d.*		
,, ,, ,, choicest mixed seed ... 1*s.* 6*d.* and	2	6
PANSY, Daniel's Prize Blotched, a grand strain of large and most beautifully blotched and coloured flowers ... ... 1*s.* 6*d.* and	2	6
PRIMULA sinensis, Crimson King, superb, high coloured variety	2	6
,, ,, alba magnifica, splendid pure white ...	2	6
,, ,, coccinea magnifica, brilliant scarlet sulphur eye, fine	2	6
,, ,, purpurea magnifica, rich crimson purple, superb...	2	6
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PRIMROSE, a rich strain of brilliantly coloured hybrids ... ... 1*s.* 6*d.* and	2	6
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Containing New French and other varieties, with Descriptive List of
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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL

AT
The "ALBION," Aldersgate Street,
JUNE 13, 1889,
LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Received since last week:—

	£	*s.*	*d.*
T. A. GLEDSTANES, Esq., Gunnersbury	21	1	0
M. G. KNAPP, Esq., Newport Pagnell	1	1	0
J. MACPHERSON, Esq., Shanklin, Isle of Wight ...	1	1	0
N. N. THWAITES, Esq., Edgbaston	1	1	0
W. M. CHIMERY, Esq., 23, Park Lane	5	5	0
HENRY COLEMAN, Esq., Woodville, Dover ...	10	10	0
A. K. HITCHENS, Esq., 27, Chester Street	10	10	0
F. S. CORNIDALLIS, Esq., Linton Court, Maidstone	10	10	0
F. BASSETT, Esq., The Cedars, Leighton Buzzard...	5	5	0
Messrs. COOPER, TABOR & CO., Southwark Street (annual)	1	1	0
Mr. BEAL, Woodhall Gardens, Hertford	0	10	0
J. JONES, Esq., The Grove, Wrexham	2	2	0
D. LARNACH, Esq., Brambletye, East Grinstead ...	5	5	0
Messrs. SUTTON & SONS, Seed Merchants, Reading	10	10	0
CHAS. KEYSER, Esq., Warren House, Stanmore (annual)	2	2	0
Mr. CHINNERY, Edwardstown Gardens, Boxford ...	0	10	0
H. P. LEON, Esq., Bletchley Park, Bucks	10	10	0
J. MORRIS, Esq., Wretham, Thetford	5	0	0
J. RICKETT, Esq., Barham House, East Hoathley...	1	1	0
Mrs. DRAKE GARRARD, Lamar Park, Herts (annual)	1	1	0
Mr. DOCKERELL, Elmshurst Gardens, Reading ...	10	10	0
Mr. CULVERWELL, Thorpe Perrow Gardens ...	0	10	0
A. DE MURRIETTA, Esq., 18, Carlton House Terrace	10	10	0
ALFRED DE ROTHSCHILD, Esq., New Court ...	50	0	0
EDWARD HART, Esq., The Abbey, Aylesbury ...	5	0	0
J. R. HESELTERN, Esq., Lymington	5	5	0
FRANCIS A. LUCAS, Esq., 3, Cleveland Row ...	10	10	0
Sir HUMPHREY DE TRAFFORD, Bart., Trafford Park, Manchester	10	10	0
The Rev. R. C. BARKER, Daglinsworth Rectory, Wilts	1	1	0
UNDER GARDENER, Crathes Castle, Crathes, N.B.	0	8	0
Mr. SEDGWICK, Thorpe Perrow Gardens, Bedale...	5	5	0
Mr. BROWNE, Ravenswood Gardens, Edgbaston ...	1	1	0
Mr. ELWORTHY, Crom Castle Gardens	0	10	6
Mr. BETTESWORTH, Burton Grange Gardens ...	1	1	0
GEORGE RAPHAEL, Esq., Castle Hill, Surrey ...	5	0	0
The YOUNG MEN, Dell Gardens, Staines	1	8	0
Mr. BICKERSTAFF, Burford Lodge Gardens ...	0	10	0
Mr. MANN, Leighton Gardens, Westbury	2	0	0
WM. HOUGHTON, Esq., Hoe Street, Walthamstow	2	2	0
Mr. LOWE, Ashridge Gardens, Berkhampsted ...	1	1	0
Mr. COLLINS, Kingston Gardens, Dorchester ...	2	2	0
Mr. IMES, West Hatch Gardens, Chigwell	2	5	0
Mr. ELSWORTHY, Nettlecombe Gardens, Taunton	1	1	0
Mr. LANE, Nettlecombe Gardens, Taunton	0	2	6
Mr. GODDARD, Hunton Gardens, Maidstone ...	1	0	0
Mr. WRIGHT, Chippenham Estate Office, Soham .	1	1	0
Mr. SHEPSTONE, Charlton Gardens, Nailsea ...	0	10	0
Mrs. POWELL, Heatherbank, Chislehurst (annual)	1	1	0
Mrs. BELCHER, Swindon Hall, Cheltenham ...	1	0	0
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Mr. VICKERY, Cedar House Gardens, Herne Hill ...	7	0	0
Mr. UNDERWOOD, High Firs Gardens, Harpenden	0	5	0
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Mr. DERRICUTT, The Gardens, do.	1	1	6
Messrs. JOHN HALL & CO., 1, New London Street, E.C. (annual)	1	1	0
Sir THOS. F. LUCAS, Bart., 37, Great George Street, S.W.	10	10	0
Mr. SYMES, Carlton Lodge Gardens, Teignmouth ...	0	5	0
Mr. FITT, The Frythe Gardens, Welwyn, Herts ...	0	10	0

ROSES—CLEMATIS—ROSES—all in pots, can be sent and planted any time; the finest named sorts. See Catalogue, with colours, descriptions, prices of these, and all you want for a Garden, free for 3 stamps. 12 fine TEA and NOISETTE ROSES, 15s.; 12 Hybrid Perpetual ROSES, 12s.; 12 Extra-sized Tea and Noisettes to force now, 30s.; for Arbours, Pillars, Walls, &c.

3 CLEMATIS, in 3 distinct colours, 3s. 6d.; 6 CLEMATIS, in 3 distinct colours, 6s.; 12 CLEMATIS, in 3 distinct colours, 10s. 6d.

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NARCISSUS CAPAX, the rare Queen Anne Daffodil, for pots, &c., price per 1000 or per 100.
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AN IMMENSE STOCK of recently imported plants compels a SALE of the ESTABLISHED PLANTS to make room. They have not yet flowered, but are all flowering plants, and must be sold at a GREAT SACRIFICE. Very valuable varieties are certainly to be obtained, and great bargains. See Public Journals for high prices recently obtained. The SPECIAL OFFER affords a PAYING INVESTMENT to anyone with glass at command, which should not be overlooked. Such plants may never again be offered to the Public and Trade. GOOD ESTABLISHED PLANTS:—

25 in	25 species and varieties	£3	3 0
50 in	50 ,, ,, ...	5	5 0
100 in	100 ,, ,, ...	10	10 0

CATALOGUE of the above large stock held on application to
W. GORDON,
The Nurseries, Amyand Park Road, Twickenham, Middlesex.

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H. AND F. SHARPE are prepared to make special low offers of their exceptionally fine Stocks of VEGETABLE and FIELD SEEDS of 1888 growth, and all carefully selected. Prices and further particulars may be had on application.
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CROTONS, DRACÆNAS, and other fine foliage varieties; IXORAS, HIBISCUS, POINSETTIAS, and other flowering bush-habited plants, in finest varieties, clean, healthy, all named; 12 distinct kinds, 12s., 18s., 30s. per dozen.

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GREENHOUSE PLANTS, equally well selected, good and healthy; 12 sorts, 9s., 12s., 18s., half at half-price. New CATALOGUE of these and all you want for a garden free for 3 stamps.

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NEW ROSES.—The following are some of the finest of the new varieties introduced during the past two seasons. We have proved them, and can recommend them as desirable acquisitions which any Amateur may with confidence add to his Collection. Strong plants in pots now ready.

LADY ALICE, the new creamy-white Hybrid Perpetual	each	3	6
SIR ROWLAND HILL, splendid deep rich maroon, a grand variety	each	3	6
GLOIRE DE MARGOTTIN, brilliant red, said to be the brightest Rose known	each	2	0
MADAME HOSTE, pale yellow, Tea-scented variety, of fine form; considered by some to be one of the finest introductions since Maréchal Niel was sent out	each	2	6
LUCIOLA, Tea-scented, bright carmine-rose, tinted with saffron-yellow; exceptionally distinct and good	each	2	0
RED PET { Exceedingly pretty		2	6
GOLDEN FAIRY { New Polyantha		2	6
LITTLE DOT { Or Fairy varieties		2	6
L'IDEALE, a new Noisette, metallic red, streaked with golden-yellow, quite distinct; will be as popular as W. A. Richardson when it becomes known	each	2	6
One strong plant of each of the above new varieties, 21s. Basket and packing free for cash with order.			
TEA-SCENTED ROSES IN POTS, fine bushy plants coming into flower...	per dozen	16	0
HYBRID PERPETUAL ROSES IN POTS, for turning out to fill up vacancies, form new Rose Beds, &c.	per dozen	10	6

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A WELL-STOCKED GREENHOUSE.—ABUTILONS, all the best and newest; 12 fine sorts, 3s. 6d.

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HELIOTROPES (Cherry Pie), fragrant and free bloomers, best new and old sorts; 12 for 2s. 6d.

LANTANAS, fine for greenhouse decoration, pretty and free; 12 sorts, 2s. 6d.

SALVIAS, distinct and pretty; 6 fine sorts, 1s. 6d. Half number at same rates. New CATALOGUE of these and everything else you want for Greenhouses or Gardens, free for 3 stamps.

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NEW ROSES for 1889.

WM. PAUL & SON

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MARCHIONESS OF LORNE, H.P. (Wm. Paul & Son).—Plants ready in May, 10s. 6d. each.

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Rose Growers by appointment to Her Majesty the Queen,
WALTHAM CROSS, HERTS.

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Our collection of these includes all the newest and most beautiful varieties in cultivation, and Customers ordering from the following list may rely on only the finest sorts being sent. The plants are guaranteed strong and healthy, well seasoned, and true to name, and with the exception of Chrysanthemums, all from single pots:—

Post or Carriage Free at Prices quoted.

	Per dozen.—s.	d.
COLEUS, a charming assortment of the newest and most beautiful sorts, 6 for 2s.	3	6
CHRYSANTHEMUMS, new and very choice sorts, our selection 6 for 3s. 6d.	6	0
,, from our very large collection, including all the best of the Japanese, Incurved, Reflexed, and Pompon varieties ... ... 2s. 6d. and	3	6
CYCLAMEN persicum giganteum, strong autumn-sown seedlings, splendid stuff for blooming next autumn, 6 for 2s. 6d.	4	6
DAHLIAS, Show and Fancy, new vars. of 1888 (Keynes, &c.), 6 for 5s. 6d.	10	6
,, from our magnificent collection of 250 carefully selected varieties, good plants, 6 for 2s. 6d....	4	6
,, Pompon, in beautiful variety, 6 for 2s. 6d. ...	4	6
,, Cactus-flowered, including the newest and most beautiful sorts, 6 for 2s. 6d.	4	6
,, ,, Mikado, new, beautiful, terra cotta-fawn colour, distinct and charming variety, each 1s. 6d., 3 for 4s.		
,, Single-flowered, all the most beautiful sorts, 6 for 2s.	3	6
FUCHSIAS, seven superb new varieties, a charming set, 10s. 6d.		
,, select varieties from our splendid collection, 6 for 2s. 6d.	4	6
PELARGONIUMS, single-flowered, Zonal, a set of 9 superb new varieties of 1888 (Pearson), 10s. 6d.		
,, Single-flowered Zonal, very choice sorts, from our magnificent collection, 6 for 2s. 6d. ...	4	6
,, Double-flowered Zonal, 3 superb new sorts for 1889, 8s.		
,, Double-flowered Zonal, in splendid variety, very choice, 6 for 2s. 6d.	4	6
,, Double-flowered, Ivy-leaved, magnificent for pot culture, a set of 5 superb new sorts, very fine, 10s. 6d.		
,, Double-flowered, Ivy-leaved, most beautiful sorts to name, 6 for 2s. 6d.	4	6
PENTSTEMONS, most beautiful varieties, fine young plants, ready for planting out in the garden, 6 for 2s.	3	6
PHLOXES, Herbaceous, we have a fine collection of these beautiful hardy plants, which we offer in strong stuff ready for immediate planting, 6 for 2s.	3	6

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TOWN CLOSE NURSERIES,

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8 ACRES HERBACEOUS and HARDY PLANTS, true to name, not seedlings (which are generally inferior to the type). Send for a Catalogue of all you want for a garden, free for 3 stamps. It includes over 1000 varieties, selected during 15 years' careful study of this class of plant, and an annual buying in of all that seems good, and a weeding out of the poor kinds, with height, time of blooming, and other useful particulars.

12 Hardy HERBACEOUS PLANTS...	...	£0	4 0
50 ,, ,,	... ...	0	14 0
100 ,, ,,	... ...	1	5 0
500 ,, ,,	... ...	5	5 0

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Cheap Bedding Plants.—Special Offer.

WILLIAM BADMAN offers as under, from store pots, all well rooted, and fit for present potting. The present is a good time for making up losses sustained during the winter:—VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6s. per 100; 12 choice named varieties, 8s. per 100. LOBELIA, Bluestone, pumila magnifica, Brighton Blue, 3s. per 100. CALCEOLARIA, Golden Gem, 6s. per 100. HELIOTROPE, Jaun d'Amour, Miss Nightingale, 6s. per 100. AGERATUM, Imperial Dwarf, blue, 5s. per 100. COLEUS VERSCHAFFELTI, bedding crimson, 8s. per 100. IRESINE LINDENII, dark crimson, good bedder, 8s. per 100. PELARGONIUM, Vesuvius, finest bedding scarlet, 8s. per 100; Master Christine, Mrs. Levers, Jenny Dodds, best pinks, 12s. per 100; Henri Jacoby, best crimson, 12s. per 100; Madame Vaucher, Niphetos, white, 12s. per 100; Queen of the Belgians, finest white, 3s. per doz., 20s. per 100; Waltham Seedling, Lucius, Jean Sisley, White Vesuvius, John Gibbons, 12s. per 100. SILVER VARIEGATED, May Queen (Turner's), Princess Alexandra, Flower of Spring, Little Trot, Prince Silverwings, Lady Plymouth, 12s. per 100. GOLD-LEAF, Crystal Palace Gem, Happy Thought, 12s. per 100. BRONZE, McMahon, Black Douglas, The Czar, best bedders, 15s. per 100. TRICOLOR, Mrs. Pollock, 15s. per 100; Sophia Dumaresque, Lady Cullum, Sir R. Napier, 18s. per 100. DOUBLES, F. V. Raspail, finest scarlet; Madame Thibaut, pink; Madame Baltet, Le Cygne, white, 12s. per 100. TROPÆOLUM, Vesuvius, Coccinea elegans, 10s. per 100. FUCHSIAS, in 12 good named varieties, 8s. per 100. PELARGONIUMS, Show and Decorative, from single pots, 3s. per dozen, 20s. per 100.

NOTE.—Not fewer than twenty-five of any one sort supplied at above rate. Packing included. Terms cash.
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NEW CATALOGUE for 1889.—Near 130 large pages, with prices, descriptions, useful cultural and other hints, of near 7000 of the best species and varieties of plants for the Stove, the Greenhouse, or the Flower Garden, also list of all necessary Sundries; in short, everything wanted for a garden, free for 3 stamps.

SEED CATALOGUE of the finest new and the most reliable old varieties of Vegetables or Flowers, free for 1 stamp.

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H. B. MAY offers the following BOUVARDIAS, viz.:—President Cleveland, Alfred Neuner candidissima, Dazzler, Humboldtii corymbiflora, jasminoides, President Garfield, Priory Beauty, Sang Lorraine, Victor Lemoine, Vreelandii, and Vulcan, in 60-size pots, good plants, which have been stopped several times, and are ready for potting on. Price per dozen, 100, or 1000 on application.
H. B. MAY, Dyson's Lane Nursery, Upper Edmonton.

FERNS—FERNS—SUCCULENT PLANTS.—Twelve lovely Greenhouse FERNS, good growers, fine habit for rooms or Greenhouses, 6s. or 9s.; small Ferns for planting in Rockeries, &c., indoors, for fancy pots for table, 4s. per dozen; 12 distinct Stove Ferns, the best sorts for general collection, 9s. and 12s.

SUCCULENT PLANTS.—Handsome, singular, fine for pot plants in carpet beds or for contrast with other Greenhouse Plants, 12 varieties, all named, 6s., 9s., 12s., 18s. CATALOGUE of sorts of these and all other plants free for 3 stamps.

WM. CLIBRAN and SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

100 Herbaceous and Alpine Plants for 25s.

RICHARD SMITH and CO.'S SELECTION, as above, contains a most interesting and valuable assortment of beautiful and Hardy Plants for the Border or Rockwork, which produce flowers and render the garden attractive all through the year. Descriptive CATALOGUE post-free for 6 stamps.

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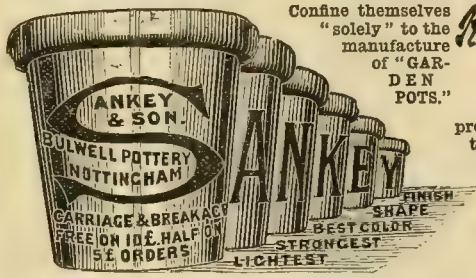
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THE

Gardeners' Chronicle.

SATURDAY, MAY 25, 1889.

A CORNISH MARKET GARDEN.

"THE quantity of every commodity," observes Adam Smith, "which human industry can either purchase or produce, naturally regulates itself in every country according to the effectual demand." And it is to this very simple and obvious law that the wonderful developments in Cornish market gardening may be traced. The inception of the latter industry is quite within the recollection of many people who are still living; but the industry as it at present stands is only the growth of about ten years enquiry and experiment.

When one source of income is exhausted, the wise political economist seeks a fresh field. The comparative and almost constant failure of the Potato and Broccoli crops to realise the amounts which they had returned for so long a period, caused the market gardeners of West Cornwall to seriously consider their positions. The late Mr. Thomas, of Ridgeovean, near Penzance, was, I believe, the first to prove the capabilities of Cornish horticulture by erecting a few glass houses for the purpose of growing cucumbers. The experiment was a distinct success, and the profits in every sense encouraging. A few more houses were erected, and very soon nearly every market gardener in the neighbourhood had his series of cucumber houses. So far from the supply exceeding the demand, it seemed rather to widen the taste for this popular vegetable. The Ridgeovean gardens are now in the occupation of Mr. William Thomas, a brother to the well-known salesman of Covent Garden.

A visit to Ridgeovean, which is about one mile north-east of the sleepy town of Penzance, is at all times interesting and instructive. Mr. Thomas has no special method of culture, and repeated trials have proved to him that the older sorts of particular vegetables are far and away the most reliable and the most useful for market gardening purposes.

Roughly speaking, the glass at Ridgeovean covers about one acre of ground. There are thirty-one cucumber houses, each 12 feet wide by 100 feet long. The two vineries are 160 and

260 feet long respectively, and the peach house 100 feet long.

Cucumbers, of course, form the principal crop, and Mr. Thomas has achieved a remarkable success with them. As I have already stated, he has no special method of culture, but, on the other hand, he invariably depends upon seed of his own saving, and grows none but the variety Telegraph. Some three years ago, a disease (probably an attack of the root worm), destroyed a season's crop. Except a change of soil, no attempt was made to prevent its re-appearance, but there has not been the slightest trace of it since. As may be imagined, Cucumbers are in vogue at Ridgeovean all the year round.

The Tomatos are grown in the same soil as the Cucumbers; the Large Red is the only variety forced; the seed is sown in September, and the seedlings are planted out in October and November; the crop is forced on, and got off as early as possible. Under this method the disease has scarcely time to develop itself, and certainly not to any serious extent. So soon as one crop is off, attention is given to the fresh leaders, and a little manure afforded to the plants. Mr. Thomas finds the Large Red to be the most prolific variety, and as he has tried most of the new varieties without the same satisfactory result, this fact should be borne in mind by those contemplating growing this fruit for market.

Mr. Thomas commences to start forcing his Vines on January 1, and early in May the crop is ready for cutting. Here, again, an old standard variety has the preference, Black Hamburgh having no rival for forcing purposes. The soil is a mixture of stable-dung and ordinary earth. The roots are grown inside the house. In the Peach-house the plants are placed across the house in two rows, with a pathway in the centre of the building, which is 25 feet wide. The trees are 4 feet apart, and this system of culture has answered wonderfully well with Mr. Thomas for some years past. Where economy of space is a matter of importance this method can be recommended. The Royal George is the only variety grown at Ridgeovean.

The demand for Wallflowers has made remarkable strides during the past few years, and of this Mr. Thomas has nearly 4 acres under cultivation. As soon as the Potato crop is up, the young Wallflower plants are inserted, much in the same way as Broccoli and Mangels a few years ago.

Potatos cost about £35 per acre, what with planting, seed, manuring, and so forth. If the grower receives £50 or £60 from 1 acre, he has to be content, whereas about ten years ago, £100 per acre was considered by no means extraordinary. The extortionate railway rates have done much to cripple the industry of market gardening in Cornwall.

The possibilities of this new industry in the favoured climate of Cornwall are by no means exhausted; in fact, it is even now only in its infancy, and time only will show to what extent it may be carried. Even now extensive areas of glass are to be seen on every side around Penzance. To judge by the number which are constantly being erected, one is almost tempted to prophesy that in the natural course of things West Cornwall will be one vast area of glass. *William Roberts.*

Æsculus sinensis.—Mr. Van Volxem kindly sends us flowers of this Chinese species which is little known in this country. It is very like its European relative, scarcely so handsome, but has the advantage of flowering later. We hope to give an illustration shortly.

New or Noteworthy Plants.

MUSCARI MAWEANUM, *Hort., Leichtlin, n. sp.**

This is a very pretty and distinct Muscari, which is now in flower in the herbaceous ground at Kew (May 7). Max Leichtlin informs me that it inhabits Armenia, in the neighbourhood of Trebizond, that it was introduced by Mr. George Maw in 1878 or 1879, that he received it from the Rev. H. Harpur Crewe, and finding it was obviously distinct, named it after its discoverer. Its main distinctions are, its oblong, bright, light blue flowers, and perianth, very little constricted at the throat. On the whole, I think it comes nearest to Hyacinthus azureus, *Bot. Mag.*, t. 6822 (Muscari azureum, *Fenzl.*), although the boundary line between the two genera has to be drawn between them. It is, for horticultural purposes, one of the most desirable species of the genus. Our plants, on which the present note is founded, came from Messrs. Haage & Schmidt, and flower in the first fortnight of May.

Bulb ovoid, middle-sized in the genus. Leaves, about three, spreading, linear, 6—8 inches long at the flowering time, ⅓ inch broad when flattened out, sub-glaucous, deeply channelled down the face. Peduncle about half as long as the leaves. Raceme dense, oblong, about 2 inches long, ¾ inch diameter; bracts minute; lower pedicels cernuous, half as long as the flowers. Perianth bright light blue, oblong ¼ inch long, ⅛ inch diameter, slightly constricted at the throat; segments suborbicular, white, falcate. Stamens obscurely biserial, inserted below the middle of the perianth-tube; filaments about as long as the anthers; ovary globose; style shorter than the ovary, placing the capitate stigma on the same level as the anthers. *J. G. Baker.*

LIST OF GARDEN ORCHIDS.

(Continued from p. 620).

(22.) C. intermedia, Graham, ex Hook., *Bot. Mag.*, t. 2851; Paxt., *Mag. Bot.*, i., p. 151, with plate; Maund., *Botanist*, iv., t. 195; Rchb., *Fl. Exot.*, t. 64; Veitch, *Man. Orch. Pl.*, pt. 2, p. 39, with fig.; *Gard. Chron.*, ser. 3, ii., p. 13, fig. 3; *Epidendrum intermedium*, Rchb. f., in Walp. *Ann. Bot.*, vi., p. 318; *C. ovata*, Lindl., *Bot. Reg.*, sub t. 1919; *C. maritima*, Lindl., *Bot. Reg.*, sub t. 1919; *C. amethystina*, Morr., in *Ann. de Gand.*, iv., t. 201; Lem., *Jard. Fleur.*, iv., t. 379; *C. Giberziæ*, L. Linden and E. Rod., in *Lindenia*, t. 133; *C. intermedia Giberziæ*, L. Linden and E. Rod., *l.c.* in note; *C. amabilis*, Hort., ex Veitch, *Man. Orch. Pl.*, pt. 2, p. 39.—Brazil. Sent by Mr. Harrison, of Rio de Janeiro, to the Glasgow Botanic Garden, in 1824, through Captain Graham, and flowered two years later. C. ovata and C. maritima have hitherto been generally referred to C. Loddigesii, but an examination of Lindley's types show them to belong to the present species.

Var. angustifolia, Hook. = Lælia Perrinii.

Var. pallida, Lind., *Bot. Reg.*, t. 1919.—The form with pure white sepals and petals.

Var. Partheniana, Rchb. f., in *Gard. Chron.*, ser. 3, iv., p. 178.—A snow-white flowered variety.

Var. prolifera, Mast., in *Gard. Chron.*, ser. 3, ii., p. 13, fig. 3.—A variety found on a curious proliferous state of the flower, which shows some indications of becoming permanent.

Var. variegata, Hook. = C. Loddigesii.

(23.) C. intricata, Rchb. f., in *Gard. Chron.*, n.s., xxii., p. 7.—Not known to me. Said to have strains of C. intermedia and Lælia elegans, but the pollen to be Cattleyoid. May it not be a form of C. intermedia?

(24.) C. iricolor, Rchb. f., in *Gard. Chron.*, n.s., ii., p. 162.—A single plant was acquired by Messrs. James Veitch & Sons at a sale at Stevens' Rooms, the plant being sold without specific name, and without any indication of its origin. It is said to be very distinct, and remarkable for the length of its leaves in proportion to the height of its stems.

(25.) C. Isabella, Rchb. f., in Koch and Fintelm., *Wochenschrift*, 1859, p. 336; *Epidendrum Isabella*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 318.—Brazil. Introduced by Messrs. Booth of Hamburgh. Not known to me, but said to have characters of C. Forbesii and C. intermedia. It may be a hybrid between the two, and therefore of the same origin as C. Krameriana×.

C. Karwinskii, Mart. = C. citrina.

C. Kimballiana, L. Lind. and E. Rod. = C. labiata var. Trianæ.

(26.) C. Krameriana×, Rchb. f., in *Gard. Chron.*, ser. 3, iv., p. 323.—Brazil. Flowered in the collection of Mr. Franz Kramer of Kleinflottbek, and supposed to be a natural hybrid between C. intermedia and C. Forbesii. Thus it may have the same origin as C. Isabella. I have not seen it.

(27.) C. labiata, Lindl., *Collect. Bot.*, t. 33; Id., *Bot. Reg.*, t. 1859; Hook., *Exot. Fl.*, t. 157; *Bot. Mag.*, t. 3998; Hook., *Cent. Orch. Pl.*, t. 28; Paxt., *Mag. Bot.*, iv., p. 121, with plate; Id., *Fl. Gard.* i., t. 24; Lodd., *Bot. Cab.*, t. 1956; *Gartenflora*, t. 146 (var. superba, Regel); *Belg. Hort.*, 1860, t. 13; Jenn., *Orch.*, t. 45; Warn. and Will., *Orch. Alb.*, t. 88; Veitch, *Man. Orch. Pl.*, pt. 2, p. 14, with fig.; *Lindenia*, t. 112 (var. autumnalis, Linden); *Epidendrum labiatum*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 313; *Flore des Serres*, t. 1895; *Cattleya Lemoniana*, Lindl., *Bot. Reg.*, xxxii. t. 35; *C. labiata* var. *Lemoniana*, Booth, ex Lindl., *l.c.*, in note; *C. pallida*, Williams, *Orch. Gr. Man.* ed. 5, p. 122; *C. liabiata* var. *pallida*, T. Moore, in Warn. and Will., *Orch. Alb.* t. 121.—Brazil. Introduced in 1818, by Mr. William Swainson, from the Organ Mountains, where it is now believed to be extinct.

Var. atropurpurea, Paxt. = Var. Mossiæ.

Var. Ballantiniana×; *C. Ballantiniana*×, Rchb. f., in *Gard. Chron.*, ser. 3, v., p. 264. Raised in the establishment of Messrs. F. Sander & Co., between var. Trianæ ♀, and var. Warscewiczii ("C. Warscewiczii gigas") ♂.

Var. bella, Rchb. f. = Var. Mendelii.

Var. candida, Lindl. = Var. Mossiæ.

Var. Dowiana, Veitch = C. Dowiana.

Var. Eldorado, Veitch, *Man. Orch. Pl.*, pt. 2, p. 17; *C. Eldorado*, Linden, ex Van. Houtte, *Flore des Serres*, t. 1826; Puydt, *Les Orch.*, t. 8.—Brazil. First imported from the region of the Rio Negro, in Brazil, by M. Linden, about 1866. The following names represent colour variations of the same:—*C. crocata rosea*, Rchb. f., in *Gard. Chron.*, n.s., xxii., p. 745. *C. Eldorado ornata*, Rchb. f., in *Gard. Chron.*, n.s., xx., p. 526. *C. Eldorado splendens*, Linden, in *Ill. Hort.*, n.s., 1870, t. 7; Warn. and Will., *Orch. Alb.*, t. 310. *C. labiata crocata*, Rchb. f., in *Gard. Chron.*, n.s., xxii., p. 520. *C. virginalis*, Linden and André, in *Ill. Hort.*, 1876, p. 161; Id., n.s., t. 257; *Lindenia*, t. 101; *C. Wallisii*, Linden, *Gard. Chron.*, n.s., xvii., p. 557. *C. Wallisii rosea*, Linden, *Gard. Chron.*, 1868, p. 898.

Var. Gaskelliana, Sander, *Gard. Chron.*, n.s., xix., p. 310; *C. Gaskelliana*, Rchb. f., ex Williams, *Orch. Gr. Man.*, ed. 5, p. 182; *Ill. Hort.*, n.s., t. 613.—Venezuela. Introduced by Messrs. F. Sander & Co., about 1883. Varies in colour from pale amethyst to white, to which latter colour belong the following:—*C. Gaskelliana alba*, Warn. and Will., *Orch. Alb.*, t. 353. *C. Gaskelliana albens*, Rchb. f., in *Gartenflora*, 1888, t. 1214.

Var. Luddemanniana, Rchb. f., in *Gard. Chron.*, xix., p. 243; *C. Luddemanniana*, Rchb. f., *Xen. Orch.*, i., p. 29; *C. Dawsonii*, Warn., *Sel. Orch.*, ser. 1, t. 16; *C. speciosissima*, Hort., *Gard. Chron.*, 1868, p. 404, in note; *C. Bassettii*, Hort., and *C. Mossiæ autumnalis*, Hort., ex Veitch, *Man. Orch. Pl.*, pt. 2, p. 19.—Venezuela. This variety flowered in the collection of M. Pescatore, at Paris, before 1854. It is now known to be of Venezuelan origin. The following names represent colour variations or polymorphisms of the same:—

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* *Muscari Maweanum*, Hort., Leichtlin, n. sp.—Bulbo ovoideo; foliis subtribus patulis ligulatis profunde canaliculatis; scapo brevi; racemo oblongo; floribus pulchre pallide cæruleis pedicellis infimis cernuis flore brevioribus; perianthii oblongo apice leviter constricto dentibus semi-orbicularibus albis leviter falcatis. *J. G. Baker.*

C. labiata brilliantissima, Gardening World, i., p. 550, 570, with fig.; *C. labiata Luddemanniana Schroderiana*, Rchb. f., in *Gard. Chron.*, n.s., xxv., p. 554; *C. speciosissima Schroderiana, Gard. Chron., l.c.*, in note; *C. Luddemanniana alba, Orchidophile*, 1886, p. 365; *C. Luddemanniana speciosissima Lowii*, Rchb. f., in *Gard. Chron.*, n.s., xxv., p. 554; *C. speciosissima Lowii*, Anderson, in *Gard. Chron.*, 1868, p. 404; *C. Mdouana*, Linden, in *Lindenia*, i., t. 47; *C. speciosissima Malouana*, Linden, *l.c.*, in note; *C. speciosissima Buchananiana*, Williams and T. Moore, in *Orch. Alb.*, t. 261; *C. speciosissima regina*, Rchb. f., in *Gard. Chron.*, n.s., xxi., p. 372.

Var. Mendelii, Rchb. f., in Sander's *Reichenbachia*, i., t. 15; *Lindenia*, t. 55; *C. Mendelii*, Hort., *Fl. Mag.*, n.s., t. 32; *The Garden*, xx., t. 304. — New Grenada. Introduced by Messrs. H. Low & Co., of Clapton, in 1870. The following names represent colour variations or polymorphisms of the same: — *C. Bluntii*, Hort., *Gard. Chron.*, ser. 3, i., p. 770. *C. Mendelii bella*, Williams and T. Moore, in *Orch. Alb.*, t. 225; *Cattleya labiata bella* Rchb. f., in *Gard. Chron.*, n.s., xvii., p. 700. *C. Mendelii fimbriata, Gard. Chron.*, ser. 3., ii., p. 14. *C. Mendelii grandiflora*, T. Moore, in Warn. and Will., *Orch. Alb.*, t. 3. *C. Mendelii Jamesiana*, Williams, in *Orch. Alb.*, t. 178. *C. Mendelii Lendyana, Gard. Chron.*, n.s., xxv., p. 568. *C. Mendelii Measuresiana, Gard. Chron.*, ser. 3, ii., p. 14. *C. Mendelii pulcherrima, Gard. Chron.*, n.s., xvi., p. 172. *C. Morganæ*, T. Moore, in Warn. and Will., *Orch. Alb.*, t. 6. *R. A. Rolfe, Kew.*

(To be continued.)

A HISTORY OF ENGLISH GARDENING.

(Continued from p. 329.)

A few interesting regulations relating to the monastery gardens of mediæval England are to be found in the various old Chartularies which have been preserved to our time. From one of these we gather that among the rules ordained by Abbot Michael for the regulation of Sopswell Nunnery was one "that in winter the garden-door be not opened for walking before the hour of prime or the first hour of devotions, and in summer that the garden-door be not opened until the hour of nine in the morning and to be always closed when the curfew tolls."* From another Chartulary we learn that a very curious rule was in force in some of the monasteries forbidding anyone to pluck up potherbs upon a Sunday with the hand: if it was necessary to gather them upon the Sabbath they were to be dug up with a wooden instrument, but in no case were they to be touched by the hand.† The monastery gardens appear to have been always under the management of the cellarer, ‡ whose duty it was to cultivate a sufficient quantity of vegetables to supply all the inmates of his monastery. He sometimes employed one or two labourers from the adjoining villages to dig, sow seeds, and plant vegetables, but this work was usually done by the brethren of the monastery. The abbot or prior generally had a private garden situated close to his residence, in which no one but himself was "permitted to walk."§ Often the monks were allowed to possess little plots of ground in the "common garden," in which they might cultivate plants for their own especial benefit,‖ and it seems that sometimes they were even permitted to have "private" gardens,¶—gardens walled off from one another. A new feature—the "mound"—appears to have been introduced into the *pomerium* or orchard about the commencement of the fourteenth century. It was simply a mound of earth raised up near the outer wall of the monastery for the purpose, an old author tells us, "that one might stand on the top" and survey the country around—"look all abouten."** In later times this feature was developed into the "mount," which formed one of the principal features of our early sixteenth century gardens.

The reign of Edward III. (1327—1377), witnessed a momentous advance in the commercial prosperity of England, and this advance reflected itself in the outward changes introduced during the same period into the architecture and gardening of the country. Its wealth had grown greater as its houses had grown higher, and its gardens larger. According to the historian Hollinshed, the taste for gardens had so extended itself in this reign, that "curious and delicate plants brought out of Holland and other distant places, were cultivated assiduously." So general, indeed, had become a taste for gardening, that men of literature even directed their attention to the subject, collected information, and in their writings gave the results of their enquiries for the benefit of others. This is a decisive proof of the interest taken in the art, for no one would have written a book for which he did not expect there would be readers, and it is certain that those who read would not have read for pleasure only, but for instruction.

Within a few years after the accession of Edward III., gardens formed the appendage of probably every manor-house* in the kingdom, and they also brought in considerable profits to their owners. The gardens of the manor-houses belonging to the Knights Hospitaller in 1338, for instance, brought in profits varying from 2*s.* to 60*s.* per annum.† There were over eighty gardens belonging to this body at this time, and it is curious to note that they are nearly always mentioned as containing a columbarium or pigeon-house, which likewise yielded profits to the owners. In several cases the gardinarius or gardener is mentioned, and many of the manor-houses are also recorded as possessing an orchard, in addition to the garden.‡ A regular part of the produce of the orchard at this time was cider, and the low prices quoted by Professor Thorold Rogers in his *History of Agricultural Prices* seemed to suggest that it was made in considerable quantities.

About the same time as the Knights' Hospitaller report was made (1338), the various colleges in our University towns began to lay out their gardens. The records of the several colleges of Cambridge, for instance, show that a garden was laid out and planted as soon as possible after the foundation of the house; "but," says Mr. Willis, "rather for the purpose of securing a supply of fruit and vegetables than as a place for recreation." Among the entries he quotes from the accounts are some which refer to the wages of a gardener (*serviens in gardino*) for nailing up and pruning the Vines, for making beds (*herbaria*), and for planting Parsley, Cress, Leek, Saffron, and other vegetables. It appears, however, that it was not in the country or even in the University towns that the art of gardening made such rapid progress as in the city of London itself. By the year 1345 the city was famous for its gardens, and many men were employed by the noblemen and wealthy citizens to attend to them. A very interesting document, which throws considerable light upon this subject, is preserved among the city archives.§ It appears that for many years previous to 1345 the gardeners of the earls, barons, and bishops, and of the citizens," were accustomed to sell their "pulse (*siliquæ*), Cherries, vegetables and other wares to their trade pertaining" on a piece of ground "opposite to the church of S. Austin, near the gate of S. Paul's Churchyard." By 1345, however, this fruit and vegetable market had grown to such an extent and had become so crowded as to hinder "persons passing them both on foot and on horseback," and the "scurrility, clamour, and nuisance of the gardeners and their servants" had become so obnoxious "to the people dwelling in the houses of reputable persons there," and "such a nuisance to the priests who are singing matins and mass in the church of S. Austin, and to others, both clerks and laymen, in prayers and orisons there serving God," that the mayor and aldermen were petitioned to interfere and to remove the market to some more suitable place. The result of this petition was a meeting of the mayor and aldermen, and an order "given to the said gardeners and their servants, that they should no longer expose their wares aforesaid for sale in that place, on peril which awaits the same." But the gardeners were not to be so easily defeated. They, in their turn, petitioned the mayor to reverse his verdict, and allow them to continue to sell their "wares" in the market-place before the church of S. Austin. Their petition is still preserved among the city archives, and, as it is of considerable interest, and probably the oldest document of its kind in existence, we print it here entire.

"Unto the Mayor of London, shew and pray the gardeners of the earls, barons, and bishops, and of the citizens of the same city. May it please you, sire, seeing that you are the chief guardian of the said city and of the ancient usages therein established, to suffer and to maintain that the said gardeners may stand in peace in the same place where they have been wont in times of old; in front of the church of S. Austin, at the side of the gate of S. Paul's Churchyard in London, there to sell the garden produce of their said masters, and make their profits as heretofore they have been wont to do, seeing that they have heretofore been in the said place unmolested, and that, as they assert, they cannot serve the commonality, nor yet their masters, as they were wont to do: as to which they pray for redress."

The Mayor, however, would not give way; but we gather from a further entry in the *City Letter-book* of 1345 that he afterwards held a "Conference between his Aldermen," to consider as to a "new place in which the gardeners might sell their fruits and vegetables," at which it was agreed that "all the gardeners of the city, as well aliens as freemen, who sell their pulse, Cherries, vegetables, and other their wares aforesaid in the city, should have as their place the space between the south gate of the churchyard of S. Austin's and the garden wall of the Friar's Preachers at Baynard's Castle in the same city, that so they should sell their wares aforesaid in the place by the said Mayor and Aldermen, thus appointed for them, and nowhere else." * *P. E. N.*

(To be continued.)

PUBLIC PARKS ABOUT MANCHESTER.

Lately I visited, near Manchester, Alexandra Park, which lies on the southern side of the city and is almost free from the vitiated atmosphere that surrounds the other parks of the Corporation, thereby giving the vegetation of all kinds a better chance o doing well, and in proof of this I found a fine display of Tulips not easily beaten even in the sunnier South. From the terrace a path runs to the principal drive, and on each side of this are fourteen circular beds, each bed being filled with one variety of Tulip, about 300 in number. By the exercise of much judgment in the selection, Mr. Manderson has attained great beauty in the beds, each being a perfect picture, and with the harmony of the various colours, the effect was charming. These varieties of Tulips are used for effect only, and Mr. Manderson has a good knowledge of those best adapted for northern parts of the country. The twenty-eight beds were filled with the following varieties:—Proserpine, Dussart, Potter, Rosa Mundi, Queen of Violets, Chrysolora, Crimson King, with these seven varieties, four beds of each. Peel Park is almost in the centre of Salford, and the atmospheric conditions are not so favourable; still

* *Hist.: S. Albans*, p. 468. † Dugdale, *Monast.*: i., 91. ‡ *Ibid.* ii., 936. § *Chronica Monasterii de Melsa*, iii., 242. ‖ MS., Hart, 2363, f. 1—16. ¶ Dugdale, *Monast.*, i., 279. ** Langland, *Piers Ploughman.*

* From a survey of the manor of Mandham, in Suffolk, dated 32 Edw. III., it appears that the manor-house was furnished with three gardens and two courtyards.

† See the *Report of Phillip to the Grand Knight of the Hospitallers*, p. 24, &c.

‡ As at Bornese Derby, "*Gardinum et Pomerium*," *Ibid.* p. 109. § *Letter Book*, F. f. cxl., 19 Edw. III.

* *Letter Book*, F. f. cxii.

with care and a selection of the most suitable sorts, Mr. Moore does not fail in making a great display, although much exposed to winds. Under the trying circumstances the beds are very complete, and some of the larger ones by the main street are particularly so, one large bed more especially planted in sections with Vermilion Brilliant, Dussart, Potter, and Golden Prince. The smaller beds on the west side of the museum have not the same telling effect, but still they are fine in themselves. The same varieties are planted here as at Alexandra Park, with a few additions that do well, as Joost Van Vondel, Prince of Austria, Vermilion Brilliant, and Yellow Prince. *Visitor.*

OUTDOOR CAMELLIAS.

The charming garden at Glen Eyre, Southampton, stands almost unique in the wealth of Camellias there growing as ordinary shrubs in the open air. The late Mrs. Eyre Crabbe had the profoundest faith in the hardiness of the Camellia as an evergreen shrub, provided it was planted in suitable soil, and with such surroundings as afforded some protection from fierce winds. With that faith she had Camellias planted about the grounds in all directions literally by scores, probably by hundreds, for the shrub crops up everywhere, and almost invariably in the rudest health, presenting marked contrasts in the rich dark leafage and density of growth to the half-starved sickly-looking plants so often found in houses.

Glen Eyre is a very beautiful place, not only because so admirably placed, but because also of its effective planting. The house looks east, and stands right at the head of a deep narrow valley, or gorge, which runs east also. A series of steep terraces, profusely planted and richly decorated with flowers —Tulips, Hyacinths, Polyanthuses, Daisies, and myriads of other things included, filling the beds, vases, and baskets, and giving to the garden a resemblance to some scene in Italy rather than in England. Away on the steep slopes on either side of the valley there are numbers of very noble Conifers, those on the very abrupt slope on the north side especially, exhibiting grand specimens some 50 to 60 feet in height—truly marvels of production considering that the slope is so steep it is difficult to stand erect upon it. Beyond and about these coniferæ are huge masses of Rhododendrons, Azaleas, Kalmias, &c., all exhibiting wonderful growth. Especially on the north side of the valley with its southern aspect there is a perfect forest of Rhododendrons, the huge heads standing up like miniature mountains, and ablaze with tufts of rich scarlet flowers in vast quantities. Certainly here in the natural soil the Rhododendron has found a congenial habitation.

Perhaps this fact explains to some extent that further one of the luxuriant growth of Camellias. The soil is of a natural dark sandy nature, and originally was very poor, producing nothing but coarse Heather, with some Scotch Fir. The skill and perseverance of the gardener has, however, transformed the unkind-looking wilderness into an earthly paradise; for the gardens were originated but comparatively few years back, and like all trees and shrubs in the now famous locality of the Red Lodge nursery — where Mr. W. H. Rogers, with his gigantic family of beautiful trees and shrubs is located—growth is luxuriant.

The house of the Glen Eyre gardener, Mr. Stewart, who has been the nurse of the gardens from their birth, stands upon the north slope of the valley, and quitting that in a westerly direction towards the mansion and terraces, the first evidences of Camellias are seen in a large number of fine plants growing at intervals along a border otherwise filled with flowers. Here is McKay's Lowii, a noble specimen 10 feet through; further on a Duchess of Northumberland, 4 feet through; Chandleri, a fine bush, 6 feet; the old Double White, 8 feet; and Viscount Cliefden, 10 feet through. There are others of diverse sizes, but these suffice for examples.

At the end of this border a path leads to the wall of the stable-yard, the whole of which on the garden side is covered with Camellias and other plants. Notably along the top is a *rara-avis*, the pure white Wistaria running everywhere and intermingling with its blue congener. On the east aspect of this yard wall is a huge plant of a dark double red Camellia, a mass of foliage from top to bottom, 10 feet high and 15 feet broad; adjoining it is one of the Pæony-flowered forms (for the names of many have in the efflux of time disappeared), 10 feet high and the same broad. Then on the more southerly wall, but largely shaded from the sun by tall trees and shrubs in front, is a huge plant 12 feet high, 8 feet through from the wall, and 15 feet broad, of the beautiful fimbriated white; there is also the old double striped, and several others, all showing wonderful luxuriance, and the rudest of health and vigour. Yet another border like the first has some 15 fine bushes of various kinds, all thriving wonderfully well.

It may be worthy of mention that bloom is not so generally abundant this year as is usually the case; some plants are set with buds and flowers most profusely, but on the whole the wood—like that of many other flowering shrubs, the Rhododendrons especially—was not sufficiently matured last summer to enable it to produce flowers. This is, however, the exception, as a perfect wealth of bloom is the rule.

On the grassy slopes running down to the valley, either as single specimens or forming margins to clumps of other shrubs, Camellias are plentiful; indeed, they crop out here and there from the margins of shrubberies in all directions. Even away over on the south side of the valley, with its colder north aspect, there are a couple of big clumps of these plants, more like masses of Laurels, so luxuriantly do they grow. The finest specimen, the lion of the collection, is a grand plant of the old double striped, which stands on the upper terrace, or house level, in a very exposed windy spot, but looking south. This splendid fellow is some 10 feet in height, and forms almost a perfect square of 13 feet each way, and blooms profusely every year. Just below are other single specimens planted at intervals on the terrace, all of which will in time rival the giant close by, because he has his area of growth prescribed by buildings.

Perhaps some sceptics, reading this account of the outdoor Camellias, will still think that some protection is afforded the plants in the winter. Nothing of the kind is done, or under any circumstances would be attempted, were it possible. Camellias are planted out at Glen Eyre in the assurance that they are perfectly hardy, needing only certain conditions as to soil and shelter from rough winds to ensure success. It may be assumed further that the climate of Southampton is essentially warm; but, oddly enough, I found all kinds of deciduous trees, whether fruit or otherwise, hedgerows, &c., even less forward than in Middlesex, where we have a comparatively cold, wet clay, and yet the trees seem to be earlier than I found them to be all the way south.

Away in one corner of the grounds is a little enclosed nursery, and there were planted out, in the form of neat bushes, a quantity of Camellias. Mr. Stewart stated that they used these plants for both pot work and for outdoor planting. The idea is one well worthy the attention of those who may have similar soil; for by planting out young Camellias, allowing them to make good growth and get well set with flower-buds, then lifting them into pots to bloom, and returning them to the open ground later, a very liberal supply of plants is kept up with ease. [An old practice once common enough. Ed.]

It is an undoubted mistake to experimentalise in outdoor Camellia culture with old, stunted, pot-bound plants. These, as a rule, are only fit for the fire. Strong young plants, produced under cool treatment, and before the roots have become hard set in the pots, are much the best; indeed, there can be little doubt but that with stocks rooted in the open air, grafting or budding may be done there also; and thus plants raised from the first in the open ground take as kindly to open air culture as Laurels do. Sceptics cannot do better than visit Glen Eyre.

A word of approbation is due to the fine approach to the mansion, formed some 12 years since. The carriage-drive is about one-third of a mile in length, and gracefully winds through the park-like grounds without being tortuous. The road is 18 feet wide—a bold gravel sweep, affording ample room. Then on either side is a margin of grass 25 feet in width, planted with fine groups or clumps of Rhododendrons 40 feet apart, with fine specimen Hollies, Conifers, and deciduous flowering trees between. I give these proportions because the arrangement is at once so bold and effective as to merit more than a passing notice. Some gardeners would have disfigured this approach with a wretched avenue of Conifers or of Chestnuts. Far better has been done, and ample room has been given for development for the next fifty years.

I only regret that my pen is not a camera, and my paper sensitive to sun-pictures, that far more vividly I could transfer the beauties of Glen Eyre to the pages of the *Gardeners' Chronicle*, and thus display proofs which there would be no gainsaying. *A. D., April*, 1889.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM EXCELLENS×, *Rchb. f.*

There can be, I think, scarcely the slightest doubt that the above-named plant is a natural hybrid, and one in whose parentage O. Pescatorei has been directly concerned, to which it bears many points of resemblance, notwithstanding its different colour. O. tripudians was suggested as the other parent, but on comparing living specimens I am more inclined to accept the alternative suggestion made by the Messrs. Veitch, of O. triumphans, for the characters seem to me more in agreement. Its bright canary-yellow flowers, with paler centre, and few blotches, might well have come from such a combination, while in form it is fairly intermediate. The two supposed parents are known to grow together, and the existence of the hybrid was not suspected until it flowered. It appeared first in the collection of Sir Trevor Lawrence, Bart., M.P., at Burford Lodge, and afterwards in one or two other collections. Now it comes for determination from the collection of H. Tate, Esq., jun., of Allerton Beeches, near Liverpool, through the Liverpool Horticultural Co., and also from Gustav S. le Doux, Esq., of Langton House, East Moulsey, both received at Kew within less than a week. Its colours are exceedingly bright and lively, and I think it one of the most charming of Odontoglossums, quite worthy of the distinguished name it bears. It is much to be wished that the parentage of some of these supposed hybrid Odontoglossums could be proved by artificial hybridisation. *R. A. Rolfe.*

Count de Germiny's Orchids.

Count Adrien de Germiny, at Château Gonville, has now in bloom a new hybrid Odontoglossum which in appearance looks as if the parents had been O. crispum and O. Pescatorei, and yet it seems scarcely possible that these two species, from our knowledge of the habitat of each, should become crossed naturally; that it is not an artificial hybrid there is an abundance of evidence, it having originated in a batch of O. crispum purchased from F. Sander & Co., St. Albans. The plant bears a long spray of whitish, heavily blotched blooms, the sepals and petals are rather narrow, the labellum partaking more of the shape of O. Pescatorei than of crispum. It is certainly very remarkable, and points to the probability of a new home for O. Pescatorei. The Château de Gonville, its gardens, collections of plants, its fisheries, &c., are worth a long journey to see. Just now they are especially charming, clothed in all the glory and freshness of spring. It is

situated some 15 miles from the ancient and historic town of Rouen, the Manchester of France. The Count is an enthusiast in horticulture, and is ably seconded by his head gardener, M. Pierre Vincent. The collection of Orchids is rich is specialties, and the finest species are to be found in it, many of large size, as Sobralia xantholeuca, an Odontoglossum nævium, with twenty-five flower-spikes, and the Odontoglossums, species of Disas, and Epidendrum vitellinum majus and all are remarkable as evidences of good culture. Masdevallias and Oncidiums have likewise done well, the rare Oncidium Kienastianum is now in bloom, and quite a host of Vandas, Aerides, Cattleyas, Dendrobes, Lælias, &c., too numerous to be enumerated. Anthuriums are much grown, and the varieties of A. Andreanum and A. Scherzerianum numerous and excellent; one plant of the latter, about 5 feet in diameter, is quite covered with its brillant spathe. The Orchids, Nepenthes, and Anthuriums are arranged in an artistic but natural manner in a commodious house well adapted for their diplay. The Azalea-house is entirely filled with splendid plants, consisting of the best varieties, and present masses of dazzling bloom. Cinerarias were just getting past their best, while the Calceolarias were in their prime, and were fine. The house was full of splendid Gloxinias, which should, in a few weeks, make a brilliant show. On one of the pillars and in full blossom was trained the bright crimson-flowerered Begonia corallina, which is by far the best of its class, and one that can be recommended as a pillar plant for a warm house. *J. G.*

PANSIES AND VIOLAS.

Both the Pansy and the Viola are certainly deserving of more patronage in England than they now get. No one who has been in Scotland and seen the Pansy and Viola growing there, and has attended one of their Pansy shows, could help being struck with the beauty, perfect form variety of colour, and great size of the flower. I am not at all surprised at the remarks by "A. D." concerning the individuality of each. I know no flower more difficult to judge than the fancy Pansy. I think that most of the Scottish Pansy societies have certain rules by which the flowers are judged. One point is the eye, yellow of course it always is; the yellow must not diffuse itself into the lower petal, but be clearly defined with an arc. I notice that in a great many of the Pansies raised in the South the yellow eye runs into the lower petal. I thought it might be owing to the sunlight being more powerful in the South than in the North; but in some named varieties which were sent me from Scotland I find that the characteristic clearly defined eye is still retained here.

In respect to climate the northern growers have a great advantage over the southern, for to grow the Viola and Pansy successfully a rich cool soil is indispensable. Still I find that here a great deal may be done by choosing suitable situations. I find that they both do fairly well in a shady position, flowering profusely from May to November; but of course the plants do not present the dwarf compact appearance of those grown in the open. I should say that the best position for them would be a slope facing the north or north-west, so that the sun at mid-day would not shine directly upon them; but wherever they are planted a good mulching is necessary to keep the ground cool and moist, or the flowering season will be considerably shortened.

Being quite hardy they require no protection through the winter. Plants that are wanted for early blooming can be obtained by dividing the old plants in the autumn or early spring, and for flowering through the summer the cuttings should be put in early in October on a partially shaded border; give them a nice light soil, so that they will root freely, and finish off by putting half an inch of sand on the top, make all firm with the back of a spade, and put the cuttings in 2 inches apart, choosing for the purpose shoots which have not flowered; all the attention required now is a good soaking of water to settle the soil round them, and an occasional sprinkle of water through a fine rose to keep them from flagging, until they are rooted. Sometimes the frost raises them out of the ground. In that case they will require to be pressed firmly into the bed again. It is a great advantage to plant them out as early as possible in the spring, so that they get rooted before the warm weather sets in. I should give the ground a good dressing of cow-manure, mixing it well with the soil, but not burying it too deeply in planting out, if there is any length of stem. I should not plant them deeply, but make a hole large enough to hold the roots, and then would layer the stem, so as to leave nothing but the crown of the plant above ground, and it is found that many suckers are sent up from a stem so treated.

The Viola is better adapted for bedding than the Pansy, as it flowers more profusely. Bessie Clark (a light mauve) I consider the most compact in habit, and the one best suited for a ribbon border or edging. It is also good for massing. Countess of Hopetown, Pilrig Park, and Mrs. Clark are three good whites; the former is perhaps the most compact of them all. Mrs. Clark is an excellent variety for cutting, as the flowers are borne on a long stem, and they are very fragrant.

Archie Grant and Holyrood are good dark varieties; Royalty and Wemyss Gold I consider to be the two best yellows. Then there are such popular varieties as Countess of Kintore, Duchess of Albany, Columbine, Sweet Pea, Acme, Virginalis, all excellent for cut flowers, and a host of other good varieties to be found in any Northern grower's catalogue. Those which I have mentioned I have grown both in Scotland and here, and have found them to be sterling varieties.

The Viola is excellent as a ground work in a bed—take, for instance, a large bed planted with Lobelia cardinalis and Calceolaria mexicana alternately, leaving plenty of room for each plant to develop itself; the edge of the bed and the ground work may be filled in with purple Violas.

Pansies and Violas like an entire change of soil every year, and they flower most freely if, after the flowers fade, they are picked off. This is especially applicable to Violas. *T. F. D., Valentines, Essex.*

CULTURAL MEMORANDA.

ZINNIAS.

These are among the most dazzling and durable of annuals, and the way in which, I think, they look best is in beds or masses of mixed colours. Why many fail with them is in sowing them at too soon a date, as then they either get drawn and starved before it is safe to plant them out, or they get pinched with cold, and in either case they receive such a check that they seldom get over it. Any time in May is quite early enough to put in the seed, which requires gentle heat to get it to germinate. As soon as the plants are up they should be stood near the glass to keep them stocky and strong, and after being potted and well rooted, gradually hardened for a week or so before planting them. This should be done in rows about a foot apart, and the same distance from plant to plant, which will give them plenty of room to spread and develop. Zinnias require good soil, and to grow them well, and enable them to withstand the dry weather, it is necessary to dig deeply, well working in some rotten manure. *J. S.*

NICOTIANA AFFINIS.

This fragrant flower is a rapid grower and very free, the flowers appearing in long succession, and is well adapted for the greenhouse, some plants should also finding a place in shrubbery and other borders, especially near to the windows of the dwelling. Plants are easily raised by sowing a pinch of seed in March, May, and July, the latter sowing supplying plants for late autumn, winter, and spring flowering in the conservatory, &c. Sow in light sandy soil, cover lightly, water, and place in a warm frame, and when the plants are large enough prick them out 2 inches apart in a shallow box filled with light rich soil, water, and shade from sunshine for a few days until the roots take to the soil. When large enough to transplant pot them off singly into 3-inch pots, and subsequently into 4½-inch pots. *H. W. W.*

NIGELLA DAMASCENA (LOVE IN A MIST).

Masses of this hardy annual with its finely-divided leaves and pale blue flowers, are very telling when contrasted with masses of scarlet, pink, and white in the flower garden. Plants are easily raised from seed sown out-of-doors in spring. Or, in order to get the plants into flower early in the season, they may be raised in heat and grown in small pots for a time, before being planted out. They will well repay the trouble. *H. W. W.*

PHLOX DRUMMONDII.

This valuable half-hardy annual continues flowering until cut down by autumn frosts. It grows from 12 inches to 20 inches high, according as the soil is poor or rich. The Verbena-like flowers are produced in great abundance, and they range in colour from bright crimson to pure white, making very showy beds when mixed colours are employed. The seed may be sown now in heat, it is not too late, and the seedlings after being hardened off, may be planted out at 12 inches asunder. Beds filled with standard Roses thus planted can be made quite attractive without in any way impairing the health of the Roses. *H. W. Ward.*

FLORISTS' FLOWERS.

THE CARNATION.

The season is such that we ought to have been busy in the first week in May with the work which was being done a fortnight later. The prospects of a good year have improved immensely since the first days in May, and the plants out-of-doors look more promising than those in pots. The work consists of surfacing the plants in pots and borders with rich light soil. Some persons who understand the natural requirements of the Carnation may say, why use light soil, when the plants in their natural condition, and even planted out in the gardens, thrive best on a medium clay. They do certainly like clayey better than gravelly subsoil, and I prefer for surface-dressing or for potting a moderately heavy rather than a light loam; but it is one that is made light by mixing a large ratio of leaf-mould and decayed manure with it. Some pounded charcoal added to the compost for surface-dressing makes it excellent for that use. I have found that Jensen's fish manure is good for the plant, and I never get better growth out-of-doors than with this manure. It may be used freely on selfs and border varieties, but probably an over-dose of this or any other stimulating manure would cause the colours of the flowers to run in the flakes and bizarres, or it might stain with colour the glistening white ground of the finest Picotees. The flower stems have now pushed, and we are placing sticks to them, being at the same time careful to destroy any green fly found on the embryo flower buds, which are liable to attacks at a very early period.

The plants in pots should be neatly arranged out of doors, and if sparrows are troublesome and injure the buds or tender leaves, some black or white threads stretched tightly above the plants will scare them away. We use thread both for beds and borders.

Seedlings have now been pricked out into boxes and large pans, and as the seeds were sown rather late, they had to be placed in the hot bed in which the seedlings were raised, but when they are well

rooted, a cold frame will be the appointed place for them for a time, and thence to the open air after two weeks' stay. They will not be ready to plant out before the end of June, but that will give them time to grow into nice specimens. The last seedlings of the year had a very trying time at first, but they have grown into handsome plants now.

The perpetual flowering varieties have been potted off into 60's, and with the aid of a hot bed they are now nice plants; and like the seedlings will pass through the cold frame stage before being placed out-of-doors. I have tried these varieties of Carnation in many ways, and have no doubt that they grow into the healthy, hardy specimens, when placed in an open position out-of-doors on a well beaten, thick, and hard floor of coal ashes. I have tried them plunged in cocoa fibre, but the result of one season's trial was not satisfactory, and I have not repeated the experiment. The plants should not become root bound at any time during the summer before being repotted.

The Pink.

Although some varieties of Pinks, especially the white ones, are excellent for forcing, still they are distinctly hardy plants, and should, as a rule, be treated as such. To obtain good large tufts of any forcing variety, cuttings form the best method of increase, taking them in early spring, and striking them on a moderate hotbed. Pot off into small pots when struck, and when well established they should be planted out, about 1 foot apart, on deep rich ground towards the end of May or in June. With this kind of treatment the plants will spread out widely, and will produce numerous blooms the following season if forced, or they may be planted as specimens in the borders, where they will become very effective; and if allowed to remain for more than one season, they will grow into large clumps, throwing up great numbers of blooms. The laced Pinks should have sticks placed to the flower-stems. This year they will flower about the end of June. *J. Douglas.*

Nursery Notes.

ORCHIDS AT MESSRS. J. VEITCH & SONS.

As intimated in our last, the large Cattleya-house at the Royal Exotic Nursery, King's Road, Chelsea, is now a magnificent sight, the great specimens of Lælia purpurata especially, producing a great display with some 400 flowers, ranging in colour from about pure white to rose and rich crimson. The Cattleyas are equally fine. The C. Mendelii are in bloom in great numbers, and the other varieties of C. labiata well represented, while the varieties of C. Mossiæ are just now in their prime, and of these none are more beautiful than the varieties of the delicately-tinted and fragrant C. Schroderæ. The flower is perfectly shaped, and the plant very floriferous. There are in the Cattleya-house some rare forms of Lælia elegans apparently intermediate between L. e. Turneri and L. euspatha, the richly-coloured labellum of one of them being almost as ample as that of L. purpurata. L. grandis, L. majalis, L. cinnabarina, too, are in bloom, and some good Cattleya citrina, C. Lawrenceana, and a very distinct and handsome plant named C. intermedia rosea. Visitors will also be delighted with an extraordinary hybrid now flowering for the first time, the result of crossing Cattleya Mossiæ with Lælia (Brassavola) Digbyana, the flower has much of the colour of Cattleya Mossiæ, but the labellum is more tubular in L. Digbyana, and with the almost circular and broad front lobe delicately cut into long fringe after the manner of its less beautiful parent L. Digbyana. It is a triumph of the hybridist's skill, and should form a sufficient attraction to draw all Orchid lovers for many miles round (see our illustration, fig. 111, p. 657).

In the rockery Orchid-house hangs a great specimen of Phalænopsis Schilleriana, with about a hundred flowers, which is still perfect, although it has been in bloom thirteen weeks—a noteworthy instance of the durability of the flowers of some species of Orchid. Beside it are some fine specimens of Odontoglossum citrosmum, Oncidium bifolium majus, O. Marshallianum, O. prætextum, O. phymatochilum, Promenæa xanthina, and the rich crimson Broughtonia sanguinea; and on the rockery some large specimens of Dendrobium thyrsiflorum, one with twelve spikes; D. densiflorum, Calanthe veratrifolia, Vandas, Cypripediums, &c., the whole being made effective with the Ferns and foliage plants, interspersed with the Orchids. One plant of a handsome orange-coloured Lycaste with twenty-eight flowers proceeding from two bulbs was a grand object.

The Cool Houses.—Here is found the display of Odontoglossum crispum and O. Pescatorei, but the species and varieties of the Odontoglossums with coloured blossoms are finer than we have seen there before; indeed, throughout the whole establishment the display of flowers at the present time is much more abundant than in any previous year. Noteworthy are some large plants of two forms of Odontoglossum near to the beautiful species Messrs. Veitch imported, and named O. prænitens, but with a cream-coloured instead of a yellow ground, and with larger and better formed flowers; very handsome are also some large plants of the radiatum and hystrix forms of O. luteo-purpureum, and a peculiar form of O. triumphans, with a white ground to the inner halves of the petals, and yellow at the tips. In bloom were many plants of O. tripudians, O. Cervantesii, O. aspersum, O. cordatum, O. Edwardii, O. hastilabium, and some strong-spiked Oncidium macranthum, and finely-coloured Masdevallias, &c., with, hanging overhead, many yellow Oncidium concolor, and scarlet Sophronitis. Other rare plants in flower in the cool-houses are the pretty white and violet Epidendrum Endresii, the singular-coloured and beautiful Oncidium fimbriatum (*Gardeners' Chronicle*, May 11), and a charming Masdevallia, obtained by intercrossing M. Shuttleworthii and M. Estrada.

In the warm-houses the Cypripediums, of which some or other of them never appear to go out of bloom, contribute many attractive things. At present those two beautiful hybrids, C. selligerum majus and C. œnanthum superbum, are fine objects; and a variety of C. barbatum Crossii is sufficiently distinct to warrant its being kept apart. Of the barbatums, C. b. nanum, which was such a favourite with the late Mr. John Day, is the best, as the fine C. villosum majus is of its species; C. ciliolare, C. Dayanum, C. Curtisii, C. Druryii, C. niveum, C. bellatulum, C. hirsutissimum, and others, both species and hybrids too, are in bloom. The Phalænopsis-house has good sprays of P. Sanderiana, P. Luddemanniana superba, P. Schilleriana, C. rosea, &c., whilst of the Angræcums there are in bloom A. modestum, A. dependens, A. Ellisii, A. Leonii, and the fragrant white A. arcuatum.

Thrixspermum Berkleyi is in bloom in the warm-houses. It is a noteworthy plant, with sprays of cream-coloured flowers, having lavender-coloured spurs. Ornithocephalus grandiflorus has sprays of white flowers, which have emerald-green dots in the centre; and Epidendrum Wallisii, E. macrochilum album, E. radicans, besides some other interesting species are in flower.

The large new Dendrobe-house is a useful adjunct, and arranged for growing plants, which are hung up chiefly, and the plants seem to take kindly to it. A good and varied display of Dendrobes will be found in this and other houses, among them being three good specimens of the true D. Schroderii, still rare; the curious hybrid, D. porphyrogastrum, in bloom; and likewise D. rhodostoma, which, it is almost needless to say, rarely goes out of bloom entirely. Large masses of D. thyrsiflorum, and good specimens of D. Farmeri, D. dixanthum, D. barbatum, D. Brymerianum, D. capillipes, D. tortile, D. lituiflorum, and many others, assist to make a display which, for extent and beauty, cannot be excelled.

A peep into the rest of the plant-houses makes one almost ashamed of having spent so much time among the Orchids, for the showiness of the greenhouse Rhododendrons, Azaleas, early-flowering Carnations, Amaryllis, &c., is not easy to get away from; the houseful of fine varieties of Anthurium Scherzerianumis, most brilliant; and the house of quaint Pitcher-plants themselves would require a long time to examine the numerous beautiful species which Messrs. James Veitch & Sons have either imported or raised; we note, however, the fine specimens of Nepenthes Northiana, N. cincta, and the grand crimson-pitchered N. Mastersiana×, which for beauty, freeness of growth, neatness of habit and size, and colour of pitcher, may fairly be considered the best Nepenthes as a garden plant.

LATHRÆA CLANDESTINA.

We have now the opportunity of giving an illustration, from the pencil of Mrs. Dyer, of this singular and beautiful parasitic plant (see fig. 110, p. 653). Black and white, however, give but a poor idea of the fleshy, ivory-coloured bracts from which the large lilac flowers emerge. The plant is a native of south-western France, where it grows on the roots of the Alder, Poplar, and Willow. At Kew, Mr. Nicholson has succeeded in growing it on the roots of a Willow adjacent to the ornamental water in front of the Palm-house. It is a delightful plant, though not suited for "cut flowers" or market work.

THE POLYANTHUS AS A SPRING BEDDING PLANT.

This favourite flower is becoming largely used for spring bedding purposes. It would be difficult to name another plant so easily managed, so hardy, so floriferous, and so early to bloom. Besides, there is a good succession of flower, which is another point in its favour. This race of Polyanthus I prefer to call Giant, but the varieties are known as Hybrid Primroses, Polyanthus-Primrose, &c., the latter designation being given because there is a tendency on the part of many of the varieties to throw up first of all Primrose flowers—that is, flowers on long stalks like the common and improved Primroses, and then a profusion of stout stems carrying bold umbels of flowers. A bed of these of mixed colours presents a charming sight during March and April, according to the position in which the plants are—that is a warm and sheltered one, or a cold and bleak one. Of the hardihood of the Giant Polyanthus there can be no doubt, and if the plants should by chance become harmed, it is in consequence of severe frost following suddenly upon a mild time and much rain.

About Torquay many a villa garden was smiling with charming flowers in March and April. The season at Torquay closes at the end of April, and it is the delight of the residents there that March and April should be made as pleasant as possible, and beds and borders of Polyanthuses do splendidly. There is something in the soil and situation that suits them; they are as much at home, and answer as readily to cultivation as do the Narcissi in the Scilly Isles. The major part of those who grow Polyanthuses at Torquay prefer strong seedling plants, and do not particularly care to keep them after the second year of blooming.

To ensure a grand display of bloom, the seedlings must be strong when they are planted out. This can only result from early sowing. I am strongly in favour of sowing in autumn, to flower eighteen months after. It gives a little more trouble to the raiser, but he has his reward in the end. If not sown in the autumn, then in January or February, but not later than April if you value strong plants. I am just now [middle of April] pricking off into store pots plants of a fine strain of Goldband Polyanthus, raised from seed sown at the beginning of September, and this is how the seeds were sown. I took three 6-inch pots, filled them one-third full of drainage, placed some moss over this; then some rough fibrous

soil, having at the top 1½ inch of a fine light sandy compost. This was pressed down level, and the seeds scattered thinly over the surface; then a very light sprinkling of silver-sand was given, and the work was done. The pots were then stood in earthenware pans containing about 2 inches of water; these pans were placed on a shelf in the greenhouse fully exposed to light and sun, and a piece of glass placed over each. By adopting this method no stood in pans of water until they have become fully established. I raised Auricula seeds in this way, and with great success.

Those who have not the convenience of a house can sow in pans or shallow boxes; or on a bed in a cold frame, or where there is only a gentle heat. If, when the plants are large enough, they can be planted out in a cold frame for a time, they come on with great rapidity, and then can go out into

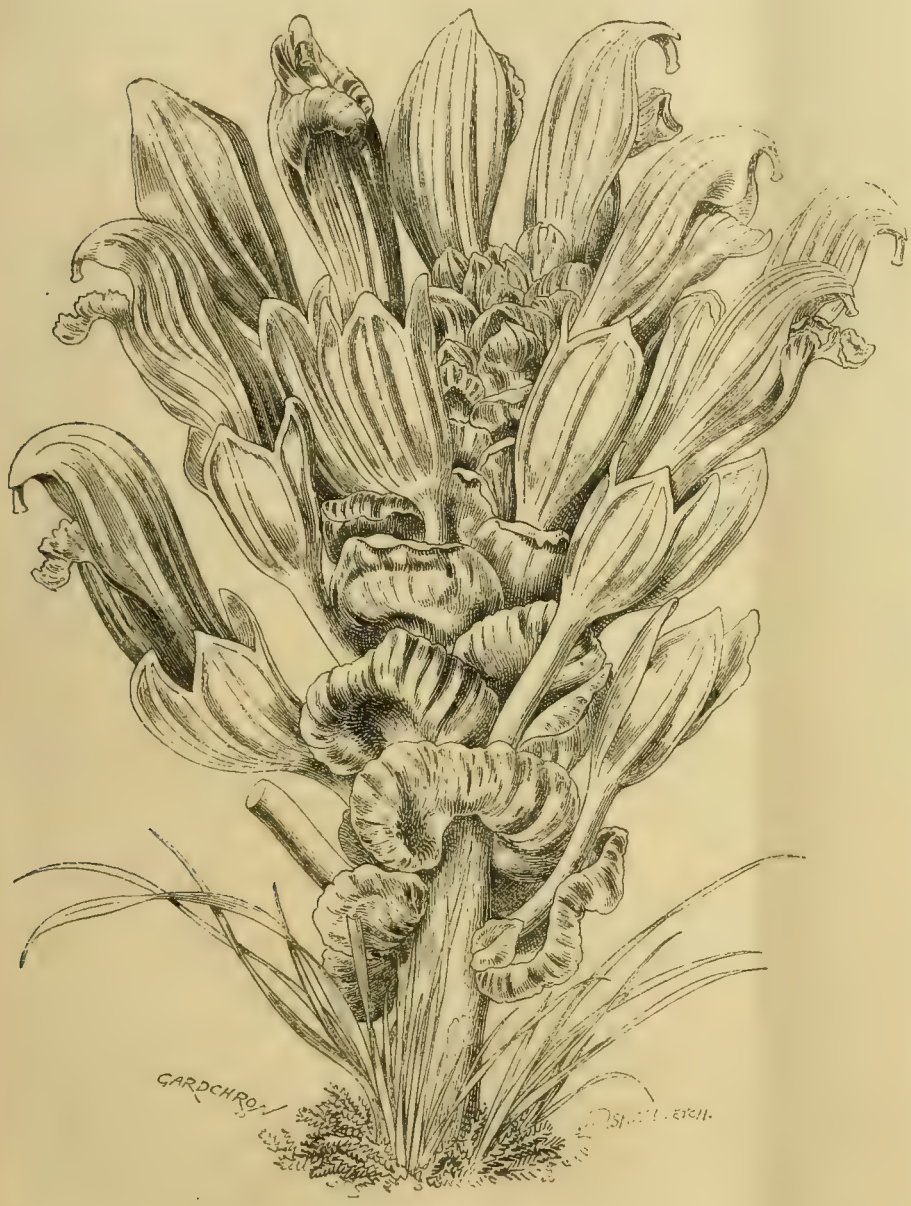


Fig. 110.—Lathræa clandestina: flowers rosy-lilac, bracts white. (see p. 652.)

water is given on the surface—a bad practice in the case of small seeds, as a careless waterer can wash the seeds on one side and mix them up together, as well as making holes in the soil. As soon as frosty weather approaches—mine being a cold house—the water is emptied out of the saucers, and not replaced until mild weather has set in. In this way Polyanthus seeds can be raised at any season of the year with certainty and safety. By sowing the seeds thinly the plants are not unduly crowded; and as soon as they have made four leaves they are pricked off into store pots, which, in their turn, are nursery beds until required for planting in the autumn.

The old plan of sowing on an open border is still largely followed, but it is attended with disadvantages. Heavy rains will wash the seeds from the soil; the sun will scorch up the seedlings in hot dry weather if the watering is not attended to, and worms thrust the tiny plants up out of the soil.

A very imposing and striking spring bed might be formed of Polyanthus and early flowering Violas mixed together; both being represented by young robust plants planted out in the autumn. The Polyanthus would lead the way in the floral display, and the Violas would follow soon after. The different colours should be well blended, they are then more effective. If a top dressing of light refuse soil from the potting bench were placed over the beds early in March, it would be found very beneficial. Such a bed would be very pretty, and the Polyanthuses being removed in May, the Violas would go on blooming all the summer if further assisted by a top-dressing, and by water in dry weather. The Polyanthuses would supply some hues of colour not found in the Violas, and in the Violas would be seen shades and combinations not peculiar to the Polyanthus. To sum up the points of advice given, it might be said, sow seed of good quality. Sow early and properly; treat the seedlings well; plant out strong plants in well prepared beds, take a little care of them during the autumn and winter; and a floral display of no mean order will reward the cultivator for his pains. *R. D.*

Notices of Books.

A Treatise on Manures; or, the Philosophy of Manuring. By A. B. Griffiths, Ph.D. (Whittaker & Co.)

With the spirit and intent of this book we have the fullest sympathy. The necessity for technical education for farmers and gardeners is one that cannot be gainsaid. Whether the course followed by the author is the one best adapted to fulfil his ends is open to question. We rather imagine that the farmer perusing the book will find himself not a little perplexed and embarrassed by what is put before him, while neither the professed chemist nor the manufacturer, and certainly not the physiologist will require such a book. Farmers and gardeners want to know what to apply in the way of manure, when to apply it, in what quantities, and at what cost the application can be made. Their present practice is almost wholly empirical, excellent of its kind, but often unsuited to modern conditions and requirements. Nor, we say it with respect, are the recommendations of agricultural chemists in all cases superior. Excellent for the laboratory, they are not adapted to the field. Phosphates we are told are required for this crop, iron for that, potash for another, all of which may be quite true, but we can make no rational use of that information till we know exactly what the potash, the iron, or the phosphates do in the economy of the plant, and wherein their value really consists. We are slowly gaining information of this character; we know in a vague general way that iron is necessary for the elaboration of chlorophyll, potash for that of starch, and so forth, but for want of further definite information of this character, farmers are too often the victims of the manure merchants, and nostrum-mongers whose claims to infallibility are just on a par with those of the vendors of So-and-so's Infallible pills. In gardening it is just the same, you will find gardeners recommending and using this, that, or the other manure for all sorts of plants with no definite knowledge at all either of the requirements of the plant, or of the nature of the manure. The most effectual remedy for this state of things, which leads to so much waste and loss is, first, a grounding in the principles of chemistry and physiology, such as at present very few farmers or gardeners possess, and, that obtained, then a continued series of personally conducted experiments on a small scale. A small part—it need be but small—of every farm and every garden should be set apart for actual experiment. What those experiments should be, will be suggested by the farmer's previous training in the principles of his art, and by the necessities of the time. Such books as the one before us, containing a large amount of miscellaneous information could then be profitably consulted, for the practitioner would be in a position to understand and make use of them. The present book is very unequal in its treatment of different subjects, but

contains much valuable information. We commend especially to the reader's notice the chapter on iron-sulphate as a manure, as containing information at once novel, useful, and suggestive.

THE HERBACEOUS BORDER.

STOKESIA CYANEA. — This is a good plant, but rarely seen in gardens, and though I have here included it under the head of "Hardy Plants," it is as such rather disappointing. It flowers too late in the year to be of much value out-of-doors, the very early slight frosts being sufficient to spoil its buds, though in warm, favoured districts it may expand its flowers occasionally. It flowers well and with certainty in a greenhouse during the period—October to December—when few blue flowers are in season. It is of light habit, and rarely exceeds 2½ inches in height. It flowers too late to ripen seeds in England, and can rarely be increased by division; the readiest way to get a stock of the plant is by means of root cuttings. Select some of the strongest roots for the purpose; cut these into lengths of 1½ inch, insert in pots of sandy soil, and plunge the pots in gentle heat. In a month they will begin to grow, and after duly hardening and potting them off, continue to grow them on in pots plunged in cocoa fibre in the open air; they will make good plants by the time the autumn arrives, and some of the strongest will flower that season. *E. Jenkins.*

RANUNCULUS.

NYMAN records about ninety European species of Ranunculus. Many of these are not worth a place in gardens for ornament; perhaps some have not been tried. I mention a few which I cultivate at Edge, most of which are now in flower.

R. Thora, a neat little plant, with a stalk about 4 inches high, a single sessile stalk-leaf, and a single bright yellow flower. It is easily cultivated, unencroaching, and does well at the base of a rockery. Flowers end of April; a native of the Alps and Pyrenees.

R. hybridus syn. Phthora (Crantz), a better plant than the last, flowering earlier and producing more flowers on a branched flower-stalk; bears a single stalked reniform radical leaf. Given to me by Sir E. Loder, who found it in the Austrian Alps. It has flowered well for four years, but increases slowly.

R. rutæfolius (Lin.), one of the best of the alpine species, makes a bush about a foot across and 9 inches high. Leaves prettily curled and crimped. Flowers white and abundant, in April; seeds freely, and, if sown when ripe, the seeds germinate the following spring. Alps and Pyrenees.

R. anemonoides (Zahlb.) Leaves like the last, growth much lower. Flower-stalk not upright. Flowers large and abundant, of a dull pinkish-white, by no means of a pleasing colour. This generally dies here after two or three years' cultivation. I have not gathered ripe seed. Austrian Alps. Flowers early in April.

R. aconitifolius (Lin.), common in Alpine districts through Europe. Forms a dense bush, about a foot high, and twice as much across. Easily cultivated in any soil. The buds are reddish-brown, but when the sepals fall off the flower is pure white above and below. Flowers in April. Worth cultivation in any garden. The double form, Fair Maids of France, is well known, but many people of taste prefer the single.

R. glacialis (Lin.), I mention this because, though it is abundant in high Alpine regions, and I have received healthy collected plants year after year in autumn, I never succeeded in establishing it in cultivation. Like Eritrichium nanum and some other high alpines, it seems to disdain the atmosphere and surroundings of a lowland garden.

R. Seguieri (Vill.)—A true alpine gem, with cupped flowers of the purest white. Found in the Alps of Dauphiné. It has done well with me for several years; but I have never found seed on it, or ventured to divide it. Grows about 4 inches high, and flowers in April.

R. alpestris (Lin.).—Common in the Alps and Pyrenees. Grows about 3 inches high, with shining divided foliage, and small white flowers not very freely produced. Does not thrive very well here in cultivation. Flowers late in May.

R. parnassifolius (Lin.).—Easily grown, but seems not to be long lived. Flowers on stalks about 4 inches high, produced in bunches, not unlike Apple blossom, but very apt to be deformed. A good plant with perfect flowers is very ornamental, but rarely seen. Leaves thick and glossy, shaped like those of Parnassia palustris. Common in the Pyrenees at high elevations. Flowers in May.

R. amplexicaulis (Lin.).—Perhaps the most beautiful and most easily cultivated of all the alpine Buttercups. Flowers large and pure white; but it is too well known to need description. Easily raised from seed, which it ripens abundantly. It must be sown as soon as ripe to grow the following spring. It likes an open moist soil, and a sunny aspect. It is very abundant in some parts of the Pyrenees, where I selected some specimens having flowers much above the average size. Flowers in May.

R. pyrenæus (Lin.).—Flowers a full month earlier than the last. Habit much dwarfer. Requires more careful cultivation. Grows 3 inches high, with narrow linear leaves. In other respects resembes R. amplexicaulis. Very abundant on high level pastures in the Pyrenees, where I never found it in company with the last described.

R. gramineus. — Leaves linear-lanceolate; producing in May large golden flowers on slender stalks a foot high—an elegant species, common in the Pyrenees, associated with R. amplexicaulis; erroneously recorded as a British plant. Easily cultivated, but I never saw it in gardens as fine as in its own home.

R. montanus (Wal.), a very ornamental species, spreading evenly at the root, and producing abundantly in April a broad expanse of golden flowers of moderate size, on stalks about 4 inches high. Of very easy cultivation, but does best in moist open soil and a north-east aspect. It never becomes weedy, though it increases fast, and may be recommended as a desirable rock plant.

R. millefoliatus (Vahl.).—Found in the mountains of Italy and Greece. Flowers like those of the common meadow Crowsfoot, but worth cultivating for its dwarf habit, and its elegant, much divided foliage. It increases abundantly by seed.

A large-flowered mountain Crowsfoot, R. Gouani, from the Pyrenees, I have found become coarse in cultivation. A double form sold in nurseries as R. speciosus is said to belong to R. bullatus, but is probably a double form of Gouani. The wild British R. auricomus is elegant in habit and foliage and flower when well grown. The doubles of R. acris and R. repens—the latter requiring frequent reducing within limits—are common in gardens. The double R. bulbosus, though common in catalogues, I have never been able to get. *C. Wolley Dod, Edge Hall, Malpas.*

TREES AND SHRUBS.

SPIRÆAS.

THESE shrubs are favourites in our gardens, but some of the species are not so much employed for forcing as they merit. The plants furnish great quantities of bloom of value to the bouquet maker, but are scarcely good pot plants for market, owing to their being too tall.

The Spiræas are increased from seed sown in the open air in well prepared beds; by division, and by cuttings of half-ripened shoots from plants forwarded in heat in the early spring months. The pruning of the shrubs needs to be done with much care, because those which flower naturally from April to June should have, by the autumn, the flowering wood matured and the bloom-buds formed, whilst those species which bloom after June form the young shoots first, and flower in the current season. The following species may be recommended for forcing:—S. Fortunei, syn. callosa, a native of Japan, grows about 3 feet high, and flowers June—July with pretty red flowers. The white variety is well worth growing. In England it is not generally found to need protection. S. prunifolia, also Japanese, bears in May small white flowers in corymbs arranged on long attenuated shoots. It will grow to a height of 4½ feet. The double variety of gardens is much to be recommended. S. cantoniensis, syn. Reevesiana, a native of China, grows to a height of 3 feet. The flowers, which are white, and borne in terminal umbels, appear in June.

BIOTA OR RETINOSPORA MELDENSIS.

This plant on its first introduction in 1852 by M. Cauchoix, nurseryman, at Meaux, was regarded as a seedling from Biota orientalis, crossed with the pollen of Juniperus virginiana. It has no Juniper-like smell, however, and consequently doubt has always been felt as to the correctness of its history. Now, according to Mr. Bailly, in a recent number of the *Revue Horticole*, the plant has been good enough to tell its own tale, and has suddenly and without intermediate stages produced a shoot of true orientalis.

PYRUS MAULEI.

Of this fine free-flowering shrub we have here in the garden a well-shaped specimen 14 feet high and as much in diameter, in full bloom. The colour of the flowers is pale salmon, and it is a fit companion for P. japonica, but here it grows and flowers more freely than that species, although on high ground in the neighbourhood P. japonica flowers abundantly. *H. R. H. Ashburnham Battle.*

PINUS INSIGNIS.

This Pine seeds freely, seedlings being found under the trees in the peaty soil formed from its decayed needles. Is it usual for this tree to reproduce itself in this way in this country? *H. R. H.*

PLANTS AND THEIR CULTURE.

WORK IN THE STOVES.—All plants should now be making rapid growth, and more shade will now be necessary than previously, and much atmospheric moisture must be maintained in these houses to assist growth. The greatest care ought to be used in the matter of stoking, and the weather in the early part of the day should be attentively watched, so that the heat may be maintained without having recourse to letting in a large quantity of air, thereby creating aridity. The paths and other surfaces should be damped down frequently, and where possible some suitable material should be used to retain moisture about the pots. The plants will now require more water and heavier syringing, and especially Crotons. I think that where many of these plants are grown, a pit or other separate place should be afforded them where the special treatment required can be better given than in a mixed collection. The house at closing time may be allowed to run up to 100°, if proper attention is paid to damping down. The night temperature may be increased by a few degrees—that is, to 70°—75°. Some of the plants will have made much leaf-growth, and will want more space, and to relieve the houses some of the hardier Palms and Ferns may be taken to an intermediate-house, and eventually to the conservatory. Caladiums may be removed to a cooler house with advantage, but the plants should have filled their pots with roots before removal. The shoots of Dipladenias should be frequently regulated, and kept near to the roof. More water may be afforded to plants in robust health, but over-watering must be avoided, as Dipladenias do not require so much water at the root as many other species of stove plants.

Allamandas and similar plants which have completed their growth and have formed flower-buds, should be tied to their trellises, after having kept the plants dry for a day or two, so as to prevent the shoots breaking when tied to the trellis. These plants are improved by weak liquid manure being given them at short intervals during the summer, and all the light possible.

Clerodendrons which were started early in the year will soon be at their best, and should not be wetted overhead, but removing them to a cooler house whilst in bloom. These plants as a rule require plenty of water, but care must be taken to apply water sparingly on first placing them in a lower temperature, or the flowers will drop off. Plants for later flowering should be assisted to make free growth; the shrubby varieties should be kept diligently stopped, growing them in a warm and moist house.

Vincas may receive the like treatment. They may still be struck from cuttings of the young wood. Gardenias which have gone out of bloom may be pruned in, partially shaken out of the soil, and repotted in a good yellow loam and fibrous peat in about equal quantities, some decomposed manure and coarse silver-sand being added, and a few quarter-inch bones may be placed over the drainage. Give the plants the benefit of a little bottom-heat, if possible. Many gardens have these plants planted out, and where a small house or pit can be spared it is a good plan to adopt, but where only a few are grown pot culture is the better. Tabernæmontana coronaria fl.-pl. will be generally in full bloom, and helps to make a succession to the Gardenias, their pure white flowers much resembling the latter, and they are almost as much admired, as cut flowers. The shoots should be stopped in the early stages, to prevent the plants getting lanky. Cuttings of Tabernæmontana ought to be struck annually, small plants in 5-inch pots being useful in various ways. The young stock of Ixoras should be making good progress, and the shoots should be kept well pinched in, and the houses shaded, the syringe being regularly used to keep down red-spider. Plants coming into bloom should be kept dry overhead, and may be removed to a little cooler house; any others forming their buds should have less water at the root until the buds are quite formed.

Miscellaneous.—Some plants of Pancratiums and Eucharis, as soon as their growth is completed, may be put into a cooler house to come on later; Gloxinias started early will be in full bloom, and will last longer if they are put in a drier and cooler house. Achimenes removed into their blooming pans or baskets should be kept close to the glass, and afforded weak liquid manure when the soil gets full of roots. Eranthemums and Begonias may be potted, and another lot may be struck. Poinsettia and Euphorbia cuttings should be struck, not allowing the shoots to get too long before taking them. Torrenias of sorts may be sown, and will be found serviceable for decoration late in the season. Cuttings of Impatiens should be secured, and by potting on when struck, and growing in a warm moist pit, they soon make fine plants. The seedling of Amaryllis will be making good progress if grown under suitable conditions, also the older bulbs. Let them all have as much light as possible, and make use occasionally of some good fertiliser. Cactuses and Epiphyllums should now be making fresh growth, and may also be watered with weak liquid manure once a week for a time. As soon as the plants have finished their growth, place in a cooler house and give them less water. *G. Wythes, Syon House, Brentford.*

THE FLOWER GARDEN.

Subtropical Beds, and how to Plant Them.—The season is most favourable for bedding-out, and good progress having been made with the planting of ordinary bedding plants, the subtropicals will claim attention. The term "subtropical" I apply to all fine foliage plants, hardy or tender, that can be made to do duty as such, and on several accounts I favour the use of the hardier species. The undoubtedly hardy subjects, Yuccas, Sumachs, variegated Maple, Phormium, Pampas-grass, Bamboos, &c., being more or less effective all the year, may be used in forming a sort of enclosure to the subtropical garden, but it does not follow that such plants may not also be employed in groups or beds in the garden itself, provided the space will admit of its being carried out. Any plants which are readily damaged by wind, and the more tender should, of course, have the more sheltered places, but this class I would exclude entirely if there was sufficient variety without them, and in most cases this will not be difficult, as will be observed from the following list:—Grevillea robusta, Cannabis gigantea, Ricinus, Solanum argentea, S. robusta, and S. pyracantha, Acacia lophantha, Nicotiana Wigandioides variegata, Ferula communis, variegated Maize, Cannas, not to mention such dwarf-growing, hardy plants as Funkias, Acanthus, Melianthus, as well as the dwarf annuals, Chillian Beet, Perilla nankinensis, Salvia argentea, and the Fish-bone Thistle. As regards the arrangement of subtropical plants, opinions differ widely as to whether they look best in mixture, or planted in a mass of one sort. I favour the latter course, with this modification, that the outer line of plants is dwarfer and distinct in colour from those in the body of the bed; as, for instance, the edging plant to a mass of Cannas may be Chamæpuce diacantha (the white Fishbone Thistle). For Giant Hemp, an appropriate edging would be Chillian Beet. For a bed of variegated Abutilons, Perilla nankinensis; and for a mass of Solanum robustum, Salvia argentea. If it is wished to observe the distinctive character of the plants, especially the large growing kinds, the plants must be planted thinly, using dwarf subjects as a setting for them. This arrangement is to be preferred to overcrowding the masses; and any one who is doubtful as to the merits of the two methods should plant two beds, the one with Gibson's Ricinus in numbers to form a mass, and another with the same plants used thinly on a ground work of Harrison's Musk, and I will venture to say that the thinly-planted bed will become the favourite long before either of the beds are filled out.

General Work.—At present this is formidable, for besides bedding out, and clearing up the attendant litter, watering, mulching, and pegging down such plants as require it, many herbaceous plants are growing apace, and stand in need of staking and tying. Established plants of Pyrethrums throw up such a number of flower stems that, if good flowers are desired, the thinning out of all weak shoots, previous to tying up, should be done, and the same remark will apply to Delphiniums and Potentillas; and later on Phloxes and Asters (Michælmas Daisies) will require the same kind of thinning out. Any annuals still to be planted out should have immediate attention, and old plants of Antirrhinums and Pentstemons for late flowering, should have the points of the shoots pinched out. The maintenance of neatness is at present a difficult matter, but whatever is left undone let it not be the mowing of the lawns, or the clipping of the grass verges of the walks. *W. Wildsmith, Heckfield, Winchfield.*

FRUITS UNDER GLASS.

Routine in the Peach Houses.—In houses where the fruits are not yet colouring, continue to syringe the trees on bright days, and keep up a genial temperature, turning a small amount of fire heat on dull days and cold nights; keep up a free circulation of air. In the second house, in which the fruit will be ripening, the syringing should be discontinued, a drier atmosphere with more air being maintained to give flavour to the fruit. Expose it as much as possible to the light and sun. Gather any approaching ripeness, as they will keep longer and travel better than when they are left on the tree to ripen fully. The Peaches in the third house will be swelling rapidly, and may now be pushed on a little harder, or retarded as the case may require. The borders should be well watered at this stage or just before the fruit begins to colour if found at all dry. Take off any laterals that are breaking from the strong shoots, tying in stragglers, and being careful not to shade the fruit. Examine carefully for thrips, and give the house two or three fumigations if any of these are present. I once saw a crop of Lord Napier Nectarine quite spoilt, the thrips having nibbled the skin till it looked of the colour of unbleached calico. This fruit I think must be very tender in the skin, for I find it is liable to get scorched under large squares of glass which may be fixed at a sharp angle, especially when the weather previously has been dull. We squirt a little whitewash through the syringe on to the glass just above the tree. Trees in later houses must have the shoots stopped and tied, and the fruit thinned; watering and syringing in the morning and at shutting-up time. Red-spider must be kept in check by plentiful syringings, and greenfly in the late house must be anticipated by fumigating fortnightly. It may be remarked that the trees of the common Beech in this neighbourhood are smothered with greenfly. Orchard-house trees in pots should have manure-water afforded them occasionally, and be regularly attended to in regard to pinching, disbudding the shoots, and thinning the fruit. *W. Bennett, Rangemore, Burton-on-Trent.*

THE HARDY FRUIT GARDEN.

Frost-guards, &c.—Where much-protected trees have been gradually exposed, the material used may now be removed. The blinds, if such are used, should be let down for a few hours on a bright morning to get dry previous to putting them away. Where fish-netting has been in use, and is to be used to protect ripe fruit from birds, any defects should be made good at once, thereby saving time at a later date, and if each piece be correctly marked as to size much confusion will be avoided later.

Strawberries.—If very large fruits are required, the plants should be examined, and all the weakest trusses removed, and also the weakest flowers of the trusses left; and, if necessary, some clean straw should be placed over the mulching to keep the fruit clean. Usually the early mulching in most cases answers for all purposes; grass-cuttings are very objectionable as mulching for several good reasons. Young plants put out this spring should have the fruits cut off, the crowns acquiring greater strength by so doing; and let the planting of any forced plants, be carried out as soon as possible. In few districts of this country will Strawberries require to be watered for some long time, but where it is necessary, as on very light sandy soils, and in parts where the rainfall has been scanty, the matter must receive early attention. *H. Markham, Mereworth Castle, Kent.*

THE KITCHEN GARDEN.

Treatment of Asparagus.—Beds in full bearing should be gone over every two or three days, cutting off all the heads which are ready. Those fit for table should be sorted out, and kept with the cut ends in water in a cool place until wanted. The smaller are useful for soups, &c. Slight dustings of salt will be of great advantage in nourishing the plants. Roots for forcing should not have any heads removed, but steps should be taken to at once protect the shoots from any injury by wind. Stout posts may be fixed at the ends of each row, and two wires strained across, and to these the shoots individually tied; or a row of Pea-sticks put between the lines will answer the same purpose. During dry weather manure-water may be frequently given.

French Beans and Scarlet Runners.—A larger breadth of French Beans may now be put in, and advancing crops thinned out to 8 inches in the row if too crowded. A little soil may also be drawn up to the stems for protection and support. Plant Runner Beans, and early plants should have their sticks placed as soon as the seed leaves are developed.

Parsley.—A successional sowing may be made, early sowings thinned, and blanks filled with the thinnings. Dustings of soot during showery weather will be of great service. Plants which have stood the winter, if transplanted into a moist, rich soil, will continue to grow; if left undisturbed, it will run to flower.

Potatos.—Ply the hoe about the crops if sufficiently advanced. Where the sets have thrown up more than three shoots, all the weaker should be removed. Plenty of air is essential to large tubers, and minimises the ravages of blight.

Spinach.—Sow once a fortnight, thin previous sowings, and give frequent applications of manure-water. Radishes should also be sown at short intervals. If the seeds have been soaked in a strong solution of carbolic soap, birds do not care to make a meal of them.

Lettuce.—Make periodical sowings, and plant out as soon as fit to handle. A northern aspect will be found most suitable at this season. Tie up Cos varieties to blanch. *W. M. Baillie, Luton Hoo.*

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, MAY 30 — Royal Horticultural Society: Fruit and Floral Committees, in the Inner Temple Gardens.

SHOWS.

WEDNESDAY, MAY 29 — Reading. York Florists'.

THURSDAY, MAY 30 — Royal Horticultural Society: in the Inner Temple Gardens (two days).

SALES.

TUESDAY, MAY 28 — Remaining Portion of the Downside Collection of Orchids, at Protheroe & Morris' Rooms (two days).

THURSDAY, MAY 30 — Established Orchids, some in Flower; also Further Portion of the Paragon House Collection of Orchids, at Stevens' Rooms. Remainder of the Collection of Orchids, Glass Erections, &c., at the Manor Farm, North Cray, by Protheroe & Morris.

FRIDAY, MAY 31 — Orchids in Flower, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—57°.5.

Our Orphans.

"A ROUGH lot, those Covent Garden fellows!" Possibly—circumstances are amply sufficient to account for it, if it be so. But rough on the surface only. Scratch them and you find, not the Tartar, but the heart that can feel for another. We began this article, writing at a window where, for the whole day into late evening, we were witnesses of prolonged energy, labour, self-denial, all put into requisition—for what? "For the benefit of trade and traders," hint the scoffers. Not so fast. The orphans had the first claim that day at any rate, and these "rough men" were doing their best, working their hardest, but all in the most unpretentious manner to render smooth the career of the orphan—luckless orphan we cannot write, for while they can count on practical sympathy such as this, we begin to think the orphan is not likely to be so badly off altogether. Wellington Street and the streets adjoining were blocked almost all day, not with the huge, high-piled waggons which so often encumber them—these are reserved for vegetables from suburban market-gardens or for consignments received by rail or steamboat from the Continent—but with florists' vans—rooms covered with canvas and crowded with "market plants," those in 48's predominating. There was plenty of shouting, and some pushing—for all were eager—eager to make a good display for the benefit of the orphan, and a good display indeed they made.

The large flower-market which adjoins this office consists of two parallel naves with a central aisle, two side aisles and a transept. It is spacious, and those who want to see what it is like when empty, may refer to our illustration in a former volume. To realise what it was like on Tuesday night is hardly possible without having seen it. It must suffice to say that this was a display of market plants arranged for market purposes. Those who went to see a flower show, in the ordinary sense of the term, would hardly find what they wanted; but those who wanted to see the material of which flower shows can be made—those who wished to see what could be and is used for decorating the cottage of the poor and the salon of the wealthy, would find the material to their hearts' content. The plants were arranged on double stands parallel to the long axis of the building, each stand consisting of three tiers, each tier or stage closely packed with what each vendor had to sell, and what the British public at this season is prepared to buy. There was no question then as to taste in grouping; no question as to knowledge of plants or connoisseurship—these for the time and place were not considered.

The visitor might indeed compare the taste and selection exercised in Brussels or Paris with those shown here, not altogether to our advantage, the Englishman crams on his stand as many saleable plants as he can, without much reference to tasteful arrangement. But the grower grows what there is a demand for, and he grows it to perfection. Gardeners in private places might well feel envious of the way in which the market-growers turn out their "stuff;" but then the ordinary gardener has a multitude of things to attend to, whereas the market man is a specialist.

We shall not attempt to describe the gay scene, but it may be of some interest to our country readers to know what the staple of the display consisted of. Small Palms, Ferns, India-rubbers, Dracænas, variegated Maples, and dwarf Conifers, supplied the green background. White flowers were conspicuous in Marguerites, Spiræas, Bermuda and common white Lilies. Pelargoniums contributed hues of almost all kinds; Hydrangeas, splendidly flowered, stood for pink and blue; Fuchsias were gay in red and white; Rhodanthes shone in delicate tints of white and rose; Azalea mollis contributed lovely shades of yellow and fawn; Calceolarias and Soleil d'Or supplied the necessary yellow; Pansies and Golden Feather contributed their share to the general effect. Where all worked with a will for the benefit of the unfortunate, it would be beside the mark to institute comparisons, and say this exhibitor was better than that—no! this was no competition, the only rivalry was as to who should do most to further the cause of the orphan.

When the bell rang, the noise and turmoil ceased. Stout arms speedily cleared the pathways of the rubbish that had accumulated, and shortly before eight all was in readiness. Early in attendance was the Duchess of BEDFORD, who enjoyed a private view, and her presence was acknowledged by the presentation by Mr. ASSBEE of a bouquet. Later came the popular Baroness BURDETT-COUTTS, always to the front when some good-natured act or work of charity is to be done. The Chairman of the committee, Mr. DEAL, making obeisance, requested her to declare the "Feast of Flowers" open. This was soon done, and the compliment acknowledged by the presentation of a bouquet. This interchange of formal duties over, the Baroness spent an hour and a half in examining the flowers, and showing her sympathy with the object of the meeting. There was another bouquet presentation—this time by Mr. T. A. DICKSON to Lady GOLDSMID, the wife of the excellent President of the Gardeners' Orphan Fund, and who must have been pleased to see how well the Jubilee bantling over whose fortunes he presides, thrives. The Royal Horticultural Society was represented by its President, Sir TREVOR LAWRENCE, and other members of Council, and a fine company was assembled, the demand for tickets not ceasing till nearly midnight. The band of the Royal Horse Guards contributed music; while in addition to the "Market men," who contributed the main show, flowers were sent from Chatsworth by Mr. THOMAS, from St. Albans by Mr. SANDER, and from Reigate by Mr. HAYWOOD. People seemed generally pleased and surprised at what they saw, and soon after midnight the company left the place, and those brawny arms that had been at work all day long, began again, their ordinary labours, refreshed, we hope and believe, by the conviction that they had achieved success, and contributed materially to the welfare of the Gardeners' Orphan Fund. All honour to them!

Rust and Mildew.

THE history of the "Rusts," the "mildews," the "brands," that affect cultivated plants is one of paramount importance.* It appeals to the welfare of the cultivator. It is a subject of keenest interest to the naturalist. Moreover, it has become obvious that if substantial progress is to be made in the knowledge of these pests, and if their onset is to be prevented, or its fierceness abated, co-operation of the two classes of observers must take place. The cultivators must observe with greater precision, and they must systematically record their observations. The naturalists, by means to which we shall hereafter allude, must verify or refute the crude conclusions of the cultivator—demonstrate what the other can only assert conjecturally. Having accomplished this, then, and not till then, will he be in a position to offer satisfactory advice to the farmer or gardener as to the best means of dealing with these destructive parasites.

In their way they are scarcely less destructive than other parasites; they feed upon the juices of plants, but they do not, as in the case of some of the moulds, like the Potato mould, induce rotting and putrefaction. The word "brand," applied to some of them colloquially conveys an idea of burning or shrivelling as contrasted with rotting. One great difficulty in the study of these plants arises from the fact that, as Mrs. MALAPROP would say, "they are like CERBERUS—three gentlemen at once." In other words, the same plant in the course of its career appears in various guises. These different appearances depend upon different conditions of food and circumstance, and they are often so different that the connection between one and the other would not for a moment be suspected by the ordinary observer. There is nothing unusual about this. If we did not know from common experience that the caterpillar was once the tenant of an egg, that it will become sooner or later a chry-

* *A Monograph of the British Uredineæ and Ustilagineæ, &c.* By C. B. Plowright, F.L.S. (Kegan, Paul, Trench & Co.)

salis, and later on a butterfly, we should, no doubt, when the fact was first brought to our notice, receive it with incredulity, and most probably with ridicule. And so it has happened with these particular fungi. In this case, however, it was the cultivators who first gave the clue by asserting that there was a connection between the mildew of corn and the presence of Berbery bushes. The idea seemed so bizarre that it naturally met with discredit, from naturalists. But now we know that the farmers were, if not altogether right in their conclusions, yet not wholly wrong. The connection is not between the mildew of the corn and the Berbery bush, but between the mildew (Puccinia) that grows on the Wheat and the cluster-cup (Æcidium) that grows on the Berbery. Now these two things, Puccinia and Æcidium, are about as different as a caterpillar is from a butterfly, and that there should be any connection between them might readily be deemed incredible at first sight. If the matter had been pushed no further we should still be in the same stage of unsupported assertion on the one hand, and of incredulity on the other. Such a state of affairs is not consonant with nineteenth century ideas. The matter must be put to the test, the truth must be elicited by experiment. This has been done; the names of the late De Bary, of Strasburgh, rises foremost among the band of naturalists who within the last quarter of a century have proved the essential identity of these forms. Since then, not only the "Puccinia" of the Wheat and the "Æcidium" of the Berbery have been proved over and over again to be stages in the life history of one and the same fungus, but similar proof has been adduced in the case of very numerous other like instances. But it will be asked what is the nature of the proof which is relied on to demonstrate the reality of results so *primâ facie* unlikely?



Fig. 111.—Lælia digbyana × mossiæ. (see p. 658.)

The answer may be summed up in the two words cultivation and experiment. By appropriate means, and by taking care to avoid sources of error, the spores or propagative portions of these fungi may be sown and made to grow under cultivation, not by such rough-and-ready methods of cultivation as the farmer and gardener employ, but by the more delicate methods of the laboratory, the same indeed in principle, but more refined in detail. Further, and this is the crucial test, by inoculating one plant (say the Berberis) with the spores of the fungus growing upon another (say the Wheat), it has been found possible to cause the development on the Berberis, not of the Puccinia, but of the Æcidium. As we have said, experiments of this kind have now been made so frequently that all room for doubt has been removed except, indeed, in certain cases as to certain matters of detail. The most rabid anti-vivisectionist will raise no objections to such experiments, though logically and as a matter of principle he ought to denounce them. Most of the work of verification has hitherto been effected in Germany or in France, comparatively little has been done here. That defect bids fair to be obliterated, for without mentioning other workers in the same field, Mr. C. B. Plowright tells us that he has within the last few years made nearly a thousand experimental cultures. In the work before us he has given us the general result of all this labour, and has added a summary of information on the subject condensed from the now vast and scattered literature of the subject.

Mr. Plowright describes the varied appearances presented by these fungi in their several stages of growth, and according to the different "host plants" on which they feed. He tells us how he cultivated them, and made them reveal their secrets, and how he infected plants artificially.

These details occupy a third of the volume, the remaining two-thirds is taken up with a detailed description of the several species known to inhabit Britain, in which not only is their appearance detailed, but the dimensions of their several parts, their bibliography and synonymy, and last, not least, their biology or life-history. Thinking of what all these details mean, of the hundreds and thousands of microscopic measurements required, we are more than ever surprised that, in the exercise of a laborious profession, Mr. Plowright could ever have found the requisite time and patience to carry out his researches. Eight lithographic plates will give the reader an opportunity of understanding the general drift of Mr. Plowright's work, even if they are not concerned to pursue it further. Lastly come a series of indices, which will greatly facilitate the use of a work which is in every way creditable to the author.

The Late Professor Reichenbach.—The following letter from an old correspondent, one of many, expresses a feeling which we believe to be general among Orchidists. In principle we believe there will be substantial agreement. Points of detail can be arranged hereafter; in the meantime, we shall be glad to receive suggestions:—

"It would be a pleasing thing to do just now if a subscription were raised to commemorate the labours of Professor Reichenbach, with a view to found some distinction connected with Orchids which would be worthy his name, for I am sure the proposal would be well received and successful. Being a great lover of Orchids, it would give me great satisfaction to subscribe, particularly as it is just fifty years since I first made the acquaintance of Professor Lindley, and became a contributor to the *Gardeners' Chronicle*."

New Hybrid Lælia.—Decidedly one of the most remarkable, and with equal certainty, one of the most beautiful of the hybrids raised in the great Veitchian establishment by Mr. Seden, is Lælia Digbyana × Mossiæ, represented at p. 657, fig. 111. It was raised between Cattleya Mossiæ and Lælia (=Brassavola) Digbyana, and is described in our notice of Messrs. Veitch's Orchids at p. 652, and also in our report of the last meeting of the Royal Horticultural Society at p. 630, and at which it received the award of a First-class Certificate only—a very inadequate award when compared with others that are frequently made.

Kew.—Kew is, as it always is, full of interest, and even fuller of beauty than usual. Among the plants in bloom are Gerbera Jamesoni, a Natal Composite like an Arctotis with sinuate leaves, and flowerheads nearly 2 inches across, of an orange-crimson colour. Rosa simplicifolia is a great curiosity, and a very elegant one, having slender stems, leaves glaucous, reduced to the terminal leaflet only, and small yellow flowers, each petal provided with a brownish-purple spot at the base, so that the flower looks more like a Cistus than a Rose. Satyrium Hallackii is a noble terrestrial Orchid from Natal, with broad leaves, like those of an Hæmanthus, and a stout erect spike capped by a dense pyramidal spike of crimson flowers. That very extraordinary and certainly not handsome Acanthosicyos horrida is thriving, as well as two or three Welwitschias some eight or nine years old. For those to whom these have no charms the flush of Bluebells under the group of Araucarias near the Palm-stove will be as to every one else deliciously attractive. The beds of Parrot Tulips are still very showy, and the patch of Primula japonica on the wild mount very remarkable. The alpine-house is a blaze of beauty, but we trust the Directorate will keep it as an alpine-house or a house for the display of such plants as can be grown without artificial heat, or its *raison d'être* will be lost. As to the rockery—well—go and see.

National Dahlia Society.—The year 1889 being the centenary of the introduction of the Dahlia into England, the committee of the Society has added a novel and special class to its prize schedule for the show at the Crystal Palace on September 6 and 7. This centenary class is for a collection of Dahlia blooms, to occupy a space not more than 24 feet by 3 feet, any method of grouping and staging being allowed, and Dahlia foliage and moss may be employed. It is hoped thus to get together samples of all types of Dahlias. The prizes are £6, £4, £3, and £2. In addition to the display, a Conference will be held on Friday, the first day, when papers will be read as follows:—"History of the Dahlia," by Mr. Shirley Hibberd; "Development of the Show Flower," by Mr. H. Turner; "On Cultivation," by Mr. J. T. West; "Decorative, Pompon, and Single Dahlias," by Mr. J. Cheal.

The Gardeners' Royal Benevolent Institution.—It has been resolved to celebrate the fiftieth or Jubilee Year of the Institution as follows:—"To place upon the Pension List in July next the whole of the unsuccessful candidates at the election in January last (seventeen in number), upon the express understanding and condition that the sum of £3000 be realised, in order to provide for the great extra annual expense thus entailed, without trenching upon the reserved funds of the Institution." Such is the programme—such the way in which the gardeners propose to celebrate the Jubilee of their Institution. The project is a bold one. The excellence of its motives justifies the boldness. All success to a scheme about which nothing but good can be said. The Chairman of the approaching festival on June 13, Mr. Leopold de Rothschild, has contributed 200 guineas to the Fund, but nearly one half the amount required remains still to be obtained. With so good a cause and so energetic a Secretary, we expect the moiety will be forthcoming.—On Monday next, the 27th inst, the rock garden at Home House, Worthing, will be thrown open to the public at a small charge for admission, and the entire receipts are to be added to the Jubilee Fund.

The Rose Conferences.—The attempts, and very successful ones, which the Royal Horticultural Society has of late years made to render its meetings of more solid and permanent value than mere flower-shows are generally, are, as we have already noted, to be followed up in July next by a Rose Conference at Chiswick. Roses from a rosarians' point of view, using the term rosarian in its limited sense, are sure to be well cared for. No prizes will be given, but a fine display is almost a certainty. Would that the attempt to break away from conventionality in one direction could be accompanied by the abandonment of those hideous lines of green boxes, or at least that they could be re-arranged in some more graceful manner after the labours of the judges are over. At the Conference, rosarians, using the term now in its widest sense, are likely to find much interest. A new classification of Roses, the outcome of a quarter of a century's work by Professor Crépin will be published. Specimens of a wonderful new Rose from Birma, new Rose stocks from the Oural, drawings, photographs, and books relating to the Rose, are among the things that will be exhibited. Rosarians of all kinds and degrees who have anything of interest to exhibit are requested to communicate with the Secretaries of the Conference, Royal Horticultural Society's Gardens, Chiswick.

The proceedings of the Royal Botanic are to be far more unconventional. That Society proposes to hold a battle of flowers, and to give prizes for the decoration of donkeys! We pity the jurors; they will, we fear, have a very heavy task. It is difficult to reconcile such carnival-like absurdities with the promotion of botany. But "that's the humour of it" in carnival time, else we should have thought such proceedings more fitted for the "'All by the Sea."

Flowers in Season.—Mr. Ware sends us a box of flowers, alike showy and interesting. Here they are as we take them from the box:—

Aquilegia hybrida.—Pretty varieties of much delicacy of colour.

Pancratium illyricum.—A remarkable bulbous plant, with lily-like white flowers, with six linear segments and a narrow cup.

Cypripedium calceolus.—Our native species, with brownish segments and a boat-shaped yellow lip.

Papaver bracteatum ("Blush Queen").—Remarkable for its cream-coloured flowers flushed with pink.

Convallaria majalis prolificans.—A Lily of the Valley, with prolified flowers—a curiosity.

Polemonium himalaicum.—A very fine tall-growing species, with lilac-blue flowers, considerably larger than those of the better-known species.

Dodecatheon splendidum.—Rich in colour, its large magenta-coloured flowers marked at the base with a purplish-brown spot, edged with yellow.

The Garden at the Paris Exhibition.—The *Revue Horticole* gives a plan of the arrangement of the beds and clumps of shrubs, &c. The garden, as we have already mentioned, occupies the space between the Trocadero and the Quai de Billy. The area is divided into four compartments, in each of which are beds devoted to shrubs, Conifers, Roses, Camellias, Rhododendrons, Magnolias, fruit trees, &c., the number of such beds being no fewer than 107, the estimated number of plants 100,000, of which no fewer than 20,000 are Roses The exhibitors at this permanent exhibition number about 100. The Japanese garden is very curious. On Sunday last no fewer than 282,000 persons visited the exhibition. The first great flower show opened on May 24. We have despatched correspondents to note for us some of the more remarkable features. In the mean time we may mention that at the first

competition (from May 6 to May 11) Mr. Ware gained renown for his exhibit of Narcissus and Primula Sieboldi.

The Journal of the Bath and West of England Society for 1888-89 contains the reports of the Newport meeting, various papers of importance to practical agriculturists, including some already published in the *Journal of the Royal Agricultural Society*. Sir Thomas Acland's paper on the Chemistry of Farming is a popular exposition of the principles of chemistry which strikes us as admirably adapted for its purpose. We have only space to cite one passage, but the whole paper should be read by both farmers and gardeners. "The function of the plant is opposite to that of the digestion and excretion of the animal. Ammonia in the form of nitrates, is supplied to the vegetable as it gradually builds up, especially in the ripe seed, the nutritious albuminoid. But the plant in building up these albuminoids, changes ammonia into amides which, though imperfect food for animals, are specially adapted for the gradual development of the plant. If the plant be cut before the albumen is fully formed, there will be a large proportion of amides; in the early stages of growth there is but little albumen found." An amide is explained to be a compound of two atoms of hydrogen to one of nitrogen NH_2, in other words it consists of the elements of ammonia NH_3, minus one atom of hydrogen.

The Horticultural Club. — The usual monthly dinner of this Club took place on Tuesday, 14th inst., at the rooms of the Club, Hotel Windsor, Victoria Street, Westminster. There was a large attendance of members. The chair was taken by Mr. John Lee, who was enthusiastically welcomed, after his long and severe illness, on his again occupying his old position. Amongst those present were the Rev. F. H. Gall, Messrs. E. Blundsell, Philip Crowly, H. J. Pearson, C. E. Pearson, A. J. Pearson, George Paul, T. Francis Rivers, J. S. Dismoor, J. Lynch White, W. E. Baker, T. W. Girdlestone, A. H. Veitch, John Laing, J. Laing, jun., James Walker, &c. The discussion was on the Tulip, other than florist varieties, and was opened by Mr. James Walker in an interesting paper, which was illustrated by specimens of the early flowering and Parrot Tulips from home-grown and imported bulbs, showing that the flowers from the former were superior to those from the latter, and that it was possible to grow our bulbs in England instead of importing them from Holland. An interesting discussion took place, which was joined in by the Chairman, Messrs. A. J. Pearson, Rivers, Laing, and other members. A vote of thanks was accorded to Mr. Walker for his paper.

Tulipa eichleri has been sent to us from Mr. Smith, of Newry, and very distinct and handsome it proves to be; the leaves are wavy at the margins, the flowers rich crimson, with a purple "eye" edged with yellow.

"Botanical Magazine."—The May number of this periodical illustrates the following plants:—

Licuala Veitchii, t. 7053.—A singularly beautiful Palm, from the close and regular folds of its large, almost orbicular, bright green and convex leaves. It was distributed by Messrs. Veitch as a Pritchardia. It is a native of Borneo.

Smilax officinalis, t. 7054.—Interesting as being the source of the sarsaparilla of the pharmacopœia.

Pentstemon rotundifolius, t. 7055.—A hardy glaucous perennial, 2 feet high, with lower leaves ovate on long stalks, upper leaves sessile. Inflorescence a very lax thinly branched panicled cyme, bearing long tubular orange flowers about 1 to 1¼ inch long. Native of Chihahua in Northern Mexico. Introduced by Mr. W. Thompson, of Ipswich.

Saxifrage latepetiolata, t. 7056.—A species like S. granulata in habit, but with very broad, long leaf-stalks. Found only on one mountain in Valentia, Spain, at an elevation of 5000 feet. Hort. Kew.

Laportea moroides, t. 7057.—A species of Nettle inhabiting Queensland, remarkable for its virulent stinging properties, and for the fact that the segments of the flower become fleshy when ripe, and of a deep purple colour, the whole resembling a Mulberry, and confirming the relationship of Mulberries and Nettles.

The Spanish Exhibition.—This exhibition, which will be shortly opened to the public, will be held in the same buildings as the Italian and American exhibition of the last two years; and it is the intention of the promoters to follow the same lines in regard to the class of exhibits. In scanning the schedule, we find that horticulture is represented in class 2—vegetable products; class 3 includes the products of the farm and dairy, preserved foods, oils, &c.; and tobacco takes one class to itself. The varied exhibits of the whole eighteen classes should afford the visitor a good idea of the resources, the arts and sciences, of a large European country of which the average Englishman has but a limited knowledge. Mr. W. Goldring is the head of all matters pertaining to the garden, as he was in former years.

"Orchids."—Under this title a new serial, by Messrs. W. Watson and W. Bean, of Kew Gardens, to be completed in about ten monthly numbers, is announced for publication by L. Upcott Gill, 170, Strand, London. The work will be illustrated by engravings and coloured plates, and will treat of the culture of the plants, with descriptions of the kinds in general cultivation.

Botany of the Northern United States.—A new edition of the *Manual of the Botany of the Northern United States* is, says *Garden and Forest*, in the press, and will appear early in the autumn. It has been prepared by Mr. Sereno Watson, with the assistance of Professor John M. Coulter. The Willows have been elaborated by Mr. M. S. Bebb; the Carices by Professor Bailey, and the Ferns by Professor Eaton — the best authorities in the United States upon these difficult plants. The field covered by the new edition is enlarged to embrace the territory as far west as the one hundredth meridian, older editions having covered the Northern States east of the Mississippi River only. *Gray's Manual* is one of the best books of its class that was ever written, and for forty years it has been the constant guide and companion of every man and woman who have successfully studied the flora of eastern North America. No popular flora was ever cast in a better mould, or has had a more widespread and lasting influence. Twenty years have passed, however, since the last edition appeared, and a new one to include all the additions which have been made in recent years to our flora, and all the changes in nomenclature and grouping made necessary by recent investigations, has long been greatly needed. Professor Gray, up to the very end, expected to publish a new edition of the *Manual*, but the time never came when he could turn his hand to it without neglecting more important duties, and the task has fallen upon his associate and successor.

Messrs. Sutton & Sons, at Melbourne.—The Melbourne papers announce the following list of awards which have been made to the above firm of nurserymen at the Melbourne Exhibition:—First Order of Merit, for seeds, models of vegetables, and garden tools; for their seed germinator, and reliable system of determining the growth of all kinds of seed; for cabinet of natural grasses and agricultural seeds; for Mr. Martin J. Sutton's book, *Permanent and Temporary Pastures*, and other agricultural and horticultural works for fodder and ensilage plants, with Special Mention of Tall Fescue, Sutton's Giant Italian Rye-grass, Sorghum, Schrœder's Brome Grass, &c.; for Flax. Special Mention by the education jury, for originality and completeness. Honourable Mention, for Tobacco.

Hull and East Riding Chrysanthemum Society.—The meeting of the above in union on this occasion with the National Chrysanthemum Society, on November 21 and 22, promises to be of greater extent and variety than in any previous year, stimulated as exhibitors doubtless will be by the various silver cups, plates, and money prizes offered for competition. The premier prize is the Challenge Cup offered by Lieut.-Col. Gledhow, and a money prize of £15 for 48 blooms in not less than 18 varieties of incurved, and 18 varieties of Japanese. A glance at the schedule shows that the open classes for cut blooms offer the most inducements to exhibitors, the amateurs, who decline to enter the lists against all England, having to be contented with much inferior prizes. A Silver Challenge Cup and 10 guineas will reward the victor in the group contest; and the ladies will be enabled to compete in table arrangements, the highest award being a Challenge Plate value 4 guineas. We wonder had ladies been on the managing committee if the prize set apart for them would have been so small in amount.

Royle's Patent Tap-Union. — The desirability of attaching a garden hose to a common water-tap often presents itself to the gardener, amateur, or professional, but unless the tap has been fitted with a screw-nozzle this is not easily done. In Mr. Geo. Farmiloe's (West Smithfield, London, E.C.) catalogue, which, by the way, contains many implements of use to the gardener, and not much known, we lighted on the above tap-union, and an illustration. To make the connection to the tap it is merely pushed on, and the water pressure makes the joint, and the greater the pressure the firmer the connection. Various sizes are employed, the largest being for ¾-inch taps and ⅝-inch hose.

"Flore Forestiere de la Cochin-Chine."—Another part of M. Pierre's great work on the flora of the Cochin-China forests has recently been issued. It consists of a series of lithographic illustrations, large folio size, principally devoted to trees and shrubs, with appropriate descriptions. In the present instalment, the Mallows, Sterculias and allied orders, are dealt with. Few of the plants mentioned are of horticultural interest, but for those whose concern is with tropical forests, the publication is highly important. The plates are somewhat overcrowded with detail, or rather, the details are drawn of a size larger than is really necessary.

Timber Diseases. — At the Royal Society *conversazione*, held on May 8, among the curiosities exhibited, were, says *Nature*, various parasitic fungi, by Prof. H. Marshall Ward. These specimens included: piece of deal with grey mycelium of Merulius lacrymans, causing the common "dry rot" of timber; and a similar piece of timber attacked by the white mycelium of Polyporus vaporarius, another and quite different fungus, which produces a form of "dry rot;" portion of Pine-stem infected with Peridermium pini, the Æcidium form of Coleosporium senecionis — the other form of this parasite is found on various species of Groundsel (it does much damage to the Pines in some forests, producing so-called "cankers" as disastrous as those of the "Larch disease"); specimen of Wheat infested by Ustilago carbo (U. segetum), showing the destruction of the ears by the fungus, the black spores of which completely occupy the interior of the grain; specimen of grass attacked by Epichlœ typhina, a destructive ascomycetous fungus which infests the flowering shoots of pasture grasses; culture specimens of Sclerotia developed from species of Botrytis, which destroy certain garden plants. Microscopic preparations of these were also exhibited.

Publications Received.—*Transactions of the Scottish Horticultural Association, 12th Annual Report.* (Edinburgh: 5, St. Andrew Square).—*Uses of Plants.* By G. S. Boulger, F.L.S. (London: Roper & Drowley, 11, Ludgate Hill).

CHRYSANTHEMUM ULIGINOSUM.

For September and October flowering this fine perennial can hold its own against all comers. (See fig. 112, p. 661.) Specially suited is it to gardens on a large scale, public parks, or the like, where it may be planted in isolated clumps, which in a couple or three years will do the plant credit. In places like these it will attain fully 6 feet high and quite as much through, and such specimens as these, laden with innumerable pure white flowers, makes it very useful indeed. And particularly is it valuable after the frosts have cleared off Dahlias and other flowers of like hardihood. Hitherto the height which this plant attains has been a considerable drawback to it, for many growers of perennials have not space to allow such an one free scope in their borders or beds; and it is, therefore, with pleasure that I record a means, of which I believe I am the originator, of reducing the height of the above plant to 3 feet, or about one-half its usual height; and having practised it for two seasons with complete success, I am in a position to recommend its adoption generally, not only in small gardens from which by reason of its height it has been excluded so long, but also for public parks and gardens alike; for all will readily admit that it is easier to view a flowering plant at 3 feet high than one at 6 feet—certainly much more convenient to a great number.

To reduce this plant, then, to the height stated, I simply cut it down to within 4 or 6 inches of the ground in the first week in June, at which time it will be 1½ foot or 2 feet high, allowing it to grow again at will, unless any shoots take the lead, when these are pinched out. In this way I get a bed of white bloom 3 feet high, with all its beauty revealed, and the number of flowers considerably increased by reason of several breaks resulting from the pruning process. Nothing can be more simple for any one who may care to adopt it, and yet calculated to give better results, fitting it at the same time for a wider field of usefulness.

Last season, to test the difference in flowering—or rather with a view to extend the flowering period itself—I only cut down the half of my stock. The difference in flowering, however, was but slight, those which were not pruned flowering just a week earlier. What a fine bed this would make with Aster amellus bessarabicus as a margin! I see no reason why the same plan would not answer equally well for dwarfing the taller Michaelmas Daisies, should occasion require.

The above plant, also known as Chrysanthemum serotinum, is well suited to autumn planting, and is productive of good effect in shrubberies where plenty of room may be afforded it. *E. Jenkins.*

HOME CORRESPONDENCE.

☞ *Correspondents will greatly oblige by sending early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Photographs or drawings of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

TOBACCO-WATER FOR APHIS ON FRUIT TREES.—The simplest and most effective means I know of for destroying aphis, and in a measure averting their attacks on fruit trees, especially the black aphis, so common on the shoots of Cherries, is to syringe the trees on the first appearance of the fly with a solution of clean water and tobacco juice, at the rate of 1 quart of the latter to 4 gallons of the former. Trees affected with aphis on south and east walls should be syringed in the afternoon after the sun has left the wall, and those on north and west walls should be syringed in the morning, and advantage should be taken of dull weather to syringe them even during the hours of sunshine. I have fruit walls nearly 1 mile in length, but for this great length an 18-gallon cask of tobacco-juice from Messrs. Griffiths & Avis, Coventry, applied as recommended, is enough for one year. Its application at the proper time—*i.e.*, on the first appearance of the aphis—not only kills the insects then on the trees, but renders the foliage distasteful to them for the rest of the season. *H. W. W.*

A CURIOUS GROWTH IN AN ELM TREE.—I have lately made what I consider to be a remarkable discovery. I was engaged about a fortnight since in felling some old Cornish Elms (Ulmus cornubiensis), evidently of great age, judging from their girth, &c.; two or three appeared as though they had been struck by lightning, being very much mutilated, and completely hollowed from the top to the root; but my attention was particularly called to the interior of one by the tree fellers, who had discovered a clump of small branches growing inside the hollowed trunk, and hanging down perpendicularly, I should say about a dozen small tufts in all, and of a blanched appearance. The foreman informed me that he had thrown a large number of trees, but never before did he remember having seen such a curious formation. *E. W. Serpell, Plymouth.* [It is not very uncommon under similar circumstances. Ed.]

FRUIT PROSPECTS IN KENT.—I do not remember ever having seen so good a prospect of fruit as at present, and no one knows what this means so well as the man who has to pay his rent out of his orchards, and the gardener who has, perhaps, a large establishment to supply with fruit at all seasons. The Cherries on the wall trees are set, and the Morellos on the north wall are a beautiful sight. In the woods are to be seen the Gean trees in full bloom, where it is a good plan to plant them, to afford fruit-food for the birds, thereby saving the garden Cherries. The bloom on Apple trees is just opening; the first was Oslin, and the second the Irish Peach. Pears are a splendid show; the Plums on the south wall are set, and the standards are full of promise. Gooseberries have set well. I have for years mulched the bushes with fresh manure from the stables as soon as they were pruned; this keeps down caterpillar, and also keeps the fruit clean throughout the summer; but then the sparrows follow the manure, which is an evil, as they eat the buds, but this season this was prevented by dusting the trees with soot. All small fruit promise well; the Strawberry blooms on the south border are just opening, the old Black Prince being the first to expand; then King of the Earlies, and close on their heels is "The Captain," in every point, except in that of extreme earliness, their superior. *J. Rust, Eridge Castle.*

—— **IN YORKSHIRE.**—The prospect in the north of Yorkshire is good for all kinds, with the exception of Apricots and Peaches on open walls. The Peach trees suffered greatly from the want of warmth last summer, and the wood was very immature, consequently no flowers formed, and much of the new wood was killed by frost. Bush fruits promise abundantly, as do Strawberries; Apple bloom is plentiful, many varieties strong and the flowers of good substance, and if the present mild weather continue the crop should be a good one. Pears have a good promise in so far as regards blooms, but these are poor and small, many of them being without a germ in the flower. Plums with us are partial, some trees carry an excess of bloom, whilst others are without any. Cherries have a great quantity of flower; the soil of our garden is too heavy for Cherries, except in a hot season, when we generally get a fair crop; and Strawberries last year were a failure in this district, but this season the promise is much better. The last frost which visited us was that of March 21, when there were 7°. The garden and field crops, and trees generally, are looking well, although we have had a continuance of cold easterly winds and very little sunshine. Grass is abundant; the Wheat and other corn crops promise well. *W. Culverwell, Thorpe Perrow.*

HARDY FRUIT TREES: PINCHING THE YOUNG SHOOTS.—By following a course of judicious pinching of the young shoots of fruit trees [not Peaches and Nectarines] in the month of May, much may be done to render both old and young trees fruitful the next year. By pinching back all foreright and superfluous shoots to within a couple of inches of their base, the trees get better furnished with fruit buds, and which, if the stopping has been done betimes, have ample time to become matured before growth has ceased. The leading shoots it is better to pinch when they reach a length of 18 inches, a proceeding that will induce the buds to become plump and the pinched shoots to thicken. Over-strong leading shoots should be pinched back to within a few inches of the old wood, as this will tend to divert the flow of sap into the weak shoots, and promote a proper balance of growth in the trees. *H. W. W.*

"GOOD OLD MAN."—Your note on this almost universal favourite threw my memory back to childhood's days, when hardly a cottage garden in the north of Scotland was without a plant of it. Further travel showed that the plant was as much appreciated in other parts as it was in my native district, and so it is yet, after many years, in the country; but it is less so in the towns of Scotland than, from your note, it appears to be in London. Here it rejoices in the names "Lad's Love," "Malo-ringie," and "Apple-ringie." Formerly it would have been rare to see the wife or the daughter of a rural labourer at church without a sprig of it in her hand or on her breast, it being the most favoured scent procurable from the garden at any season. Less of this is seen now than formerly, but the plant is still to be found in most country gardens in Scotland. *W. S.*

THE WEATHER BY THE TWEED.—We are having the best weather for May we have had since 1870. An entire absence of frost at nights, the glass never below 45° all night, and as high as 71° during the day. *H. T.*

DAPHNE CNEORUM.—I lately saw in a garden near here a plant of this shrub trained on a wire-frame to keep it off the ground, 4 feet high, 5 feet in diameter, and covered with bloom. A Brompton Stock two or three years' old was nearly equal in size. *South Ireland.*

VIOLETS IN SMOKY LOCALITIES.—I would willingly help your correspondent, "Nil Desperandum" if it were in my power to do so, but I am afraid any advice I can give is more theoretical than practical, as I have had very little experience of smoky localities. I think, however, an east aspect sheltered by a wall would be better than a west one, as the prevailing winds during the growing season are generally from the south and south-west, so that I think the plants would be somewhat screened from the smoke and smut. I also think a moderately rich border would be better than a heavily manured one, and I would be content with plants of moderate size; at least, I would not encourage anything like soft growth, as such would be very liable to damage from a smoky atmosphere; and I also think the use of stimulating chemicals would be very detrimental, as soft growth will not withstand ordinary damp, let alone anything else. I hope your correspondent will be helped from some more experienced quarter. Perhaps Mr. Baillie, Luton Hoo, who is a capital Violet grower, and who lived for some years at Heaton Park, in the smoky region of Manchester, might be able to say how he battled with the enemy, as I know he successfully overcame him in many other matters during the time he was in charge there. *J. Heath, Sedgwick, Kendal.*

APHELANDRA CRISTATA.—Mr. Lynch and others interested in this plant, will be pleased to hear that we have it represented here. *Owen Thomas, Chatsworth.*

EARLY "BERRIES."—With the month of May usually comes the question, when will the Gooseberries be ready?—and very often the answer is hardly satisfactory, more especially in a cold late spring like the present, so that it is with great pleasure that I call attention to the fine kind, Early Kent, which is not nearly so well known as it deserves to be. It is from seven to ten days earlier than any other, which is a great gain to the grower, and to be of the market it means very considerable gains. For example, one grower in Kent in 1886 cleared £120 per acre for this Gooseberry alone. I got my plants from Mr. Bunyard, and am much pleased with the kind. *J. Rust, Eridge Castle.*

MAY RAINS.—A dripping May not only makes plenty of hay, but is specially favourable to most garden products and prospects. The second week of this May brought us a spell of midsummer heat and drought. It was brief, but severe while it lasted, and ended in a short sharp thunderstorm on the evening of the 9th. The 10th was showery, and in the evening the clouds gathered themselves together for a serious downpour, which lasted throughout the night and the following day, the 11th. This has saturated the land, and flooded large tracts of meadow land in low-lying

districts. On the whole, unless we have an excess of these May showers or down-pours, they will prove fructifying as well as cleansing. Owing chiefly to this cause, rains were needed alike in the garden and on the farm, the chief one was that the long spell of dull cool weather had made most crops abnormally sappy and consequently tender. Hence as long, their cleansing power will also prove specially valuable. Up to the sudden advent of summer heat, vegetation was specially free from blight and insect pests; both, however, appeared the day before the thunder, and it may be hoped that this unusual downpour in May may check the progress of aphides, and drown or wash off not a few Rose grubs and Apple maggots which have suddenly put in an appearance. *D. T. F.*



FIG. 112.—CHRYSANTHEMUM ULIGINOSUM: FLOWERS WHITE. (SEE P. 660.)

THE PHILOSOPHY OF THE AURICULA.—On p. 563 "E. B." exclaims, "How I should like someone to take up the Auricula and cross it with anything with which it can cross." It may comfort "E. B." to know that there are floral heretics. In my own small way I have produced a floral heresy by crossing a blue-flowered alpine Auricula upon Primula ciliata purpurea, and secured a hybrid of much larger size, and intermediate between the two in colour, with the foliage of P. ciliata. I submitted this to the Floral Committee of the Royal Horticultural Society on April 23, and they requested to see it again. But they must wait until next April, for it produced but three blossoms, and they were at their best when at the Drill Hall; but I fertilised two flowers with their own pollen, in the hope of getting a pod of seeds. Among the dozen fancy Auriculas I exhibited at the Drill Hall on April 23 was a very large one, having a circular mealed centre, and broad edging of deep purple-blue. It is a nondescript belonging partly to the show and alpine classes, but owned by neither. It is a very large-flowered variety, and it attracted a considerable amount of attention, and I have received several

the spell of midsummer heat in May had caused many plants and flowers to droop considerably, and almost arrested the growth of the crops and the germination of seeds. Growth is now renewed, and the beds of the rare and spring seeds are up with a rush, so that unless the north wind and sudden fall of temperature should continue too long, or run to extremes, vegetation may yet be pulled up to time, as well as to more than average quality, through these May rains. Being specially heavy, as well

inquiries for plants. The pips, though large, are quite flat, and it is surprising what a time it remains in bloom. A gardener of good position and ability advised me to discard all other types of the Auricula, and confine myself solely to the development of this nondescript, assuring me a strain of this character would take with the public. He was a heretic quite after "E. B.'s" heart. I cannot go the length of abandoning other types, but I mean to seed from this big blue, and wait for events. But my heretical tendencies are small indeed compared with those of Messrs. Sutton & Sons of Reading. They have branched off into a totally fresh line. In 1884 pollen was taken from a creamy-white Polyanthus, and placed on a yellow alpine Auricula. It gave a remarkable progeny, most of them yellow Auriculas ranging in colour from sulphur to brownish-orange, one has all the appearance of a monster black Primrose; it is very dark in colour, with a yellow centre, the pedicels are very long, and there is no sign of a peduncle. It is a floral monstrosity, the sight of which would, I think, gladden the heart of "E. B." But there is one seedling from this attempt which has the foliage of the Auricula, but pale yellow flowers that look more like those of a Polyanthus than an Auricula. No two of the seedlings have foliage quite alike, but in any case it partakes of the Auricula character. Another cross was attempted between Primula japonica and a dark Auricula; it was made both ways, so that each should become a seed parent. The progeny is represented by a number of seedlings of a very strong growing alpine character, but I saw nothing special among them. On one point I lacked enlightenment—whether the seedlings I saw were from the Auricula mother only. I imagine they were. I presume the P. japonica mother brought only its type. I was sufficiently orthodox to look upon the result as so many Auriculas spoilt. But Messrs. Sutton & Sons think P. japonica has added vigour to the progeny. Another cross was that of P. Sieboldi on to an alpine Auricula. In this case the seedlings were alpine Auriculas of the ordinary type, with one conspicuous exception; the flowers were those of an alpine Auricula, but remarkable for their rich magenta-rose colouring of a brilliant hue. This is of vigorous growth and very free; but for two years past it has not produced seeds, though the flowers appear to be complete, and it is carefully fertilised with its own pollen. Yet one more attempt. This was by crossing P. cortusoides on to an alpine Auricula. Here again was a progeny partaking largely of the alpine Auricula, but two seedlings appeared as if something of the pollen parent had been transmitted to them. One had the foliage of P. ciliata, and it bore trusses of greyish cream flowers, with lilac on the reverse; and it appeared to be a decided hybrid. Another had shaded purple flowers, with a funnel-shaped throat of white, like a species of Primula. Now, whether anything useful can be derived from these apparent hybrids remains to be seen. At present Messrs. Sutton & Sons grow them among their collection of Auriculas instead of isolating them from any contact of pollen from other flowers. Perhaps it is hardly worth while carrying the matter further, but I place the facts upon record that "E. B." may see there are "abominations" of to-day, but whether new combinations can be formed of them so as to lead to something astonishing, time alone can show. *R. D.*

THE WEATHER IN WESTERN SCOTLAND.—We have had a very backward spring here, but since the very beginning of this month the weather has been all that could be desired for seed sowing and garden work generally, and the temperature so uniformly high. I actually regret not beginning the bedding out the 1st of May instead of waiting until the 1st of June as is usual here. *R. B.*

THE ELVASTON VARIETY OF STEPHANOTIS FLORIBUNDA.—There are few plants more serviceable than the Stephanotis for giving a supply of fragrant white blooms, that may be extended over a great part of the year by a little judicious arrangement, and this variety of it is suitable for growing and flowering in small pots. To obtain well-bloomed plants in small—say, 5-inch—pots, cuttings of the young shoots which have become sufficiently solid, are put in threes or fours into pots of sandy loam and leaf-mould, inserting the cuttings close to the edge of the pot. When rooted they are potted into the sizes required, using sandy loam for the potting soil. After making about 1 foot of growth they are rested, and started in batches at various times. If desired, after flowering they may be cut down to make fresh rods, similar to Vines, and if the shoots of this variety can be made to extend themselves, it is all but a perpetual flowerer. Just now the roof of a plant-house is one sheet of fine trusses, of which the samples now sent afford an idea of their size and beauty. This plant was planted in a bed of nearly all loam, and is covered with shingle to afford drainage to the plants standing on the soil. One would imagine that the supply of moisture would be too much at the wrong season, but it proves that it is a mistake to dry off too severely at any season. *W. W. Ward.* [Very finely developed. Ed.]

USTILAGO ANTHERARUM.—This parasite is so prevalent in my woods at present on flowers of Lychnis diurna that my ladies have been decorating the tables with "a new variety of Rose Campion with black eyes." *C. Wolley Dod, Edge Hall, Malpas.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

May 14.—Present: Dr. M. T. Masters in the chair, Messrs. McLachlan and Wilson, Drs. Scott and Mueller, and Rev. G. Henslow (Hon. Sec.).

Death of Prof. Reichenbach.—Dr. Masters called the attention of the committee to the sad and somewhat sudden death of this eminent Professor, and alluded to the great loss to which the scientific and gardening worlds had sustained by it. He had been the Director of the Botanic Gardens, Hamburg, since 1873.

Malformed Banksia.—Dr. Masters reported upon the specimen exhibited at the last meeting which he had received from Baron von Mueller. It appeared to consist of a mass of very small branches and leaves situate below the inflorescence, and covered with fine brown hairs. It was impossible to discover the cause, though some injury by insects in an early stage appeared to be most probable, when the plant was at rest; so that a supernumerary set of organs were thrown out in aid of transpiration, taking place at an unusual season, and which probably was in excess in consequence of the hypertrophied condition of the plant in the region in question.

Peach with scale insects (?).—A specimen badly infected with some insect closely resembling the mealy bug, was received from Somerset. Mr. McLachlan stated that the insect in question was Pulvinaria vitis, which had probably strayed from the vines on to the peach trees.

Winter moth, protection against.—Mr. Wilson observed that the plan recommended in the *Agricultural Gazette* of October 15, 1888, of making a ring of cart grease and Stockholm tar, round the bases of fruit trees, though very effectual in catching large quantities of wingless females, had not prevented them from attacking the trees altogether, as the leaves on certain trees thus treated (as described at the scientific committee on January 15th, 1889), were all going at the present date.

Skimmia Fortunei, Mast.—Dr. Masters exhibited a dried specimen of this hermaphrodite species, received from the I-Chang Mountains, which completely corroborated the results of his investigations into the history of the Skimmias of our gardens, viz., that it was first introduced by Mr. Fortune from the nursery gardens of China; while the true S. japonica is a Japanese plant, and always diœcious; the "forms" oblata and fragrans being referable to the latter plant. Hybrids between the two species are mostly, if not always, bisexual.

Photographs from Madeira.—Dr. Masters exhibited several photographs of plants from this island taken by Harcourt Powell, Esq., of Bury St. Edmunds, including one of Phytolacca dioica, as a large tree with a massive base of confluent roots, the usual form of this plant in Europe being a herb!

Floral Committee.

Awards.

First-class Certificates.

To Pink Her Majesty, from Mr. F. Hooper (10 votes).

To Dracæna Doucetti, from J. Veitch & Sons (8 to 2 votes).

To Rose Silver Queen, from W. Paul & Son (11 votes).

To Begonia Duchess of Teck, from J. Laing & Sons (12 votes).

To Begonia Stanstead Gem, from J. Laing & Sons (unanimous).

To Crinum Kirkii, from Mr. F. Ross (12 votes).

To Cunonia capensis, from Mr. G. Wythes (7 to 6 votes).

Awards of Merit.

To Mimulus grandis, from R. Dean.

To bedding Pansy Golden Crown, from R. Dean.

Medals.

Silver Gilt Banksian.—To Messrs. W. Paul, for group of Roses; to C. F. Partington, Esq., for group of Orchids.

Silver Banksian.—To Messrs. Barr & Son, for collection of cut flowers; to C. Turner, for group of Azaleas; to Messrs. H. Lane & Son, for group of Roses; to Mr. J. Walker, for collection of cut flowers.

Bronze Banksian.—To Messrs. J. Veitch & Sons, for group of Maples.

Orchids.

First-class Certificate.

To Lælia Digbyana × Mossiæ, from James Veitch & Sons, Chelsea.

Silver-gilt Banksian.

To group of Masdevallia, from C. J. Partington, Esq., Heaton House, Cheshunt.

Botanical Certificates.

To Ponthieva maculata, from Sir T. Lawrence, Bart., M.P., Burford Lodge, Dorking.

To Acineta maculata, from Sir T. Lawrence, Bart., M.P., Burford Lodge, Dorking.

To Brassia caudata, from G. T. White, Esq., Drayton Villa, Winchmore Hill, N.

To Saccolabium cerinum, from Mr. F. W. Moore, Royal Botanic Gardens, Dublin.

Cultural Commendation.

To Phalænopsis grandiflora, from Mr. C. J. Partington, Heaton House, Cheshunt.

ROYAL BOTANIC.

At the first summer show reported on in last week's issue, the following certificates were awarded. Some of the plants have been referred to previously.

Floricultural.

Begonia magnifica, large, round, crimson, single (J. Laing & Sons).

Begonia gigantea, round, bright carmine, single (J. Laing & Sons).

Begonia Stansted Gem, scarlet, double (J. Laing & Sons).

Begonia J. Marshall, rich red, erect, single (H. Cannell & Sons).

Begonia J. Douglas, rich pink, single (H. Cannell & Sons).

Begonia Hon. Mrs. G. Goschen, pale cream, double (H. Cannell & Sons).

Begonia Imogen, pale pink, double (H. Cannell & Sons).

Oncidium sarcodes maculatum, yellow, with numerous dark brown spots, lighter on the lip (J. Laing & Sons).

Dracæna Douceti (J. Veitch & Son).

Pink Her Majesty (F. Hooper).

Ramondia pyrenaica alba (Paul & Son).

Odontoglossum hebraicum excellens, heavily spotted with crimson-brown on white (F. Sander & Co.).

Rose Silver Queen (W. Paul & Son).

Thalictrum aquilegifolium rubra, mauve flowers (Paul & Son).

Tiarella cordifolia (Paul & Son).

Primula Sieboldi Crimson King, rich crimson (T. S. Ware).

Aubrietia tauricola, pale violet (Paul & Son).

Botanical.

Edrianthus serpylifolius, erect, campanulate; flowers blue (Paul & Son).

Asplenium scandens, fine pinnæ, stock scandent (J. Veitch & Son).

Masdevallia caudata-Estradæ (J. Veitch & Son).

Aciphylla squarrosa (J. Veitch & Son).

Brassia caudata (G. T. White).

Catasetum discolor, brownish-red, with green suffusions; lip large, side-lobes fringed, petals and sepals small, column pale yellow (F. Sander & Co.).

Vegetable.

Cucumber Lockie's Perfection (T. Lockie).

BOTANICAL SOCIETY OF EDINBURGH.

May 9.—The society met in the club-room, Royal Botanic Garden. Dr. Craig, president, in the chair. The following communications were read:—

I. "Report on Fungi collected in Norway by the Scottish Alpine Botanical Club in 1887." By Professor J. W. H. Trail, M.D., F.L.S.

II. "On Temperature and Vegetation at the Royal Botanic Garden." By R. Lindsay, Curator.

"*Report for April*, 1889.—During the month of April vegetation made very good progress; seldom has there been so little frost for April. Rain fell on twenty-two days. Such an excess of rain, before the leaves of deciduous plants have become expanded, is generally beneficial. For newly transplanted trees and shrubs the weather has been all that could be desired.

"The thermometer was at or below the freezing point on six mornings; the total amount of frost registered was 6° as against 58° for April, 1888. The lowest readings were—on the 2nd, 30°; 3rd, 29°; 15th, 31°; and on the 4th, 9th, and 15th, 32° respectively. The lowest day temperature was 41° on the 4th, and the highest, 67°, on the 17th.

"The collective amount of frost registered this season up to the end of April is 342°, as against 589° for the same period last year. The following is the distribution for each month:—October, 9° of frost; November, 20°; December, 57°; January, 57°; February, 103°; March, 90°; April, 6°; total, 342°. The lowest point reached this season was 16° Fahr., which occurred on March 4.

"On the Rock garden, 134 species and varieties of plants came into flower during the month.

"Of the forty spring flowering plants annually recorded to show their periods of flowering, five came into flower, thus completing the list, viz:—Adonis vernalis on April 6, Narcissus pseudo-Narcissus on April 7, Aubrietia grandiflora on April 16, Symphytum caucasicum on April 16, Fritillaria imperialis on April 30." (See table below.)

III. "On Temperature and Vegetation at the Glasgow Botanic Garden." By R. Bullen, Curator. The following is an extract:—

"The thermometer was at or below the freezing-point on nine mornings during the month; the lowest reading was 6° during the night of the 13th. The total readings was only 12°, but the temperature was frequently near the freezing-point. During the first half of the month cold east and west winds prevailed, and vegetation made slow progress. All the very hardy kinds of perennial and biennial plants have been quite as prolific of bloom as usual. The rainfall was again light."

IV. Exhibition of rare plants at the Royal Botanic Garden.

Exhibits from the garden were Roridula dentata, a fine healthy specimen of this shrubby Drosera.

The following were exhibited in flower, viz.:—Androsace villosa, A. lactea, Bryanthus erectus, Corydalis nobilis, Narcissus calathinus, N. juncifolius, N. muticus × juncifolius, Primula auriculata, P. farinosa, P. integrifolia, P. mistassinica, P. rosea, P. Sieboldi vars., P. Reidi, Pinguicula caudata, P. alpina, P. elatior, Saxifraga pallida.

DATES AT WHICH FLOWERS HAVE APPEARED.

Names of Plants.	First Flowers opened.			
	1886.	1887.	1888.	1889.
Adonis vernalis	April 3	March 29	April 16	April 6
Arabis albida	March 4	Feb. 27	Feb. 6	March 18
Aubrietia grandiflora	April 6	March 19	April 14	April 16
Bulbocodium vernum	Feb. 27	Feb. 19	Feb. 22	Feb. 18
Corydalis solida	April 6	March 26	April 6	March 23
Corylus Avellana	Feb. 10	Jan. 26	Jan. 25	Feb. 22
Crocus Susianus	Feb. 12	Feb. 4	Jan. 26	Feb. 14
,, vernus	March 17	Feb. 17	Feb. 23	Feb. 23
Daphne Mezereum	March 22	Feb. 5	Feb. 22	Jan. 26
Dondia epipactis	Dec. 30, 1885.	Jan. 13	Jan. 5	Jan. 3
Draba aizoides	March 31	March 28	March 30	March 22
Eranthis hyemalis	Feb. 10	Feb. 4	Feb. 8	Feb. 3
Erythronium dens-canis	March 26	March 19	March 31	March 30
Fritillaria imperialis	April 25	May 4	April 29	April 30
Galanthus nivalis	Feb. 9	Jan. 27	Jan. 26	Jan. 31
,, plicatus	Feb. 9	Jan. 31	Jan. 26	Jan. 26
Hyoscyamus Scopolia	April 3	March 23	April 13	March 29
Iris reticulata	March 20	Feb. 26	Feb. 23	Feb. 25
Leucoium vernum	Feb. 17	Feb. 14	Feb. 4	Jan. 30
Mandragora officinalis	April 3	March 2	March 8	March 12
Narcissus pseudo-Narcissus	April 6	March 23	April 3	April 7
,, pumilus	March 25	March 14	March 17	March 25
Nordmannia cordifolia	March 20	Feb. 18	Feb. 11	March 4
Omphalodes verna	April 3	Feb. 28	March 23	March 16
Orobus vernus	March 28	March 6	March 31	March 26
Rhododendron atrovirens	March 23	Feb. 17	Feb. 3	Jan. 17
,, Nobleanum	April 4	Feb. 26	April 13	Feb. 6
Ribes sanguineum	April 8	March 23	April 10	March 30
Scilla bifolia	March 19	March 2	March 19	March 6
,, ,, alba	March 21	March 4	March 8	March 12
,, præcox	Feb. 13	Feb. 16	Jan. 26	Feb. 1
,, sibirica	Feb. 17	Feb. 19	Jan. 30	Feb. 3
,, taurica	March 20	Feb. 27	March 8	March 14
Sisyrinchium grandiflorum	March 21	March 4	March 8	Feb. 20
,, album	March 21	March 8	March 13	Feb. 26
Symphytum caucasicum	April 20	April 10	April 18	April 16
Symplocarpus fœtidus	March 23	Feb. 14	Feb. 8	Feb. 22
Tussilago alba	Feb. 10	Feb. 3	Feb. 9	Feb. 14
,, fragrans	Feb. 6	Jan. 19	Dec. 28, 1887.	Jan. 11
,, nivea	April 3	April 4	April 10	Feb. 27

SCOTLAND.

DAFFODILS AT PENICUIK.

The most complete collection of Daffodils in Scotland is that which has been gathered together by Mr. C. W. Cowan, of Valleyfield, Penicuik, Midlothian. It comprises about 300 species and varieties, among which are to be found some of the oldest favourites, and the most recent novelties. Valleyfield lies between 500 and 600 feet above sea-level on the northern side of the river Esk, about 12 miles south of Edinburgh, and in a district remarkable for picturesque beauty. The bulk of the collection of Narcissus is cultivated in the borders of the kitchen garden, the conditions of which, as regards situation and drainage, are not the ideal of perfection for the culture of this popular family of bulbs. The garden lies at the base of a steep thinly-wooded height, which encloses it on the northern and eastern sides in a semicircular form. On the south side it is bounded by a capacious lake or canal, continually filled with water for the use of the adjacent extensive paper works of Messrs. Cowan, the productions of which have obtained a world-wide fame. Let the intelligent Daffodil grower realise further that the canal throughout its contact with the boundary of the garden runs at a level, in some parts, 6 or 7 feet above that of the atter, and also that the lofty buildings of the paper factory bound it on the south-east end, and he will conclude that Mr. Cowan cultivates his favourite flowers under very considerable difficulties. The garden, in short, is damp, and could hardly by any practical means be rendered dry enough to suit the requirements of the more delicate of Narcissi. The soil, however, is favourable, being an excellent dark loam of medium texture.

Notwithstanding the drawbacks alluded to, the results are a just source of pride and pleasure to Mr. Cowan, and of gratification to the public also, especially to the horticultural and flower-loving public to whom Mr. Cowan freely opens his garden and pleasure-grounds during the blooming period of the Daffodils. Appreciating the difficulties of his situation, Mr. Cowan is trying many experiments with those varieties that are impatient of soils enriched by and under the usual conditions of garden cultivation. The more robust forms and garden varieties generally are found to do well in lines on the ordinary level of the borders, but such as the Scotch Daffodil is found to succeed capitally planted in the grassy slope on the north or garden side of the canal above-mentioned, also on a similar grass-covered bank with a south aspect, and again in the openings between the trees on the wooded height to the north of the garden where, along with the Tenby form, and many of the incomparabilis varieties, they seem more at home than anywhere else.

Frames are provided for such as N. pallidus præcox, N. bulbocodium, N. tortuosus minor, N. cyclamineus, N. juncifolius, N. calathinus, N. capax, and others of similar constitution, in which they are either planted out or grown in pots. Capax is also accommodated in the border close by one of the houses, along with other delicate sorts whose blooming time was over at the time of my visit, but capax was blooming bravely then. Another expedient suggested by the local difficulties of the garden, and adopted with the view of overcoming them as regards the culture of the Daffodils, is a large raised bed, boarded up at the sides and ends, 2 feet or rather more high above the surface of the frame ground in which it stands—altogether not unlike a cradle or stock-bed as used in nurseries, but specially drained and filled with compost congenial to the various sorts which are planted in it. A selection of the more difficult, as well as the more accommodating kinds were doing well here, the latter, however, no better than the same sorts growing in the borders hard by. This is a hint, that others having similar difficulties in regard to drainage to those at Valleyfield, will no doubt profit by; but I may be permitted to remark in passing, that it would perhaps be improved upon by substituting rough stones for boards to support the sides of the bed. The drainage would be more perfect, the stones be better absorbers of warmth than boards during the ripening period; and by the exercise of a little skill in building them up, spaces could be provided between them in which the most delicate Narcissus would find congenial quarters—congenial in every respect—drainage, soil, and last, but not least, I suspect, in the case of some, aspect also. It would further be practicable to clothe the surface of the spaces occupied by such Narcissi as

are known to prefer being surrounded by herbage, rather than to spring from the naked ground. Many alpine plants might be made use of in this way, and would contribute an additional charm to the device.

Edinburgh Royal Botanic Garden.

That this garden is to be retained as a national institution, instead of being handed over to the University, as was proposed by the Government last year, is no small matter for congratulation. No doubt the University would, with the probable small subsidy from the treasury, have done the best it could under the circumstances to have maintained the reputation and efficiency of the garden; but contingencies might arise over which the executive would have no control, and against which the resources of the garden would perhaps have been powerless to cope, thus crippling the power of usefulness of the institution. Had such eventualities occurred, it would have been little short of a national calamity to Scotland, and to its capital in particular. However, the garden has been placed directly under the control of Her Majesty's Board of Works since March 1, which is an event which it is hoped will herald the advent of more prosperous times. One most important alteration has thereby been made —the garden is now open daily at 6 A.M., and remains open until sunset; and also on Sunday, which latter privilege the public seem to appreciate, as we learn that on March 14, 10,000 visitors passed through the gates; thus, even in Scotland, it is evidently not considered wrong to inspect and enjoy the marvels of Nature on Sunday. That the present executive will do its utmost to popularise the gardens, and extend their usefulness, may be accepted with certainty, as only the other day Professor Bayley Balfour, in speaking at the Scottish Horticultural Association, said he would like to see the garden made as far as possible a place for horticultural training.

Desirable as this would be, the fact will remain that with increased facilities of admission the arts and objects which the gardens illustrate will in time produce a beneficial effect on the public. In the practice of horticulture there is at present much to be learned; as, for example, in the rock-garden, with its noted collection of alpines, thriving well on the artificially made heights and depressions, where something is always to be found in flower, and many others when not in flower are almost as attractive; as in Saxifrages of the incrusted section, such as cæsia, lantoscana, and longifolia; the moss-like masses of hypnoides and others; the Stonecrops, with their many-varied hues; the Houseleek family; Arabis, Thymus, Santolina, &c., all represented, and all of interest at all times. In the rock-garden many curious shrubby and frutescent subjects are found—Yuccas in variety, numerous Veronicas. Some of these subjects are very curious, almost Conifer or Club moss-like in appearance, as in salicornioides, cupressoides, Armstrongii, and Lycopodioides. I also noticed on the occasion of a recent visit some fine examples of the Bayonet-plant (Aciphylla syarrosa), fine masses of Aubrietia in variety, Onosma taurica, and the lovely blue Omphalodes, Nardostachys jatamansi, Linnæa borealis, the Edelweiss, Ononis rotundifolia, that curious cruciferous shrub, Vella pseudo-Cytisus, Olearia Gunni, and many others, some even of more interest, but to enumerate which would form a large catalogue.

A list of plants which flowered in the Rock-garden during 1887 was noted by Mr. Lindsay, the curator, and published in *Trans. Bot. Soc.*, sess. 52, 1887—88, the number given for that year being 1408. And be it noted these were not mere botanical curiosities, but well selected examples of plants suitable for rock-gardens, and such as intending planters would do well to inspect. The total number of species grown here numbering over 3000.

In a short note it is not possible to do justice to a garden like this; but whether it is the grand collection of Palms, the fine Nepenthes and allied plants, the Cape Pond-weed (Aponogeton distachyon) that is here established in an outside pond, or the fine trees which are being planted, one cannot but observe the excellent results which have rewarded the intelligent care of the curator and his assistants. *F. R.*

MARKETS.

COVENT GARDEN, May 23.

A good business doing during the week, and with supplies heavy, prices have been well maintained. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve...	2 0–	4 0	Peaches, per doz. ...	6 0–	24 0
— Canada and Nova Scotia, per barrel	10 0–	17 0	Pine-apples, Eng., lb.	1 6–	2 0
Grapes, per lb. ...	2 6–	5 0	— St. Michael, each	2 0–	8 0
Lemons, per case ...	12 0–	21 0	Strawberries, per lb.	2 0–	5 0

SEEDS.

London: *May 22.*—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, E.C., report to-day's market apathetic, sowing being now over, and no speculation having sprung up. For Mustard and Rapeseed there is more enquiry. Small orders still come to hand for Tares. Large Blue Peas are wanted. Millet and Hempseed move upwards. Canary seed continues cheap. Scarlet Runners are about exhausted. Other articles at this quiet season offer no subject for remark.

FRUITS AND VEGETABLES.

Spitalfields, *May 22.*—American Apples, 11*s.* 6*d.* to 14*s.* per barrel; English Apples, 4*s.* to 6*s.* per bushel; Cauliflowers, 3*s.* to 6*s.* per tally; Spring Cabbages, 2*s.* to 5*s.* do.; Spinach, 2*s.* per bushel; Greens, 1*s.* to 1*s.* 6*d.* per dozen bunches; Carrots, 1*s.* 6*d.* to 2*s.* do.; Parsley, 1*s.* 6*d.* to 2*s.* do.; Spring Onions, 1*s.* 3*d.* to 1*s.* 9*d.* do.; Rhubarb, 2*s.* to 2*s.* 6*d.* per dozen bundles; Horseradish, 1*s.* 8*d.* to 1*s.* 10*d.* per bundle; Cabbage Lettuce, 4*d.* to 6*d.* per dozen; Cos Lettuce, 6*d.* to 9*d.* per score; Radishes, 6*d.* to 7*d.* per dozen bunches; Endive, 1*s.* to 1*s.* 6*d.* per dozen; Beetroots, 9*d.* to 1*s.* do.; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; English Onions, 6*s.* to 6*s.* 6*d.* per cwt.; Bordeaux do., 4*s.* to 4*s.* 6*d.* per case; Dutch do., 3*s.* to 4*s.* per bag; Carrots, 24*s.* to 30*s.* per ton; Mangels 16*s.* to 18*s.* do.

Stratford: *May 21.*—The above market has been well supplied with all kinds of produce during the past week, and with a good attendance of buyers a brisk trade was done as under:—Cabbages, spring, 4*s.* 6*d.* to 5*s.* per tally; Greens, 1*s.* 6*d.* per bushel; Turnips, 12*s.* per dozen bundles; Carrots, household, 26*s.* to 32*s.* per ton; do., cattle feeding, 16*s.* to 18*s.* do.; Mangels, 12*s.* to 14*s.* do.; Swedes, 15*s.* to 20*s.* do.; Onions, Dutch, 4*s.* to 4*s.* 6*d.* per bag; Watercress, 7*d.* per dozen; Onions, 2*s.* 6*d.* to 3*s.* per dozen bunches; Carrots, 3*s.* do.; Cucumbers, 3*s.* to 6*s.* per dozen; Radishes, 1*s.* per dozen bunches; Cress, 1*s.* 6*d.* do.; Parsley, 3*s.* do.; Mint, 3*s.* per dozen bundles.

POTATOS.

Borough and Spitalfields: *May 21.* — Fair supplies, slow trade, best qualities firm. Other sorts weak. Scotch Regents, 80*s.* to 125*s.*; English, 60*s.* to 105*s.*; Magnum Bonums, 65*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.*; other varieties, 60*s.* to 80*s.* per ton.

Stratford: *May 21.*—Quotations: — Scotch Magnums, 70*s.* to 110*s.*; do. Regents, 80*s.* to 110*s.*; English Magnums, light, 60*s.* to 85*s.*; do., dark, 55*s.* to 60*s.*; Hebrons, 50*s.* to 60*s.* per ton. New: 8*s.* to 11*s.* per cwt. Jersey kidneys, 3*d.* per pound.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending May 21, is furnished from the Meteorological Office:—

"The *weather* has been in a cloudy condition very generally, with a good deal of fog or haze in different localities. Thunderstorms were experienced in various parts of Scotland during the earlier days of the period, and later on at some of the English and Irish stations also.

"The *temperature* has been above the mean in all districts, the excess having ranged from 3° to 4° in Scotland, and from 1° to 3° in England. The highest of the maxima, which were recorded in most places either on the 16th or 20th, varied from 65° in the 'Channel Islands' and 69° in 'England, E.,' and 'Ireland, N.,' to 75° in 'England, N.E.,' and 78° in 'England, S.W.' The lowest of the minima, which were registered on somewhat irregular dates, ranged from 36° in 'England, S.W.,' to 44° in 'England, S.,' and 45° in the 'Channel Islands.' During the greater part of the week the minima were again very uniform, and several degrees above the mean for the time of year.

"The *rainfall* has been a little more than the mean in 'Scotland, W.,' 'England, S.W.,' and the 'Channel Islands,' and equal to it in 'Scotland, E.,' but in all other districts a deficit is shown. Over north-eastern and central England the fall has been very slight.

"*Bright sunshine* has been less prevalent than it was last week in the north and east of Scotland, the east of England, and the 'Channel Islands,' but elsewhere there has been a slight increase. The percentage of the possible duration ranged from 16 to 32 in Scotland, from 22 to 27 in Ireland, and from 18 to 40 in England."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending May 21.	Temperature. Accumulated. Above 42°, for the Week.	Below 42°, for the Week.	Above 42°, difference from Mean since Jan. 1, 1889.	Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1889.	Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	4 +	60	0	+ 53	+ 9	3 —	104	17.1	16	22
2	3 +	62	0	+ 11	+ 6	0 av.	81	8.9	29	24
3	1 +	62	0	— 23	+ 6	4 —	72	8.1	32	23
4	1 +	76	0	— 55	+ 113	1 —	78	7.7	18	24
5	3 +	90	0	— 46	+ 61	3 —	71	11.1	21	22
6	3 +	91	0	— 52	+ 75	1 —	76	8.4	29	23
7	4 +	81	0	+ 27	— 23	1 +	87	16.4	32	25
8	3 +	85	0	— 6	— 1	1 —	79	11.0	40	24
9	1 +	78	0	— 65	+ 88	4 +	74	13.5	37	30
10	2 +	76	0	+ 3	— 52	2 —	96	14.1	22	21
11	2 +	83	0	— 15	— 11	3 —	85	13.9	27	28
12	1 +	83	0	— 12	— 16	1 +	83	9.5	32	35

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

ENQUIRIES.

"He that questioneth much shall learn much."—Bacon.

Field Mice. — *H. & Co.* are desirous of being informed if well authenticated cases are known of the field-mouse killing Coniferous plants by nibbling them.

NOTICES TO CORRESPONDENTS.

Auricula Flowers not Opening: *T. S.* In the absence of sufficient information, we cannot say with certainty why the flowers failed to open. If the plants were potted in the proper kind of soil, and grown in a cold frame, and not in a heated house, probably the frost caught them whilst the buds were still closed and prevented their opening.

This year, after a period of cold weather, there came a sudden change to excessive heat, which caused opened and unopened flowers to shrivel up wherever they were not shaded from the sun. Probably the lights were not tilted sufficiently, or the sun was allowed to shine upon the plants in the early hours of the morning, and the frame unventilated. It is astonishing how quickly a small closed frame becomes overheated by a glimpse of sunshine. *J. D.*

Books: *Mr. Sheppard. Manual of Injurious Insects.* May be obtained at W. Sonnenschein & Allen's, Paternoster Square, London, price 3*s.* 6*d.*

Clematis: *C. H. P.* The old story, Jackmanni alba flowering out of season from the old wood. It should never be allowed to flower at this season, but be cut down every year, and flowered on the young growth about September. Any blooms appearing before that time are abortions generally.

Kainit: *J. E.* This consists chiefly of sulphate of potash, and is too expensive for general use. It is a good manure for leguminous and root crops mixed like nitrate of soda in a compost. The quantity should not exceed 1 cwt. of the sulphate per acre. It is not fit for your fruit trees.

Morning Glory: *E. B.* By this name Ipomæa purpurea usually is meant.

Mushrooms in Pastures: *E. P.* If corn-fed horses are allowed access to these, and the soil and turf are suitable, Mushrooms spring naturally. Such land may be spawned with either natural or artificial Mushroom-spawn. For instructions on the matter, buy *Mushrooms for the Million*, by Mr. J. Wright, published at 171, Fleet Street, London, E.C.

Names of Plants: *A. W.* Nymphæa Sturtevantii: a form of N. Lotus.— *Thame.* 1, not recognised; 2, Pyrus spectabilis; 3, looks like the Deodar; 4, as nearly as can be told from the scrap sent, one of the forms of the Corsican Pine, P. laricio; 5, the Spruce (Picea excelsa). Next time send better specimens. — *B. S.* 1, Asphodelus ramosus; 2, Lonicera tatarica; 3, L. ciliata; 4, Skimmia Fortunei (commonly called Japonica); 5, Orchis maculata; 6, Ceanothus azureus.— *T. Buckerfield.* Peristeria elata. — *G. A.* 1, Abies cephalonica; the succulents next week.— *J. C.* Prunus padus (the Bird Cherry).—*H. J. C.* Euphorbia cyparissias.—*K. P.* Geranium pratense.—*W. R. P.* 1, Selaginella Martensii; 2, Alonsoa incisifolia; 3, Tradescantia repens; 4, T. zebrina.—*Mungo Chapman.* 1, Acanthopanax spinosum; 2, Prunus pumila; 3, Salix myrsinites?; 4, Amelanchier canadensis, small flowered variety; 5, Staphylea pinnata; 6, Kalmia glauca.—*J. S. W.* Saxifragra atropurpurea. *W. P.* 1, Seems to be Stenotaphrum americanum, but without flowers we cannot be positive; 2, Philadelphus mexicanus.— *B. & Son.* 1, Sempervivum ciliatum?; 2, Erysimum ochroleucum; 3, Genista hispanica. — *C. W. D.* Both the double and single-flowered plants appear to be Ranunculus Gouani.—*E. B.* 1, Cannot name without flowers; 2, Hesperis matronalis alba; 3, Daphne laureola (Spurge Laurel); 4, Brassia verucosa; 5, Begonia argentea hirsuta; 6, B. fuchsoides.

Peach Shoots: *Ilminster.* Your shoots are badly affected with scale allied to mealy-bug, probably derived from Vines. The name of the creature is Pulvinaria vitis. Spraying with petroleum emulsion, or the application of methylated spirit to each with a brush, will exterminate the pest. Perhaps the simplest way would be to cut off the affected shoots and burn them.

Plantains on the Lawn: *G. S.* Scoop out the plant entire with a long knife, or extract them with a weeding iron—a clawed implement which acts like a lever. Vitriol dropped on a decapitated plant will kill it. The work of destruction should be carried out unceasingly, or the plantains will greatly mar the appearance of the turf, increasing rapidly in size and numbers. If extracted or killed whilst they are young, the small bare places where they stood soon get grown over, but the patches left by full-grown plants involves the work of mending with pieces of living turf or sowing grass seeds. We know of no kind of hollow stick sold for the purpose of dropping the acid on the plants, but a long glass dipping-tube such as is used by wine merchants and brewers would answer the purpose. An earthen jar to hold the acid, and a pointed stick to apply it with, are handy enough.

Roses: *A. P.* Most of them do well, and are preferable when on their own roots. If an exception is made, it should be in the case of some weak grower. Some such are found amongst Tea Roses, and these are better on the seedling Brier, and worked low down, so that the point of union comes beneath the soil. If you want them for flowering early, keep the plants in pots, shifting them when necessary during the period of growth, and looking well after them, affording manure-water or rich top-dressings of loam and dung until the growths are ripe. Cut out all spindley, flowerless shoots; keep down mildew, orange-rust, and red-spider, letting the plant stand on, or be sunk in coal-ashes to the rim of the pots. Roses for late forcing, or which have been forced, and will be so again, may be kept in tubs or pots, or planted out in rich ground in full sunshine. This should be done at once, but not on an old hot-bed or heap of manure, as you suggest, as there would be the danger to fear of the wood continuing to grow to too late a period in the autumn. Pot up the Roses in September and October—the earlier the better, using strong loam and a little manure or bone-meal, with a sprinkling of soot over the crocks. Pot firmly, using a rammer. Time to commence forcing will depend on the time at which the blooms are required. As a rule, the earlier forced the fewer blooms, and *vice versâ*.

To Kill Dandelion: *C. W. D.* A drop or two of oil of vitriol dropped on the cu" "rown.

Tufted Grass Haulms: *K. A.* Probably the effect of browsing. Some grasses are much more subject to it than others.

Ventilation of an Icehouse: *Kendall.* As it is very essential for the preservation of ice that there should be a drain at the bottom to carry off the water, and which, unless trapped, generally lets in too much air, no further ventilation will be necessary.

Water-pot Rose: *G. H. W.* You can get a patent for a certain number of years on payment of a commensurate sum at the Patents Office, Chancery Lane, London, E.C. Go to the office.

Zinc and Paint: *A. P.* Roughen the metal slightly with a rasp, and employ Carson's anticorrosion paint. Gas tar mixed with powdered lime and a little sand makes a good paint for roofs. Nothing will last much longer than three years, and it is economy to give one fresh coat annually.

CATALOGUES RECEIVED.

Stephen Howard, Markhouse Common, Walthamstow, Essex—Dahlias.

Pearce Brothers, 31 and 71, Sydney Arcade, King Street, Sydney, Australia—General Catalogue.

Fisher, Son, & Sibray, Handsworth, Sheffield—Dahlias, &c.

J. Carter & Co., 237, 238, High Holborn, London, W.C.—Seeds and Plants.

Thomas Kennedy & Co., Dumfries, N.B.—Florists' Flowers, &c.

J. Laing & Sons, Forest Hill, London, S.E.—Begonias and General Plant List.

B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, London, N.—New and General Plant List.

Communications Received.—Dr. Regel, St. Petersburg.—Backhouse & Son (drawing not yet received).—R. McL.—J. V. V., Brussels (specimen sent to artist).—J. O'B.—H. L. de V., Paris.—W. E., Leipsig.—C. W. D.—T. H. S.—Oodeypore.—J. P., Sydney.—G. P.—W. Chitty.—W. W. —The Directors of the Horticultural College.—T. W. G.—P. B. — F. S. — H. J. R., Florence. — H. E. — C. W. D. — J. O'B.—E. B.—J. R. J.—R. A. R.—A. D.—R. B.—H. H. D. E. H. C.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquiries in the current week.*

DIED, suddenly, in the flower-garden at Bickley Hall, on Saturday, May 11, Mr. James Neighbour, aged seventy-three. He had been gardener at that place thirty-six years.

—— On May 19, at Ascot, Susannah, younger daughter of the late Mr. T. Ingram, who was for over fifty years Gardener to Her Majesty at Frogmore.

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For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale, Worms, Wood Lice, &c.

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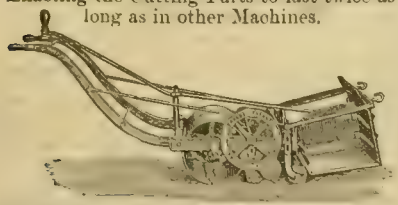
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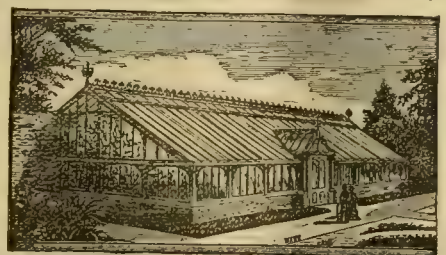
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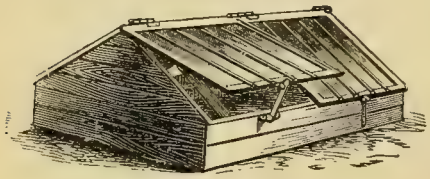
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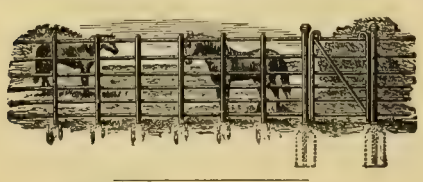
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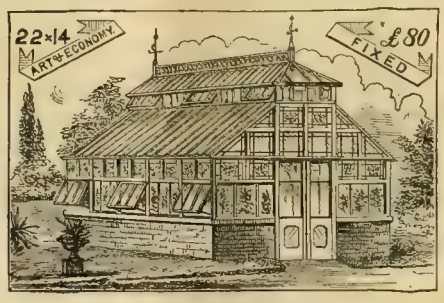
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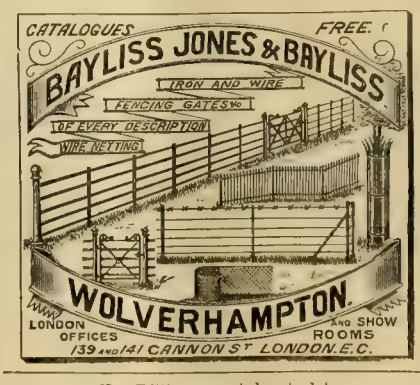
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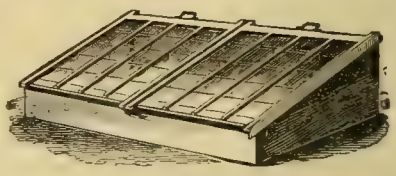
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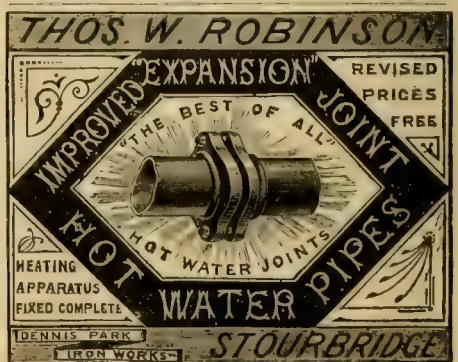
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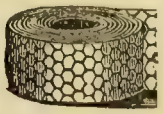
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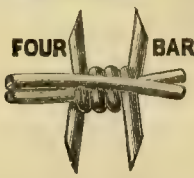
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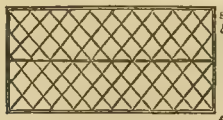
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GARDENING APPOINTMENTS.

Mr. R. AGER, for the last nine years' Gardener at Loftus Hall, Loftus-in-Cleveland, has been engaged as Head Gardener to RAYLTON DIXON, Esq., Gunnergate Hall, Middlesborough.

Mr. C. DAVIS, late Foreman at Hall Place, Kent, has been engaged to succeed the late Mr. JOHN BERRY, as Head Gardener to S. HOPE MORLEY, Esq., at the same place.

Mr. E. COX, till recently of Lissard Gardens, Skibbereen, Cork, has been engaged as Head Gardener to W. N. GILL, Esq., Comprigney, Truro, Cornwall.

Mr. THOS. GREENWAY, late Foreman at the Hon. F. LEVESON GOWER'S, Holmbury, Dorking, has been appointed Head Gardener to Mrs. CLIVE, Perrystone Court, Ross, Herefordshire.

Mr. H. SMALE, after thirteen years' service as Gardener to J. B. BARRON, Esq., Ringwood Hall, Chesterfield, has been engaged as Head Gardener to Sir RAINALD KNIGHTLEY, Bart., M.P., Fawsley Park, Daventry, Northamptonshire.

Mr. FOWLER, late of Ravinsdale Park, Newry, Ireland, has been engaged as Head Gardener to the Hon. Mr. ASHLEY, Broadlands, Romsey, Hants.

MR. J. T. BOWSER has been engaged as Gardener to E. JUARE, Esq., Honington House, Matching, Harlow, Essex.

Mr. GEORGE GRAY, till recently the Foreman in The Gardens, Templeton, Roehampton, has been engaged as Head Gardener to W. B. BRAND, Esq., Elm Grange, Finchley, Middlesex.

Mr. G. W. MARSH has been engaged as Head Gardener to T. P. WALTER BUTT, Esq., Arle Court, Cheltenham.

YOUNG LADIES who WANT TO BE INDEPENDENT, and make their own way in the world, should write for a Prospectus of the SCIENTIFIC DRESS CUTTING ASSOCIATION, 272, Regent Street, London, W. Situations for all Pupils at good salaries.

PARTNERSHIP, or otherwise.—Advertiser who has £300 more eventually in a paying concern is open to treat with Market Growers, &c., with view to the above. Hardworker. Trial wanted. No dilapidated place.—F. H. P., Mr. Whitman, 35, Thames Street, Windsor.

TO WHOLESALE FLORISTS and FRUIT GROWERS.—A GENTLEMAN of some experience desires to enter a thoroughly genuine Business, with view to PARTNERSHIP. References given and required.—A., Claremont, Wimborne.

WANTED AT ONCE, a young MAN, to take entire charge of a Collection of Orchids for a time. Reference. Wages expected.—JOHN LEMAN, J. J. Dawson Paul, Esq., The "Lawns," Newmarket Road, Norwich

WANTED IMMEDIATELY, a few young GARDENERS, accustomed to Bedding-out Work.—Apply personally to Messrs. J. W. WIMSETT and SON, Ashburnham Park Nursery, Chelsea, S.W.

WANTED, a FOREMAN in the Houses, Cut Flowers a speciality. Good wages to a thoroughly competent man, no use applying unless used to all-round work of a good Provincial Nursery.—State age, wage, and reference to PROVINCIAL, Messrs. Hurst & Son, Seed Merchants, 152, Houndsditch.

WANTED, good Market Grower, Working as FOREMAN. Total abstainer, or strictly sober man. Good character. Eight-roomed house free.—Address by letter, stating wages and qualifications, to WM. GORDON, Nurseries, Twickenham.

WANTED, a good GENERAL FOREMAN and PROPAGATOR. Good Salesman indispensable.—J. H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, AT ONCE, a Soft-wooded PROPAGATOR and GROWER. Wages, 21*s.* per week.—Apply, stating full particulars, to H. ENGLISH, Clevedon Nurseries, Clevedon.

WANTED, a strong active young Man, as JOURNEYMAN in Plant Houses. Wages, 14*s.* and bothy. Promotion if deserving. Churchman. Apply, with particulars (no testimonials), Henry J. Clayton, Gardener, Grimston Park, Tadcaster.

WANTED, a young MAN, age 20, used to Soft-wooded Stuff. From a Market Nursery preferred. JAMES WALTON, Eltham Road, Lee, S.E.

WANTED, AT ONCE, a young MAN, about 20 to 24 (Inside), under a Foreman. One well up in the Growing of Roses, Chrysanthemums, Bouvardias, &c., preferred.—Apply, stating wages required, to C. H. GORRINGE, Roselands Nursery, Eastbourne.

WANTED, IMMEDIATELY, a young MAN, about 20. Must be thoroughly well up in Growing for Covent Garden.—State wages required, and full particulars to R. GRIFFIN, The Nursery, Farnborough, Kent.

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WANTED, experienced young MAN, for London.—State qualifications, wages expected, by letter, to M. T. SCRIPPS' Advertising Office, 13, South Molton Street, W.

WANTED, a young MAN for Kitchen Garden and Pleasure Grounds. Must be strong, active, and obliging, and well up to the work. Wages 18*s.* per week.—GARDENER, Halstead Place, Sevenoaks, Kent.

WANTED, a young Man, as IMPROVER, in Kitchen, Flower, and Pleasure Gardens, and all things Out-of-doors connected with a large place.—A. J. BALLHATCHET, Head Gardener and Bailiff, The Gardens, Fulham Palace, S.W.

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WANTED, a good all-round young Man, for Florist, Seed, and Sundries Shop. Good references required.—J. R. WATSON, Floral Depôt, Crouch Hill, N.

INVOICING CLERK REQUIRED. One having had some previous experience preferred.—Apply, by letter only, stating age, experience, salary, &c., to THOS. S. WARE, Hale Farm Nurseries, Tottenham.

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GARDENER (HEAD), where two or three are kept.—Age 26; eleven years' experience in all branches. Good references. Abstainer.—FLORIST, West Hill, Shanklin, Isle of Wight.

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GARDENER (HEAD); married, age 40.—Canon CAZENOVE, who is leaving Reigate, can thoroughly recommend his Gardener, who has been with him four years, to any Lady or Gentleman requiring a good practical man.—G. M., 2, Warren Road, Reigate.

GARDENER (HEAD); age 34. — General FEILDEN highly recommends his late Gardener. Understands all branches of Gardening, Fruit, Plants, Vegetables, and Orchids. Eighteen years' experience in good establishments, two and a half as head.—BLENCH, Elford, Chathill, Northumberland.

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GARDENER (HEAD WORKING), where four or five are kept.—Age 26, single; thoroughly understands Stove and Greenhouse, Fruit and Kitchen Gardening.—GARDENER, Lacock, Chippenham, Wilts.

GARDENER (HEAD WORKING).—Age 42; thoroughly experienced all-round man. Successful Orchid Grower. Offers his services as above.—H. BEERLING, Gardener, Down Lodge, Fairlight, Hastings.

GARDENER (HEAD WORKING), where one or two are kept,—Age 32; has a good knowledge of all branches. Eight years with last employer. Good references.—S. SMITH, Temple Lodge, near Maidenhead.

GARDENER (HEAD WORKING).—Age 20, single; well up in Forcing Vines, Peaches, Cucumbers, &c.; Stove and Greenhouse Plants, Flower and Kitchen Garden.—F. Dann, Hawkenbury, Tunbridge Wells, Kent.

GARDENER (HEAD WORKING), with one or more under.—Age 34, married; thoroughly experienced in Glass, Fruit, Flower, and Kitchen Garden. Can be highly recommended as to character and ability.—A. B., 21, Trinity Cottage, Lower Mortlake Road, Richmond, Surrey.

GARDENER (HEAD WORKING), to any Lady or Gentleman.—Age 31, married, no family; thorough practical experience in all branches. Highly recommended from previous and present employer. Disengaged 31st.—A. Empson, Wirksworth, Derby.

GARDENER (HEAD WORKING). — ROBT. ANDREWS, last eleven years Head Gardener to W. Herbert Evans, Esq., Forde Abbey, Chard, seeks a situation as above; experienced in all branches. Excellent testimonials. —Forton, Chard.

GARDENER (HEAD WORKING).—Age 42, married, no family; has had twenty-five years' practical experience in good places, thirteen years as Head; well up in all departments. First-class character, and previous testimonials of long service.—H. S., Adnams, 2, Duke Street, Reading, Berks.

GARDENER (HEAD WORKING); age 28.—Mr. RUNNACLES, Leweston, Sherborne, Dorset, will be pleased to recommend his Foreman, Edwin Farmer, to any Lady or Gentleman in want of a thoroughly practical and conscientious man. Fourteen years in large establishments. Highest testimonials.

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GARDENER (SINGLE-HANDED). — Age 27, single; well up in Grapes and Cut Flowers. Experienced. T. LEODOR, 28, Cross Street, Clapham, S.W.

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GARDENER (SINGLE-HANDED), or an Under Gardener's place.—A GARDENER would be pleased to recommend a hard working, sober, and honest young man to any Lady or Gentleman. Has been here six years. — FREDERICK COOPER, Sutton Place, Guildford.

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GARDENER (SECOND or THIRD), Inside, or Inside and Out.—Age 24; good experience and references. Bothy preferred.—C., 2, Surbiton Terrace, Victoria Road, Surbiton, Surrey.

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GARDENER (UNDER).— Age 19; well instructed in the Cultivation of Vines, Tomatos, Chrysanthemums, &c., and used to Outdoor Work. Five years' references.—SKAN, Acock's Green, Birmingham.

GARDENER (UNDER).—Age 19; willing to be useful. Two years' character.—21, Trinity Square, Brixton, S.W.

GARDENERS (UNDER).—C. J. GOLDSMITH, Kelsey Manor Gardens, Beckenham, would be pleased to recommend Two young Men leaving for no fault.

To Nurserymen.

MANAGER (WORKING), where abilities are required in Growing all Fruits, Flowers, and Plants, &c.—W. S., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

MANAGER, a Small General Nursery—Palms and Ferns a specialty.—Age 26; good character for capability, &c. State particulars.—T. B., 2, Myrtle Villa, Green Lane, Hanwell.

MANAGER, FOREMAN PROPAGATOR, or GROWER, where Roses, Eucharis, Primulas, Bouvardias, Ferns, Cucumbers, Tomatos, &c., are wanted in quantities.—Age 32, married; fourteen years' experience in the London Trade Nurseries. — JOHNSON, Lleysonen Gardens, St. Clears, Carmarthen.

FOREMAN (GENERAL), in the Houses.—Age 28; had thirteen years' experience in all branches. Good testimonials from previous places on application to R. K., Hotham, Brough, East Yorks.

FOREMAN PROPAGATOR and GROWER under glass.— Eighteen years' experience.—E. B., 1, Vaughan Road, Heaton Norris, Stockport, Manchester.

PROPAGATOR and GROWER, for Market.—Age 27; well up in Tomatos, Cucumbers, Strawberries, &c; Cut Flowers and Market Work in general. Good references.—GARDENER, Wick Nursery, Henfield.

PROPAGATOR.—Age 24; well up in all Market Stuff.— H. SAYER, 13, Lion Road, Bexley Heath, Kent.

To Nurserymen.

PROPAGATOR.—Well up in Soft-wooded Stove Plants, Roses, &c. Twelve years' experience. First-class reference as to ability, &c. — GEO. PRINCE, Siddington, Cirencester, Gloucester.

To Nurserymen.

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JOURNEYMAN, Inside, or Inside and Out.—Age 19; four years' experience. Good references.—D. AUSTIN, Bowden Hill, Chippenham.

JOURNEYMAN, Inside or Out.—Age 22; six years' excellent character. Bothy preferred.—A. M., 14, Burling Road, Tunbridge Wells.

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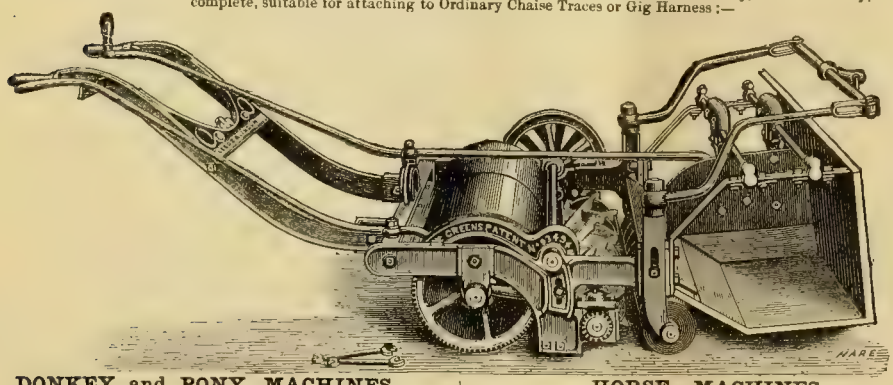
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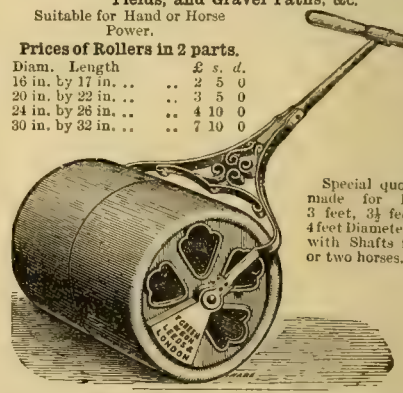
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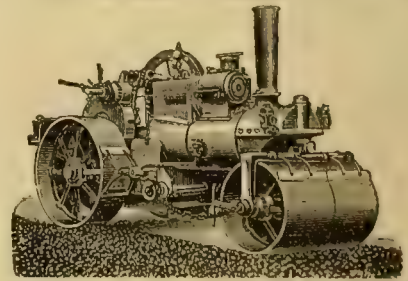
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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

ROYAL BOTANICAL SOCIETY of MANCHESTER.
The GRAND NATIONAL HORTICULTURAL EXHIBITION of 1889, will open on JUNE 7. ONE THOUSAND POUNDS in PRIZES. For Schedules, apply to the undersigned,
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W. C. LORD, Secretary, Nuneaton.

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T. W. MARKLAND, A. W. LOBENHOFFER, } Hon. Secretaries.

WINCHESTER HORTICULTURAL SOCIETY.—GRAND SHOW of ROSES, FRUIT, and FLOWERS, THURSDAY, June 27, 1889. Schedules of Prizes may be obtained on application to the
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,, ,, elegans
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,, splendidissimum grandiflorum
,, Leechianum
,, euosmum leucopterum
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,, Schroderii
,, aduanthum superbum
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,, vexillarium
,, Morganie
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,, speciosa, grand and rich varieties
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,, exoniensis
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,, ,, Dawsonii
,, elegans Wolstenholmii, original plant.

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Friday next.—Without reserve.

An importation in fine masses of SCHOMBURGKIA LYONSII, SCHOMBURGKIA probably new species, BRASSIA MACULATA, BRASAVOLA VENOSA, CALANTHE NATALENSIS, ANGRÆCUM ARCUATUM, A. POLYSTACHIS, A. FILICORNE, ANGRÆCUMS (several), probably new; DISA PULCHRA, DISA CRASSICORNIS, BLUE DISAS, and a fine Yellow HABENARIA, ONCIDIUM PAPILIO MAJUS, and ONCIDIUM BAUERI.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL the above ORCHIDS at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 7, at half-past 12 o'Clock. The whole are in splendid order, and will be sold without reserve.

On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA MOSSIÆ AND SPECIOSISSIMA.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Charlesworth, of Heaton, Bradford, to include in their ORCHID SALE, on FRIDAY NEXT, June 7, an extra fine lot of CATTLEYA MOSSIÆ and SPECIOSISSIMA, the plants being well leaved and perfectly dormant.

Also a fine lot of CYPRIPEDIUM REGNIERI, sent home by Mr. Roebelen, and a quantity of other IMPORTED and ESTABLISHED ORCHIDS.

On view morning of Sale, and Catalogues had.

Finchley Road, N.W.

Absolutely without reserve. The LEASE of a compact and old-established FLORIST'S BUSINESS and SHOP, by order of Mr. W. A. Clingo, who is leaving the neighbourhood; also the STOCK, HORSES, VANS, and UTENSILS IN TRADE.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the Waverley Nursery, St. John's Wood, close to Marlborough Road Station, on THURSDAY and FRIDAY, June 13 and 14, at 12 o'Clock precisely each day, the whole of the STOCK of GREENHOUSE and BEDDING PLANTS, of the usual description; 1000 MYRTLES in various sizes. Also the UTENSILS IN TRADE used in connection with the extensive jobbing business attached to the Nursery; two powerful CART-HORSES, nearly new MARKET VAN, CARTS, and SUNDRIES.

The LEASE of the OLD-ESTABLISHED BUSINESS will be offered on the first day, without reserve, immediately preceding the Sale of Stock. The Property comprises a Block of Land, 11 Span-roof and Lean-to Greenhouses, Pits, large Stabling and Potting Shed. Lease about 11 years unexpired, with promise of renewal. Rent £80 per annum. Also the LEASE of the FLORIST and SEED SHOP, No. 18, Finchley Road, N.W.

May be viewed. Catalogues had of Mr. CLINGO, on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

MESSRS. M. ISAACS AND SONS will SELL the entire stock of Specimen SEAFORTHIA ELEGANS, without the slightest reserve, in the Floral Hall, on TUESDAY NEXT, June 4, at 9 A.M.

Thursday Next, June 6.

Consignments of CATTLEYA LABIATA, SOPHRONITES, LÆLIAS, ONCIDIUMS, and other BRAZILIAN ORCHIDS, received direct; a fine lot of ESTABLISHED ORCHIDS, many in Flower and Bud; a small collection of well-grown PALMS, and other STOVE and GREENHOUSE PLANTS, GARDEN IMPLEMENTS, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 6, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

The Crawford Collection of Orchids.

MR. J. C. STEVENS has received instructions from W. H. S. Crawford, Esq., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY, June 12 and 13, at half-past 12 o'Clock precisely each day, without the least reserve, the COLLECTION of ORCHIDS formed by the late W. H. Crawford, Esq., of Lakelands, Cork, consisting of about 700 specimens, some being fine exhibition plants, many of great rarity and value, comprising, amongst other fine things:—

Dendrobium nobile majus
,, ,, nobilius
,, splendidissimum
Lælia anceps alba
,, Dawsonii
,, Hillii
,, Williamsi
,, Brysiana
,, callistoglossa
,, purpurata Russelliana
Masdevallia, Bull's blood
,, Harryana magnifica
,, Veitchi
Oncidium macranthum
,, splendidum
Phalænopsis, several hundred plants
Sophronites, fine pans
Anguloa Ruckeri
,, ,, sanguineum
Cattleya aurea
,, Mossiæ Rothschildiana
,, Reineckiana
,, Wagneri
Cœlogyne Massangeana
Cypripedium Druryii
,, Leeanum superbum
,, Leuchorrodum
,, Morganiæ
,, Mrs. Canham
,, Œnanthum superbum
,, Schroderæ
,, Sedeni candidulum
,, Selligirum majus
Dendrobium Ainsworthii

On view mornings of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 19, at half-past 12 o'Clock precisely (instead of date previously announced), and he will be glad if Gentlemen desirous of ENTERING PLANTS FOR THIS SALE will please SEND LISTS AS SOON AS POSSIBLE.

WANTED, on Lease, NURSERY, suitable for Market Growing, or about 2 Acres of LAND with Dwelling-House.
Address CARR, 43, Westbury Road, Forest Gate, E.

FOR DISPOSAL, a NURSERY, SEED, and FLORIST BUSINESS—one of the most lucrative to be found near London, 10 miles out. Reason for selling, proprietor having several other branches cannot give necessary time. Seven large Greenhouses, and a number of Frames—all efficiently heated, and in excellent repair. Good Dwelling-house and attractive Shop, fitted with every convenience for a busy trade. Clean, healthy, valuable Stock; beautiful neighbourhood. Price for Stock, Lease, &c., £900.
Apply, HORTUS, 41, Wellington Street, W.C.

To Wholesale Florists and Salesmen.

TO LET, spacious and commanding PREMISES, opposite the Flower Market. Upper part all let off. Rent moderate.
Apply, SIMMONS AND SONS, 35, Haymarket, S.W.

To Nurserymen, Florists, and Others.

TO BE LET, Two Acres of first-rate ORCHARD and NURSERY GROUND, situate in the rear of the main road Tottenham, and having a spacious and comfortable old-fashioned House, with frontage on to the main road, and unusual facilities for the Sale of Flowers. A Lease would be granted. Rent very moderate.
Apply to Mr. ALFRED RICHARDS, Estate Agent and Auctioneer, Lower Tottenham.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

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Have an immense stock of established ORCHIDS, which they offer at the most reasonable prices, and they are continually receiving fresh Importations from various parts of the world.

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THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

FERNS—FERNS—SUCCULENT PLANTS.—Twelve lovely Greenhouse FERNS, good growers, fine habit for rooms or Greenhouses, 6s. or 9s.; small Ferns for planting in Rockeries, &c., indoors, for fancy pots for table, 4s. per dozen; 12 distinct Stove Ferns, the best sorts for general collection, 9s. and 12s.

SUCCULENT PLANTS.—Handsome, singular, fine for pot plants in carpet beds or for contrast with other Greenhouse Plants, 12 varieties, all named, 6s., 9s., 12s., 18s. CATALOGUE of sorts of these and all other plants free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

FOR SALE, SPECIMEN AZALEA (4 feet high), Due de Nassau. Too large for owner. Must be sold.—Offers to G. PHIPPEN, F.R.H.S., Reading.

LILY OF THE VALLEY.
First-class German flowering Crowns.
Any quantity.
H. DAMMANN, Jun.,
Breslau.

TO OFFER, autumn-stock GERANIUMS of the following kinds, from store pots:—Vesuvius, H. V. Rasphail, Queen of the Whites Improved. 10s. per 100 for cash.—W. G. BAILEY, The Nurseries, Bexley, Kent.

LIVE SPHAGNUM MOSS, fresh gathered, 5s. per large bag.
JOHN BURNS, Fellside, Kendal.

16 VARIETIES of STRAWBERRIES, which R. Gilbert considers the cream. They include all the modern varieties, but the good old Standards are not forgotten. In pots for forcing, and ordinary hand layers.
Send for R. G.'s STRAWBERRY LIST, where all are described and priced, with Hints upon Culture. Warranted true to name.
R. GILBERT, High Park, Stamford.

10,000 ALTERNANTHERAS, for disposal.—3 kinds, namely—Amœna Spectabilis; Magnifica; Aurea Nana (new dwarf from America, fine, bright golden colour). Price on application. ECHEVERIA GLAUCA, 8s. per 100. ANTENNARIA TOMENTOSA, 6s. per 100. COLEUS VERSHAFFELTI, 8s. per 100. PILEA FRONDOSA, finest pea-green cut for carpet work, 8s. per 100. PYRETHRUM SELAGINOIDES, pricked out, 2s. per 100. PARONYCHIOIDES AUREA MAJOR, AMABILIS ROSEA, PARONYCHIOIDES MAJOR, VERSICOLOR GRANDIS, all at 6s. per 100, free. Also 12 kinds ASTERS, true to name, 2s. per 100. Blue and White Double CANTERBURY BELLS, 8s. per 100.
FLORIST, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

DOUBLE SCARLET GERANIUM H. V. RUSPAIL, in thumbs, 20s. per 100; 48's, 20s. per 100, cash.—G. POULTON, Fountain Nursery, Angel Road, Edmonton.

New Bouvardia.

MRS. ROBERT GREEN, a very distinct variety, of robust habit, very free flowering, and distinct in colour, being of a pleasing shade of salmon-pink, closely resembling Carnation Miss Joliffe in colour.
H. B. MAY has much pleasure in offering the above, which should become a general favourite. Price, &c., on application.
Dyson's Lane Nursery, Upper Edmonton.

FOR SALE—to Reduce Stock—Two large Pots (No. 4), of EUCHARIS AMAZONICA, well-established, and have flowered freely. Upwards of fifty bulbs in each pot. Apply to
G. HANWELL, Gardener, Kingswood, Watford, Herts.

ORCHIDS.—Clean, well-grown plants, at low prices. Specimen Orchids a specialty. Price List free, JAMES CYPHER, Exotic Nurseries, Cheltenham.

BEDDING PLANTS.—Descriptive Price LIST of best sorts of *Established Plants* free.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ALTERNANTHERA PARYONCHOIDES and AMŒNA MAGNIFICA, fine stuff, 5s. per 100. Cash only.—G. PHIPPEN, F.R.H.S., Reading.

CHOICE FLOWER SEEDS,

For Present and Later Sowing.

All saved from the most refined and beautiful Strains in existence.

Dicksons' Superb Strains of PRIMULA, CINERARIA, CALCEOLARIA, from 1s. 6d. to 5s. per packet.

Choice WALLFLOWERS, EAST LOTHIAN STOCKS, FORGET-ME-NOTS, PANSIES, POLYANTHUS, PRIMROSES, &c., for Spring Gardening.

DICKSONS, (*Limited*), THE ROYAL SEED ESTABLISHMENT,
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SOW NOW.—SUTTONS' PRIZE PANSY, to produce a beautiful display next spring. A grand mixture of all the new and rare colours, the flowers being of good shape and substance. Price 2s. 6d. per packet, post-free.

SUTTONS' BEDDING FORGET-ME-NOTS. —Suttons' Dwarf Blue, Suttons' Dwarf White, and Suttons' Dwarf Rose, the dwarfest and most compact Forget-me-Nots in cultivation. Very useful for bedding. Price 1s. per packet, post-free.

SUTTON AND SONS, The Queen's Seedsmen, READING.

NEW CATALOGUE for 1889.—Near 130 large pages, with prices, descriptions, useful cultural and other hints, of near 7000 of the best species and varieties of plants for the Stove, the Greenhouse, or the Flower Garden, also list of all necessary Sundries; in short, everything wanted for a garden, free for 3 stamps.

SEED CATALOGUE of the finest new and the most reliable old varieties of Vegetables or Flowers, free for 1 stamp.

WM. CLIBRAN AND SON, Oldfield Nurseries, Altrincham; 10 and 12, Market Street, Manchester.

Cheap Bedding Plants.—Special Offer.

WILLIAM BADMAN offers as under, from store pots, all well rooted, and fit for present potting. The present is a good time for making up losses sustained during the winter:—VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6s. per 100; 12 choice named varieties, 8s. per 100. LOBELIA, Bluestone, pumila magnifica, Brighton Blue, 3s. per 100. CALCEOLARIA, Golden Gem, 6s. per 100. HELIOTROPE, Jaun d'Amour, Miss Nightingale, 6s. per 100. AGERATUM, Imperial Dwarf, blue, 5s. per 100. COLEUS VERSCHAFFELTI, bedding crimson, 8s. per 100. IRESINE LINDENII, dark crimson, good bedder, 8s. per 100. PELARGONIUM, Vesuvius, finest bedding scarlet, 8s. per 100; Master Christine, Mrs. Levers, Jenny Dodds, best pinks, 12s. per 100; Henri Jacoby, best crimson, 12s. per 100; Madame Vaucher, Niphetos, white, 12s. per 100; Queen of the Belgians, finest white, 3s. per doz., 20s. per 100; Waltham Seedling, Lucius, Jean Sisley, White Vesuvius, John Gibbons, 12s. per 100. SILVER VARIEGATED, May Queen (Turner's), Princess Alexandra, Flower of Spring, Little Trot, Prince Silverwings, Lady Plymouth, 12s. per 100. GOLD-LEAF, Crystal Palace Gem, Happy Thought, 12s. per 100. BRONZE, McMahon, Black Douglas, The Czar, best bedders, 15s. per 100. TRICOLOR, Mrs. Pollock, 15s. per 100; Sophia Dumaresque, Lady Cullum, Sir R. Napier, 18s. per 100. DOUBLES, F. V. Raspail, finest scarlet; Madame Thibaut, pink; Madame Baltet, Le Cygne, white, 12s. per 100. TROPÆOLUM, Vesuvius, Coccinea elegans, 10s. per 100. FUCHSIAS, in 12 good named varieties, 8s. per 100. PELARGONIUMS, Show and Decorative, from single pots, 3s. per dozen, 20s. per 100.

NOTE.—Not fewer than twenty-five of any one sort supplied at above rate. Packing included. Terms cash.

Cemetery Nurseries, Gravesend, S.E.

8 ACRES HERBACEOUS and HARDY PLANTS, true to name, not seedlings (which are generally inferior to the type). Send for a Catalogue of all you want for a garden, free for 3 stamps. It includes over 1000 varieties, selected during 15 years' careful study of this class of plant, and an annual buying in of all that seems good, and a weeding out of the poor kinds, with height, time of blooming, and other useful particulars.

12 Hardy HERBACEOUS PLANTS...			...	£0 4 0
50	,,	,,	...	0 14 0
100	,,	,,	...	1 5 0
500	,,	,,	...	5 5 0

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

Bouvardias.—Bouvardias!

H. B. MAY offers the following BOUVARDIAS, viz.:—President Cleveland, Alfred Neuner candidissima, Dazzler, Humboldtii corymbiflora, jasminoides, President Garfield, Priory Beauty, Sang Lorraine, Victor Lemoine, Vreelandii, and Vulcan, in 60-size pots, good plants, which have been stopped several times, and are ready for potting on. Price per dozen, 100, or 1000 on application.

H. B. MAY, Dyson's Lane Nursery, Upper Edmonton.

KELLY AND WALSH (Limited), Exporters of ORCHIDS, Singapore, Straits Settlements. Orders executed from £5 upwards. CATALOGUES free on application.

80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2s. 6d. each; Beauty of Worcester, a magnificent purple, excellent for bedding, recently sent out by us, reduced price 2s. 6d. each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

A WELL-STOCKED GREENHOUSE.—ABUTILONS, all the best and newest; 12 fine sorts, 3s. 6d.

BEGONIAS (evergreen class), fine for summer or winter; 6 fine sorts, 1s. 9d.

HELIOTROPES (Cherry Pie), fragrant and free bloomers, best new and old sorts; 12 for 2s. 6d.

LANTANAS, fine for greenhouse decoration, pretty and free; 12 sorts, 2s. 6d.

SALVIAS, distinct and pretty; 6 fine sorts, 1s. 6d. Half number at same rates. New CATALOGUE of these and everything else you want for Greenhouses or Gardens, free for 3 stamps.

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CUT FLOWERS, BULBS, PLANTS, &c.—Best class of customers in district for good flowers. Sales, WEDNESDAY and FRIDAY Night all the year round. Daily, when required. Largest and most centrally situated Horticultural Sale Rooms in Birmingham.—POPE AND SONS, 6, Phillip's Street (close to Market Hall), Birmingham.

CARTERS' FLORISTS' FLOWERS.—INVINCIBLE.

PRIMULA.—CARTERS' HOLBORN PRIZE MIXED.—The Best in the World—*vide* awards. New seed. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post-free.

CINERARIA.—CARTERS' BRILLIANT PRIZE MIXED.—The Best in the World—*vide* awards. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post-free.

CALCEOLARIA.—CARTERS' VICTORIA PRIZE MIXED.—The Best in the World—*vide* awards. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post-free.

CARTERS, SEEDSMEN by Royal Warrant to H.M. The Queen and H.R.H. the Prince of Wales, 237 and 238, HIGH HOLBORN, LONDON, W.C.

FUCHSIAS, TUBEROUS BEGONIAS.—10,000 FUCHSIAS, just the cream of all the Fuchsia family in flower, habit, and freedom; 12 lovely sorts, 3s. 6d.; 25 sorts, 6s. 6d.; 50 sorts, 12s. 6d.

TUBEROUS BEGONIAS.—We have so improved the quality of our seedlings that we discarded last season all the named singles, the seedlings being much finer; 12, all different shades, large flowers, dwarf habit, 4s.; 12 finer, 6s.; 12 lovely double varieties—all these are named sorts, 21s.

New CATALOGUE of these and all other plants for 3 stamps.

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W. GORDON, Importer of ORCHIDS.

AN IMMENSE STOCK of recently imported plants compels a SALE of the ESTABLISHED PLANTS to make room. They have not yet flowered, but are all flowering plants, and must be sold at a GREAT SACRIFICE. Very valuable varieties are certainly to be obtained, and great bargains. See Public Journals for high prices recently obtained. The SPECIAL OFFER affords a PAYING INVESTMENT to anyone with glass at command, which should not be overlooked. Such plants may never again be offered to the Public and Trade. GOOD ESTABLISHED PLANTS:—

25 in	25 species and varieties	...	...	£3 3 0
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100 in	100 ,,	,,	...	10 10 0

CATALOGUE of the above large stock held on application to W. GORDON, The Nurseries, Amyand Park Road, Twickenham, Middlesex.

ROSES—CLEMATIS—ROSES—all in pots, can be sent and planted any time; the finest named sorts. See Catalogue, with colours, descriptions, prices of these, and all you want for a Garden, free for 3 stamps. 12 fine TEA and NOISETTE ROSES, 15s.; 12 Hybrid Perpetual ROSES, 12s.; 12 Extra-sized Tea and Noisettes to force now, 30s.; for Arbours, Pillars, Walls, &c.

3 CLEMATIS, in 3 distinct colours, 3s. 6d.; 6 CLEMATIS, in 3 distinct colours, 6s.; 12 CLEMATIS, in 3 distinct colours, 10s. 6d.

WM. CLIBRAN and SON, Oldfield Nurseries, Altrincham; 10 and 12, Market Street, Manchester.

CHEAP BEDDING PLANTS. GERANIUMS, strong and healthy, autumn struck, from single pots—Vesuvius (scarlet), Jean Sisley, Master Christine, Madame Voucher, 2s. 6d. per doz., 14s. per 100; Happy Thought, Silver Leaf, Bronze Perilla, Henry Jacoby, 3s. per doz., 16s. per 100; Ivy-leaf, splendid doubles, named varieties, and Oak-leaf, sweet-scented, 4s. per doz. VERBENAS, Purple, Striped, Rose-pink, Scarlet, White, 1s. 9d. per dozen, 8s. per 100. CALCEOLARIAS, Golden Gem, 2s. per dozen, 10s. per 100. LOBELIAS, Emperor William, best blue, true from cuttings, 2s. 6d. per 100, 20s. per 1000. DAHLIAS, Single, named, all shades of brilliant colours, from single pots, including White Queen and Paragon, 2s. 6d. per dozen, 18s. per 100; Double, best named, Show, Fancy, and Pompones, 2s. 6d. per dozen, 18s. per 100; Cactus, Juarezii, Constance, Fire King, 4s. per dozen. VIOLA CORNUTA, Queen of Blues and White Virgin, 4s. 6d. per 100, 35s. per 1000. AGERATUM, Hardy's selected Blue Dwarf, 4s. 6d. per 100, 35s. per 1000. MARGUERITES, Yellow, Large White, Small White, 10s. per 100. MIMULUS, Queen's Prize, splendid colours, 2s. per dozen, 15s. per 100. PYRETHRUM AUREUM, new dwarf, Golden Feather, 2s. per 100, 20s. per 1000. PETUNIA, Prize Fringed, beautiful striped colours, mixed, 5s. per 100, 40s. per 1000. CHRYSANTHEMUM, selection of finest named show varieties, 2s. 6d. per dozen, 18s. per 100, from single pots. Cash. Extra Plants for Carriage. Package Free.

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H. I. HARDY, F.R.H.S., Stour Valley Nurseries, Bures, Suffolk.

AN ACRE OF PYRETHRUMS, POTENTILLAS, PÆONIES, PHLOXES, PENTSTEMONS, PANSIES, VIOLAS, propagated from cuttings or divisions from the finest-named sorts gathered from all raisers, not inferior seedlings. See CATALOGUE of these and all you want for a garden, out or inside, free for 3 stamps.

Undernamed, all in 12 sorts:

12 Pyrethrums, 4s.; 12 Potentillas, 5s.; 12 Phloxes, 3s. 6d.; 12 Pentstemons, 3s. 6d.; 12 Pansies, either Show or Fancy, 3s.; 12 Violas, 2s. 6d.; 12 Pæonies, 9s.; 12 Hollyhocks, seedlings, from five named sorts, 4s.; Delphiniums, seedlings, from fine named sorts, 4s.

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VINES and VINE CULTURE. The most complete and exhaustive Treatise on Grapes and their Culture ever published. New Edition. Price 5s., post-free 5s. 6d. A. F. BARRON, Royal Horticultural Society, Chiswick.

CALADIUMS, GLOXINIAS. — Lovely CALADIUMS of the finest sorts, splendid varieties, handsome foliage, clean, easily grown; 12 sorts, 6s., 9s., 12s. Gorgeous GLOXINIAS, rich colours, pretty foliage, lovely flowers; 12 for 6s., 9s., 12s. New CATALOGUE of these and all other plants, 130 large pages, free for 3 stamps.

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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL

AT

The "ALBION," Aldersgate Street,

JUNE 13, 1889,

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Received since last week:—

Sir EDWIN SAUNDERS, George Street, Hanover Square	£10	10	0
Mrs. WHITBOURNE, Great Gearies, Ilford (annual)	1	1	0
Mr. YEARNSLEY, Denmark Hill	1	1	0
Mrs. NETTLEFOLD, Edgbaston, Birmingham ...	2	2	0
S. H. PHILLIPS, Esq., Mapleton, Edenbridge ...	10	10	0
N. COHEN, Esq., Round Oak, Englefield Green ...	2	2	0
Mr. G. WILLS, Tetcott Gardens, Holsworthy ...	0	10	0
J. NEWTON, Esq., Bridgeham, near Horley ...	3	3	0
J. NEWTON, Esq., ditto (annual)	1	1	0
Lady WHITWORTH, Stancliffe Park, Matlock ...	10	10	0
E. F. SATTERTHWAITE, Esq., Kingsfield, Kent ...	2	2	0
Mr. RUFFITT, Panshanger Gardens, Hertford ...	1	1	0
Mr. WHITCHER, Seven Springs Gardens, Cheltenham	0	5	0
Mr. BARNES, Stoodleigh Gardens, Tiverton ...	0	15	0
HENRY TATE, Esq., Park Hill, Streatham	5	5	0
W. TOTHILL, Esq., Stoke Bishop, Bristol	5	5	0
Mr. SANDFORD, Baldon Gardens, Oxford	0	2	6
C. K. WILD, Esq., Thornlies, Hampstead	3	3	0
Baron FERDINAND DE ROTHSCHILD, M.P. ...	10	10	0
Mr. ALVEY, Homestead Gardens, Carnforth ...	0	10	0
J. E. SCHWABE, Esq., Old Broad Street	5	5	0
EDWD. D. STERN, Esq., 11, Princes Gate	10	10	0
Mr. WOOD, Juniper Hill Gardens, Dorking... ...	0	10	0
R. SYDENHAM, Esq., Tenby Street, Birmingham (annual)	1	1	0
G. W. RYDER, Esq., Telford House, Streatham Hill	5	5	0
Mr. ROBINSON, Seed Merchant, Leadenhall Street (annual)	1	1	0
B. J. HUDSON, Esq., Sylva, Putney Heath	10	10	0
Mrs. FITZGERALD, Shalston House, Buckingham .	5	0	0
W. COBB, Esq., Silverdale, Sydenham	5	5	0
HENRY OPPENHEIM, Esq., Bruton Street... ...	10	10	0
Mr. PAYNE, Abinger Gardens, Dorking	0	10	0
Anonymous	10	0	0
Major GAISFORD, Offington, Worthing	10	10	0
W. ROBINSON, Esq., *The Garden*, Southampton Street, W.C.	12	14	0
F. C. PAWLE, Esq., Northcote, Reigate	2	2	0
E. LEVITA, Esq., 27, Ennismore Gardens	10	10	0
Major LYON, 1, Hill Street, Berkeley Square ...	2	2	0
Mr. NIXEN, The Gardens, Grizedale, Ambleside ...	0	5	0
Mr. T. N. COX, jun., 151, Houndsditch	0	10	6
Mr. MORGAN, Oak Lawn Gardens, Weybridge ...	3	3	0
Mr. TUNNINGTON, Calderstone Gardens, Liverpool	2	0	0
Mr. TAYLOR, The Willows, Cheltenham	0	2	6
Mr. J. S. TREVOR, Bryngwing Gardens, Oswestry .	5	1	0
H. JOACHIM, Esq., Airlie Gardens, S.W.	1	1	0
Mr. BURRELL, Darly Gardens, Sunbury	0	10	0
The Right Hon. Lord DE ROTHSCHILD	50	0	0
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E. BANKS, Esq., Scholden, Deal	1	0	0
Mr. LODGE, Brougham Hall Gardens, Penrith ...	10	10	0
Mr. KING, Taplow House Gardens, Taplow	0	10	0
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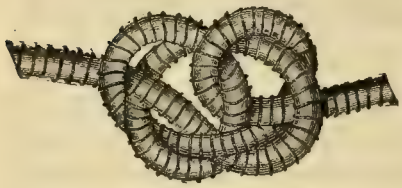
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FOR

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OF THE

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THE

Gardeners' Chronicle.

SATURDAY, JUNE 1, 1889.

ROSES AND THE PAST WINTER.

IT is still early to write about Rose prospects; we have so often looked hopefully at our bushes in May, and thought what a glorious prospect there was before us, and have as often had to tell of "rout and discomfiture" by the late frosts and maggots, that it becomes a very unwise proceeding to prognosticate even when we are within a few weeks of the blooming time; there is, however, one point about which we can say something—a point, too, which has a material effect on the Rose bloom, viz., the result of winter frosts; and it is to these, and their effects on the Roses of the year, that I would now draw attention.

It is very difficult to arrive at correct conclusions even on a point like this, for even from the very same locality the most opposite returns are made. This is, in one way, easily to be accounted for by the difference of situation, as frosts have so much more effect on low than on high ground, especially if there be water near. I have, therefore, endeavoured, as far as possible, not only to indicate the position of the garden, but also, as far as possible, the character of the climate.

The past winter was not what we can call a hard one; long continued frosts were absent, and there was but little snow—at least, this was the general character of the season throughout England. We had, however, two single nights of a very disastrous character, one on October 3, and the other on February 13. And it is especially with these two frosts that we have to reckon in regarding our Rose prospects for the year. In October a frost which blackened Dahlias, killed Scarlet Runners, and made a general sweep all round of most garden things, must have told upon Roses, especially on those kinds, whether Tea, or hybrid perpetual with a

good deal of "Tea-blood" in them, which make growth late in the year. Those who are in the habit of looking for good autumnal blooms of course did not get them, but then it is not on these late shoots that we in any way depend. They have all to be cut away, whether we adopt hard pruning or not; but the frost of February was a different matter, 20° to 25°, and even 28° of frost had been registered, and as the plants were just beginning to wake up, a frost of this severity must have told very much.

The queries which I addressed to those with whom I have corresponded on the subject, therefore bore on three points—1, what is the situation of your Rose garden? 2, what amount of frost was registered (if at all) on October 3 and February 13? 3, what has been the effect on (*a*) dormant buds, (*b*) hybrid perpetuals and (*c*) Teas Some correspondents have hardly answered these carefully. Others have given a general view of things; but, on the whole, I think a fair amount of evidence has been given from which we may draw some conclusions for future use.

Let me first take Reigate, which is a well-known centre of Rose-growing. Now Reigate is a most pleasantly situated town, but it lies at the bottom of a basin with high hills surrounding it, consequently there must be a difference in the effect of winter on Roses according to the locality in which they are grown. The Rose garden, which was so carefully formed under that good and complete rosarian, the late Mr. George Baker, lies low, and is most affected by frost. In a letter with which Miss Baker has favoured me, she says: "Our gardener is sad about the Roses this year. Perhaps it will interest you—the record for cold is as follows:—October 1st, 25°·5; 2nd, 26°·5; 3rd, 20°·7; 4th, 27°·5; 5th, 20°; 6th, 21°; 7th, 27°·8; 8th, 18° on grass. The lowest temperature in February was on the 12th, 0°·78. The H.P. were earthed-up in the form of a cone, but the pith was frozen below the earth in almost every variety. The Tea Roses were earthed-up in the same way, with the addition of a dressing of dead leaves, but they were all frozen below the earth. In the gardener's opinion all the mischief was done from February 10th to 13th."

From this one would conclude that Rose growing in Reigate was in a bad way; but now here is another report from it, that of Mr. R. E. West: "On February 13th, we had 8° of frost (I fancy this must be an error for 18°), my plants had just been unearthed from round collars, the wood being well ripened. I pruned the first week in March, and have not regretted doing so; very few of my trees have suffered from frost this year, except a few newly planted ones, such varieties as Marie Baumann and Xavier Olibo, have made splendid wood. My few Teas look well, they were all earthed-up, and not injured below the ground." This report is not definite enough to be of any great value, but it shows the difference the situation makes. Mr. West's ground is high up, Holmfels lies at the bottom of the basin; hence the comparatively little harm done by frost in the one case, and the severe punishment of the roses in the other.

I pass on now to Hertfordshire, from where my friend Mr. Morley has sent me a report with his usual exactness: "The situation of my garden is on a steep slope facing south, about 50 feet above the bottom of a deep valley, and 400 feet above the sea level. On October 3, lowest temperature, air 23°·3, grass 20°; on February 13, of air 12°·8, snow (5 inches deep), 4°. I had only a few dormant buds (Teas) on dwarf standards; a large number killed, although protected with sprigs of gorse; established Teas much injured, although protected with branches of gorse; the more delicate sorts were cut to the ground level. H.P. in no way protected the more hardy sorts uninjured, but those of the Victor Verdier race and other tender kinds had to be cut to the ground when pruning in order to find sound wood."

Passing on now to the eastern counties, Mr. Benj. Cant (Colchester), writes: "It is singular that my standard Teas have passed through the winter much better than the dwarfs; the latter were well protected with pea straw, the standards had no protection whatever, and only on south borders well sheltered are they hurt much, some absolutely killed; but Niphetos, Marie Van Houtte, Anna Ollivier, and others, that made late growth, suffered very much. They were caught in bloom, as I find from my books that I sent blooms to London in November and December, and up to January 4 this year, all cut from the open ground or from walls." Mr. John Burrell, of Hove House Nurseries, Cambridge, an accurate and careful observer: "Roses have all stood the winter very well. No dwarfs of any class killed by the frost. The half-ripened growth has all been killed, but this is of no consequence. We have not protected a single plant of any Tea Rose during the winter. The wood mostly ripens very well here, and the plants stand severe frost very well; the spring is a backward one here, but really everything looks well." The Rev. F. Page Roberts, so well known as a very successful grower of Tea Roses, writes from Scole, in Norfolk: "We registered 22° of frost on February 13. The Teas have got through the winter perfectly, standards with a little bracken, and dwarfs slightly earthed-up. The buds on standards not very well, but these had no protection; some that had started were all right. A few standards were neglected, but these, to my surprise, have stood the test, Princess Beatrice, Madame Margottin among them. Nadaillac is the tenderest of all Teas. Dormant buds of H.P.'s are all strong and shooting well." So far East Anglia. From the North comes this report from the Messrs. Harkness, of Bedale, Yorkshire: "The dwarf H.P.'s and Teas have pruned splendidly; better than ever we remember them to have done. The greater portion of the tops were frozen quite black on October 2. They were frozen to within 3 or 4 inches of the surface of the soil, and remained quite dormant throughout the winter. Even the cruel frost of February 13 had no effect upon them, I suppose owing to their being quite dormant and inactive. A few Teas planted in February, 1888, have succumbed, owing to the early frost in October.

A very different tale comes to me from the Midlands, where frost is more severely felt than perhaps in any part of England. It does not go into details, but is definite enough. Mr. Frettingham says: "In dormant buds we have had a very large loss this year, as also in fruit buds, Rhododendron buds, &c., chiefly owing, I believe, to the very sunless summer of 1888 not ripening the wood. The frost has not been so severe as in other counties, but for a long time I have never seen such sad havoc. The frost on February 13 did great damage."

Passing on to the West, Mr. W. J. Grant, of Ledbury, writes:—"My Roses, I regret to say, are in a very unsatisfactory condition; owing to the wet cold summer they made no sound, well-ripened wood, and so suffered in an unusual degree from the continued wet weather in November and March, which was followed by several intermittent frosts. Teas, superficially, appeared to have suffered to a greater extent than the hybrids, but in reality they came out much better, although I consider that nearly all the best Teas are hardier, and possess greater vitality than many of the best hybrids. I think the main cause of the Teas doing so well here is that they are grown on dwarf standards, and were thus placed in a slightly dry atmosphere. I have the worst lot of dormant buds I ever saw."

Passing to the South, I have a somewhat vague account from Salisbury; it does not enter into detail, but Messrs. Keynes, Williams & Co. state that the temperature on October 2 was 26°, and October 5, 25°, and on February 12, 16°; that there were sixteen frosty nights in October, and twenty-one in February; that dormant buds are a very fair average; Teas backward, but looking strong; H.P.'s not quite up to the mark. A more detailed account comes from Messrs. Ewing & Co., Sea View Nurseries, Havant, Hampshire:—"With the exception of one or two frosts of 15° to 18°, we have had hardly any real winter. The frost of October 3, which cut up all our tender stuff, severely damaged the rods of young shoots, and before Christmas smooth-wooded Roses, like Comtesse d'Oxford, Mdlle. Eugénie Verdier, and white Roses with light wood, thickly set with thorns, such as Imperatrice Eugénie, had died back very much, some right back to the stock; this might have been from the effects of the same early frost. With this exception, Roses have come through the winter almost uninjured. We do not protect Roses at all here; they all have to take their chance."

As far, then, as these reports go, the lessons they teach us it strikes me, are these:—

1. That Teas are quite as hardy as hybrid perpetuals, especially those varieties of H. P.'s which have Tea-blood in them.

2. That the great element in successful wintering of Roses is a dry atmosphere and high situation; thus in Norfolk the rainfall in many places in 1887 (a very dry year) was only 14 in., and in Reigate 20 in.; soil, too, has to be reckoned in conjunction with this, a stiff soil making them much more susceptible of frost.

3. That earthing-up is a most effective method of protection. I remember well how my dear friend Mr. Radclyffe was scoffed at some years ago when he mentioned this, and that, too, by very eminent rosarians; and now on all sides we see it resorted to.

There are some startling facts — that, for instance, recorded by Mr. Ben. Cant, that his standards suffered less than his dwarfs; while the experience of one grower, that his early-planted Teas suffered most; while another states they suffered least, is a puzzle "no fellow can understand." I hope, if spared for another year, to get a more complete record. *Wild Rose.*

New or Noteworthy Plants.

MASDEVALLIA PARLATOREANA×, *Rchb. f.*

The above plant was described in these columns in 1879 (n. s. xi., p. 172), as a probable natural hybrid between M. Veitchiana and M. Barlæana. It was sent home by Pearce with those species to Messrs. James Veitch & Sons, of Chelsea, in whose establishment it flowered. Mr. Seden has now produced an artificial hybrid between the same two species, which clearly proves the correctness of the above hypothesis. M. Veitchiana was used as the seed parent, the pollen being obtained from M. Barlæana. The seedlings began to flower last year, and Messrs. Veitch were good enough to send me a leaf and flower of both the natural and artificial hybrids for comparison, side by side. There were one or two very slight differences, just sufficient to show that all were not produced by the same plant, but beyond this nothing could be said, and it was unanimously agreed that both must bear the same name. This year the plants are stronger, and a flower just received shows a marked improvement in size, measuring 2½ inches from the base of the flower to the tip of the lateral sepals. It appears that the finest forms of the parent species were used, and this accounts for the improvement, which is so marked that Messrs. Veitch may perhaps think it desirable to add some varietal name to distinguish it from the wild hybrid. There is, however, a yet older natural hybrid, which appeared in the same batch of plants as M. Parlatoreana×, and which has clearly either the same or the inverted parentage. This is M. splendida×, Rchb. f., *Gardeners' Chronicle*, n. s., ix. (1878), p. 493. I am unable to compare a living specimen, but two dried ones are barely distinguishable from M. Parlatoreana×. No other species which grows in the Eastern Cordillera of Peru will account for its characters. M. amabilis has been doubtfully suggested as one of the parents, in place of M. Barlæana, but there are two insuperable objections to this. Firstly, it does not grow

there at all; and, secondly, the hybrid is very different from M. Chelsoni×, which has this parentage. According to the original description, M. splendida × is rather more of an orange shade than M. Parlatoreana×, and I should like to see a fresh flower of the former. Perhaps Mr. Seden will try reversing the parentage (as in the case of M. Chelsoni×), to let us see if M. splendida×, like the others, comes from M. Barlæana—Veitchiana, or from M. Veitchiana — Barlæana, the reversed cross. *R. A. Rolfe, Herbarium, Kew.*

ALTON TOWERS.

This, the Staffordshire seat of the Earl of Shrewsbury and Talbot, is a place of which Loudon said, in 1832, that it was by far the most remarkable country residence in England, and the description holds good to-day.

Alton Towers is interesting not only from its architectural magnificence, and the picturesque and beautiful scenery that surrounds it, but as a perpetual reminder of a grand past, its associations being closely allied with the leading personages of our country. Alton, Alveton, Elveton, or Aulton, was held by the Crown at the time of the Domesday Survey.

The military career of John Talbot, first Earl of Shrewsbury, created in 1442, is one of the most brilliant recorded in English history. He was slain (aged eighty) at Chantillon, in 1453. This Earl of Shrewsbury, who figures so conspicuously in Shakespeare's *Henry VI.*, enjoyed, among his other titles, that of Lord Verdon of Alton, a title which continued in the family, the Alton estates having now for nearly 500 years belonged to them.

The titles of this great Earl of Shrewsbury are thus set forth by Shakespeare. When Sir William Lucy, seeking the Dauphin's tent to learn what prisoners had been taken, and to survey the bodies of the dead, demands—

"Where is the great Alcides of the field,
Valiant Lord Talbot, Earl of Shrewsbury?
Created, for his rare success in arms,
Great Earl of Washford, Waterford, and Valence,
Lord Talbot of Goodrig and Urchinfield,
Lord Strange of Blackmere, Lord Verdun of Alton,
Lord Cromwell of Wingfield, Lord Furnival of Sheffield,
The thrice victorious Lord of Faulconbridge;
Knight of the noble order of St. George,
Worthy Saint Michael, and the Golden Fleece;
Great Marshal to Henry the Sixth
Of all his wars within the realm of France."

To which, it may be remembered, La Pucelle contemptuously replies—

"Here is a silly stately style indeed!
The Turk, that two and fifty kingdoms hath,
Writes not so tedious a style as this.
Him that thou magnifiest with all these titles,
Stinking and fly-blown, lies here at our feet!"

The site of Alton Towers was originally occupied by a plain house, the dwelling of a steward of the estate. One hundred and forty years ago it was known as Alverton, or Alton Lodge, and was evidently a snug homestead, with farm buildings adjoining. When Charles, fifteenth Earl of Shrewsbury, succeeded to the titles and estates of his family, in the beginning of the present century, he made a tour of his estates, and on visiting Alton was so much pleased with the natural beauties of the place and its surrounding neighbourhood, that he determined upon improving the house and laying out the grounds, so as to make it his summer residence. With this end in view, he added considerably to the steward's dwelling, and converted that which was almost wilderness into a place of beauty. To his taste the conservatories, the pagoda, the temples, the fountains, the terraces, and most of the attractive features of the grounds, owe their origin, as do many of the magnificent rooms of the present mansion.

A pleasing reminiscence of this excellent nobleman is preserved at the entrance to the gardens, where, in a noble cenotaph, is a marble bust, with this literally true inscription, "He made the desert smile." After his death, in 1827, Earl John continued the work at Alton, and by the noble additions he made to the mansion, rendered it what it now is —one of the most picturesque of English seats. A splendid view on a clear day may be obtained from the Flag Tower. It is six stories in height, and is a massive square building, with circular turrets at its angles.

The prospect from its summit baffles accurate description, and is one of the most beautiful and extensive which the country can boast—a magnificent panorama—embracing the house, gardens, grounds, and broad domains of Alton and the village of the same name; the ruins of the old castle of the De Verduns, the hospital of St. John, The Nunnery and the chapel, the valley of the Churnet, and the country stretching out for miles around. Ina's Rock is one of the most interesting spots in the ground. It is about three-quarters of a mile from the Towers, on what is called the Rock Walk. It is said that after a great battle fought near the spot (still known as the "Battle-field") between Ceolred and Ina, kings of Mercia and Wessex, the latter chieftain held a parliament at this rock, whence it takes its name.

The chapel just now referred to, although ruthlessly shorn of its relics, paintings, altar, shrines, and all its more interesting objects, is still one of the most gorgeous and beautiful of rooms. It is one of Pugin's masterpieces, and the stained glass is perhaps the finest that even Willewent, by whom it was executed, ever produced. It is impossible to imagine anything finer than was the effect of this chapel before it was dismantled.

Connected with the West Library is the Poet's Bay, or Poet's Corner, forming one of the most charming of retreats, the bay-window overlooking the park and the distant landscape.

The drawing-room is a remarkably fine and strikingly grand Gothic apartment, with a ceiling of flamboyant tracery. To the right, on entering, a central door of Gothic screen-work and glass opens into the conservatory—a noble range. This structure is entirely of glass, both roof and sides, and has a central transept. It presents a spectacle of much beauty when lighted up at night, and it is filled with the choicest plants, and in every part except the vestibule there is painted around the cornice the appropriate text, "Consider the Lilies of the field how they grow; they toil not, neither do they spin; yet I say unto you that even Solomon, in all his glory, was not arrayed like one of these." In the vestibule the motto is, "The speech of flowers exceeds all flowers of speech." Over the conservatory door, in stained glass, are the arms of Talbot, Verdun, &c., the crowned Rose and Thistle, and other devices.

It was early autumn at the time of our visit, and among other items in our notes is one about some finely flowered Campanula pyramidalis. The Celosias were also remarkable, and the Liliums too. Caladium esculentum, with leaves 4 feet by 3 feet, very striking, and two of the finest Dicksonia antarctica in the country. Regarding the conservatory, the cost was £14,000, the designs being taken from a similar building at St. Petersburgh. A good collection of choice kinds of Orchids is grown, and Palms and Tree Ferns of all kinds, for purpose of decoration. Grapes were a fine feature, more particularly the Alexandrian Muscat, Madresfield Court, Black Hamburgh, and Golden Queen. Melons are favourites here, and are well grown. Reading Perfection Tomato is considered by Mr. Rabone, the head gardener, to be the finest flavoured of all Tomatos. It grows to a large size, some we saw being quite a pound in weight.

The Flower Garden.—Some 60,000 bedding-plants are put out annually. A mixed border, 100 yards in length, was very striking and showy. It consisted of Stocks, Cornflowers, Everlastings, Sweet Peas, Mignonette, Marigolds, Marguerites, Salpiglossis, Zinnias, white Antirrhinums, &c. Some carpet-beds, planted so as to form the initials of the Countess of Shrewsbury and Talbot, N. S. T.—Nellie, Shrewsbury and Talbot—were very effective.

Trees, native and foreign, abound, some of which have attained large dimensions. To note a few, Larch, 109 feet high, 14 inches in diameter in the middle: this makes 147 feet of cubic timber. One fine Scotch Fir was especially noticeable, with 211 feet of cube timber in it. Many of the Sycamores and Beeches are of larger dimensions than this. Cupressus Lawsoniana, Irish and Golden Yews, the Fern-leaved Birch, Liriodendron tulipifera, Hemlock Spruce, Oaks, Chestnuts, Limes, &c., all very fine indeed.

Rhododendrons.—Of these some glorious clumps were observed. How effective they must be when in flower! It may prove of interest, and also have somewhat of the novel attached to the record, to state that these are planted in old sawdust stored away when Alton Towers was built! They are all on the red sandstone.

In conclusion, it will not be difficult to point out that much of the renown of Alton Towers in modern times is due to the fine gardens and well-kept grounds; to its grand trees, and the magnificent masses of its Rhododendrons and other shrubs. Nature has contributed much in the hill and dales around, rendered with man's handiwork still more attractive to the lover of scenery.

We may not close this rambling sketch without testifying to the courtesy of Mr. Rabone and his assistant, Mr. Halliday, in pointing out the objects most worthy of notice. *B.*

VEGETABLES.

EARLY CABBAGES.

The present seems a good time for comparing notes with reference to these valued vegetables. "Bolting" is chiefly confined to varieties which I have been growing on trial. These are Early Etampes, and Veitch's Extra Early, and I am in no way satisfied with either, and shall grow them no more, as the greater number of each has done so, and those which have stood are not hearted like good spring Cabbage should be. Ellam's, on the other hand, has been, and is all that one could desire, being regular in the rows, with small, compact hearts, and but few outside leaves, and when cooked are very tender and well-flavoured. Taking this Cabbage all round, I may aver that I have never grown or known of a better one, and in future shall plant no other until it is beaten. It is small, it can therefore be planted closely, and much weight of produce, if that is to be considered, can be cut off the ground. Enfield Market and Fulham used to be my favourites for succession, and very good they both are, where size as well as good quality are wanted. It is necessary to be frequently saving and seeding just the pick of any kind to keep up a good strain.

Summer Lettuces.

Those who have to keep up a constant supply of salading know how difficult it is to have good Lettuces all through the summer months, and this can only be done by adopting a different plan of growing them to that usually carried out, as during hot weather they cannot be safely transplanted, or if they are, they soon bolt or run up to seed. This arises, in a great measure, through the check they receive in removal, for however carefully it may be effected, the tap-root is almost certain to be broken, and it is this root that strikes so deep down that enables the plants to heart in, as with it, they are able to draw supplies from a low level. The way that I manage, after this, is to sow in shallow drills, in rows where the Lettuce are to stand and grow, and thin out when the plants are up, and large enough to handle, leaving them about 15 inches apart, and when so treated they form fine large solid heads, full in the middle. To assist them it is necessary that the soil should be deep

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and rich, and if in a half shaded position, all the better, on the border on the north-east or north-west side of a wall, or between rows of Peas, as fierce sunshine and great heat are against them. If the rows have to be in the open it is a good plan to run a piece of fish net, doubled over the top, or to stick a few Laurel branches along the side, just to screen the plants a bit, and when the weather is dry give a soaking of liquid manure. The best sort of Lettuces to grow for summer work is the Paris White Cos, which stands as well as any, and is very crisp and juicy, and of excellent flavour.

PARSLEY.

A good deal has been said about winter Parsley, and the difficulty experienced in suplying it at that season owing to its dying off. Much of this arises from the Parsley being too good, or rather too double, or curled, as the better it is in that respect, the more likely it is to "fog" in winter. This I have noticed again and again, and during the present spring, the difference of hardiness between the single or common and the fine curled has been very striking, whole plantations of the last-named having disappeared. As the ordinary kind does as well for flavouring, I would advise those anxious for a regular supply to sow the common in a bed or border, or a row under shelter of a hedge or fence in some dry, sunny spot, and I will answer for it that they will not be short again, and there is plenty of time even now for putting the seed in. The curled, too, should be sown in a similar position or transplanted, as a check caused by removal often does good, and Parsley to stand the winter well must not be over strong or too early sown. Any that is forward should be cut in close in September, so as to get rid of all old leaves and induce fresh growth, as the old foliage and stems carry rot to the crowns. This results from damp, and I am of opinion that that is why the curled goes off, as it holds the wet, and the single loose leaves dry more quickly, and are therefore less affected by cold and frost or bad weather. *J. S.*

CALIFORNIAN FORESTRY.

THE second biennial report of the California State Board of Forestry is a very interesting document. It is satisfactory to find that the inhabitants are at length waking up to the knowledge of the importance of their forests, and of the necessity for protecting them. But this is, primarily at least, a matter for the Californians. Of more concern to us are the reports of the botanist, Mr. J. G. Lemmon, and the numerous illustrations, photographic and other, which accompany them. The reproductions are not always very distinct, but in most cases they convey a good idea of the "habit" of trees, such as Pinus ponderosa, tuberculata, monticola, Lambertiana, albicaulis, Balfouriana, contorta, Parryana, Jeffreyi, Coulteri, Murrayana, Sabiniana, Torreyana, insignis, &c. The Douglas Spruce and the yellow Pine (ponderosa) are found from end to end of the coast mountain ranges, from Oregon, through California to Mexico, while eastwards they extend to the Rocky Mountains.

On the other hand, some species are limited to the coast range; others to the Sierra Nevada. Abies grandis of the coast range corresponding to Abies concolor of the Sierra Nevada, and in like manner Pinus contorta is represented by P. Murrayana (inland), and the Sequoia sempervirens, or red wood of the coast, to the S. gigantea, or Wellingtonia of the Sierras. The lovely red Fir of the Cascades (Abies amabilis) has for a companion the white Fir (A. grandis), while in the Sierra are found the magnificent red Fir (A. magnifica) and concolor, each pair, says Mr. Lemmon, living together like faithful friends. Also, it is interesting to note that, while the cognate trees may be reduced in size as progress is made southward, the fruit is often enlarged; thus, Abies magnifica in the north, with its cones 6 inches long, is replaced in the south by concolor, with cones 8 inches long. The Douglas Spruce in Oregon has immense trunks, and cones 1½—2 inches in length, but in the mountains of San Bernardino, California, it forms a dwarf, gnarled tree, but with immense cones 8 or 9 inches long.

Some of the species are very local; for instance, Cupressus macrocarpa and Pinus insignis are limited to a few miles along the Monterey coast; the curious Abies bracteata, lately figured in these columns, is found only in three cañons of the Santa Lucia Mountains of Southern California, and Pinus Torreyana is represented only by a few stunted trees near San Diego. One other vestige of a vanishing race is furnished by the Sequoia gigantea (the Wellingtonia of our gardens), a few trees of which, in about twenty scattered groves at the southern end of the Sierra Nevada, "remain on the earth as the majestic vanguard [rear?] of a past prodigious flora, which once flourished here coeval with the colossal animals of the period. Mr. Lemmon's description of "King Sierra and his royal robe" is so glowing as to thrill the botanist with curiosity, and excite the tourist with eager anticipation.

In his classification of the Pines of the Pacific slope, Mr. Lemmon adopts the division into smooth-coned Pines like those of Strobus, and rough-coned Pines with prominent bosses and spines, of which Pinaster is the type. For the rest, he follows Engelmann in the main, but does not do more than allude to the microscopical leaf-characters, deeming them probably little fit for use in the field. Nevertheless, the position of the resin canals may often be seen with a low-powered pocket lens, and some times by the naked eye.

Mr. Lemmon's descriptions are cast in a form not often met with in botanical descriptions or official blue-books. Thus he speaks of the "long cone Pines," including Lambertiana and monticola, as:—

"Embodiments of magnificence, aristocracy, and excellence, usually large, lofty, and grand; they are also sequestered in choice locations of middle altitudes, admitting to neighbourship but not to fellowship, individuals of all sorts, patricians or plebeians, but always carrying their aristocratic head a little higher, and holding out their long sugar-loaf rolls of resin-embalmed seed far above the heads of the smaller shorter fruited species. Trees yielding abundance of unexcelled material alike to pioneer snake-maker (*sic*), and subsequent lumber manufacturer, who but levels these noble giants to earth to procure a rich endowment.

"The dwarf cone alpine Pines are illustrations of the daring, aspiring, cliff-climbing element in the Pine family. As the beach Pines, Torrey and Monterey, creep or battle their way down to the foam-flecked shore of the sea, despite ocean winds or drifting sands, so these short-coned species climb up to and cling upon the bare steep rocks of alpine peaks, thrusting their flexile stems under the very snouts of glaciers or pressing with might and main through high passes, though beaten prostrate the while by wind, torrent, or ice.

"The oblong cone Plume Pines (Balfouriana) are especial representatives of the æsthetic, the beautiful, the graceful in the Pine family. Selecting sequestered, lofty, scarcely-known country seats near the crowned monarchs of the Sierra, embowered by kindred Pine, Spruce, and Fir, they pose on the steep inclines like colossal figures on Nature's easel—exquisite specimens of modern tree culture, dressed out with emerald garments, waving plumes, modern and delicate drapery, abounding in the double curve Hogarth line of grace and beauty, and but half concealing their beautiful royal purple-hued pendent cones.

"The globe cone nut Pines represent the provident, liberal, yet economical element in the Pine family. Generally found on low hills, or sunny, undulating plains, they spread out their strong limbs, heavily laden, in easy reach of the aborigine; the cones being unarmed, few scaled, or containing comparatively the largest, most delicious, and nutritious seeds of any other trees of the family.

"The thimble cone thin bark Pines are the plebeian, unobtrusive, impoverished unfortunates of the Pine family. With attenuated thin-barked trunks attacked at all stages by parasites and other enemies, both vegetable and animal; their bleeding bodies, and often bare, gnarled, and twisted limbs excite commiseration, which, however, is dispelled in the presence of a heroic individual that has turned the tables on his enemies, or succeeded in resisting their attacks, and so presents a full, crowned head of robust foliage.

"The Broken-Cone, Lumber Pines, comprise the profuse, cosmopolitan utilitarians of the family of Pines. With forms innumerable and individuals widely distributed, they have developed the most adaptable and useful qualities, both in behalf of mother Nature, in clothing with forests large sections of country, and of man in furnishing most valuable and procurable lumber and fuel-producing factors of civilisation.

"The Intermediate Lone Pine is perhaps a vestige of a once vast forest occupying a region now mostly submerged; or these singular trees may be precursors of a coming, aggressive, conquering species, destined to reforest the southern coast hills.

"The Heavy, Spine-Cone, Long-limbed Pines, present the ponderous, massive, and coarse, also the protecting and defending principles in the multifarious Pine family. Inhabiting hot, scorched regions, contending there with dwarfed Oaks and Chap-arral, these trees are never slim and feeble, but rather broadened out, and freely branching, ever holding aloft their enormous clusters of fruits. What end is subserved by the exceeding massiveness and the formidable armament of their cones? That it is a special adaptation of conditions to environment, of armament to the needs of battle, we may be sure. Doubless, a thick, strong, hard investment of capillary scales, defends the ovules from intense heat better than a light one would protect them. Then, too (for there's no end of speculations in this direction), it may be these scales are a defence against the attacks of insects that infest and render abortive the seed crops of other soft-scaled Pines and the Spruces. And the enormous hoops of their cones—do they not defend against the attacks of nut-hunting squirrels, which else might abridge the dissemination, if not compass the extinction of the race?

"The Closed-cone, Slender Pines, are the aggressive, conservative, self-sacrificing, but surely propagating group of the wonderful Pine family. They are strategical warriors from away back. Obstreperous and tenacious, they intrude upon coveted ground, and multiply upon it so numerously, that they starve out all other trees, and are obliged to stand close together, crowding and fighting, content to be squeezed to slim saplings, if only they succeed in lifting but a scant spire of foliage to the sunlight and the wind-gust, in order to elaborate sap enough to bring to perfection their many belts of suspended, curious, wooden, sculptured seed-caskets of long-preserved life-germs, to reforest the region upon occasion."

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT BLENHEIM PALACE.

THE Oxfordshire Agricultural Society's annual show being held in Blenheim Park suggested the idea of opening the Orchid-houses to the inspection of the public, on May 22 and 23. A charge was made for admission, with the result that a handsome balance will be handed over to the Gardeners' Orphan Fund, His Grace the Duke of Marlborough having generously acceded to the request of his gardener (Mr. T. Whillans), in this respect.

In the Melon-house, 70 feet long, no fewer than 217 fruits were to be seen in various stages, and some had been cut. The variety is a seedling of Mr. Whillans, being a cross between Golden Perfection and Hero of Lockinge. The fruits weigh from 4 to 5 lb. each, are globular, fairly well netted yellow skin, pale green flesh, and sugary. The plants were started at the end of February. In an adjoining house was a heavy crop of Tomatos, on plants sown at the end of the summer.

In the large house usually devoted to Cattleyas, there were massed representatives of other showy genera. At one end was a pair of Oncidium Marshallianum, one having 105 and the other 117 flowers. At the other end of the house was a fine specimen Lælia purpurata Blenheimensis, a very dark form; and an equally fine plant of L. purpurata was arranged near it by way of contrast. Springing from out the rockwork facing the door were some stout spikes of Cymbidium Lowianum. With a stream of persons passing through, it was

impossible to note the details as to variety, form, or colours, but a few notes were made of the most conspicuous subjects met with in the eighteen Orchid-houses.

Of Lælias there were fully fifty pieces of purpurata, furnished with from six to ten spikes each. The Dendrobes were a very showy section, the plants of D. Wardianum carrying each about thirty flowers; and large quantities of D. Jamesianum had fourteen flowers on a single growth; about a dozen specimens of this species had each over 220 flowers. One noble example of D. thyrsiflorum had twenty-six spikes, and on a plant of D. Brymerianum were twenty-eight flowers; besides these there were many other well-flowered lots.

The Cattleyas were numerous. Of C. Lawrenceana about a hundred spikes were carrying seven to twelve flowers each; and of C. Mendelii 150, plants had each eight spikes, while several specimens yet to flower showed eighteen or twenty sheaths each. The Mossiæ set was equally strong with eight spikes to a plant, one grand example being furnished with forty-five sheaths; then C. Schroderæ and C. citrina were present, filling the air with their odours. A charming bit of Cœlogyne pandurata had thrown up four spikes.

The Oncidiums included a lot of pretty forms in flower, but the crush of visitors prevented a close examination.

Of Odontoglossum citrosmum there was a batch of fully 300 spikes, some with branching spikes carrying thirty flowers. O. Harryanum, O. Roezlii, O. crispum, O. Pescatorei, O. Rossi, and O. vexillarium, were a show of themselves, and of the last-named 120 spikes were expanded, and more than double that number yet to open. Of O. crispum about 2000 spikes were pushing up, 800 being already in flower.

Of Phalænopsis there were 1000 plants of the favourite species in fine condition. One nice example of Angræcum Sanderianum had thirty flowers on a spike, and another piece of A. Leonis was well bloomed, each spike carrying four or five flowers. The greatest diversity of form and colour appeared in the Cypripediums, which made a great and interesting section—very noticeable was a grand piece C. selligerum majus; C. Lawrenceanum, bearing fully 100 spikes, were open; the popular C. bellatulum presented eight flowers on a plant. C. barbatum superbiens was represented by a grand specimen bearing forty flowers, and several examples of C. lævigatum had four flowers on a spike. *W. G.*

Lælia grandis, *Lindl.*

This fine Lælia is not at all common in British gardens, nor does it ever appear to have been imported in quantity. It is a native of the hot and humid district around the Bay of Todos or Santos, Bahia, though the extent of its range appears to be unknown. It first appeared in 1849, and was exhibited in the following year at one of the London shows, but soon disappeared, like so many others, in those days when the proper treatment was so little understood. In 1864 it again appeared, and found a permanent home in a few select collections, though I have not discovered any evidence of its being at all common. The other day a flower was sent to Kew by the Liverpool Horticultural Company, from a plant imported by them last year, but which is now in the possession of H. Tate, Esq., junr., of Allerton Beeches, near Liverpool, and which is decidedly darker in colour than any published figure of the plant, and consequently more showy. It measured 6 inches across, and the sepals and petals were of the usual colour, greenish-yellow with numerous darker reticulations, but the lip was light purple, strongly veined with much darker purple, and with a large maroon blotch on each of the side lobes; throat sulphur-white behind. It is a very beautiful variety, and affords evidence that in this species, as in so many others, there is a certain range of colour variation. It is not improbably an individual variation, and therefore hardly worth separating as a variety, as the next plant might be again a little different. Too many varieties are, I fear, mere individual variations. *R. A. Rolfe.*

Orchids at Ardarroch, Dumbartonshire.

The residence of R. B. White, Esq., is most beautifully situated on the shores of Loch Long. From the grounds here the water, wood, and mountain scenery, is simply grand. When so far north, and in the neighbourhood of the Lochs, you are really in the land of the mountain and the flood, where—

"Prone down the rock the whitening sheet descends,
And viewless Echo's ear astonished rends."

The whole country hereabout is so rugged, that the grounds of Ardarroch are naturally very undulating in character, and they have been laid out to good advantage. Evergreen trees and shrubs grow luxuriantly, and many are of large size; and in the American garden, which is very attractive just now with hybrid Rhododendrons and Azalea mollis, are some old and fine specimens, but the variety is limited. Here and there about the grounds are some fine Conifers, varying in size from 5 to 50 feet, and even more; two of these, namely, Cryptomeria japonica and Araucaria imbricata, are worthy of special mention, as they are among the largest and most perfect specimens in Scotland, but the person who planted them had evidently no idea of the size they would attain, and the branches are now in contact, the question with Mr. White being which shall be removed; but, seeing the position in which they are growing, and the way they shelter each other, my advice is to leave them as they are.

Ardarroch has recently become celebrated for its collections of Orchids, but the number of genera is very limited; selection, not collection, being the governing principle. Of Eastern Orchids there are but few, but the New World species are in great abundance, Mr. White having a collector of his own in South America who has sent home great numbers of Cattleyas, Lælias, Odontoglossums, &c. The last named genus is represented by thousands of plants, the two former by hundreds; many of the Cattleyas and Lælias are in very large masses, such as are rarely seen. A great number is in bloom just now. Cattleya Mossiæ was represented by many fine varieties, the sepals and petals varying in colour from pure white to deep rose, the labellums being quite as variable, a few being beautifully fringed with white; the blooms also varied considerably in size, one plant under the variety name of "Horsmanii" had the largest flower I remember seeing. Lælia purpurata was represented by many fine forms, and the blooms were fresh and well developed; it would puzzle experts to decide which was the best, for out of the many plants in bloom there were not two alike.

Of Lælia elegans there were many fine plants in bloom, mostly pale forms such as L. e. Schilleriana. Of Cattleya Mendelii there was a host of plants in bloom, but the variety was not great; a white form, C. M. Bluntii, was pointed out as being both rare and fine. Cattleya gigas is extensively grown, also C. Trianæ and C. T. alba, and many intermediate forms. Some fine pieces of Cattleya Skinneri were also well bloomed; a piece of C. S. alba is also in the collection—in fact most of the Cattleyas find a home here.

Wooley's variety of Sobralia macrantha splendens was good, also Rollisson's variety of Vanda suavis, and Dendrobium Jamesianum. Cypripediums were represented by C. barbatum nigrum in large masses, also C. Lawrenceanum; C. Hookeræ with a larger bloom than is usual. C. caudatum had the largest bloom I ever saw, with tails measuring 32 inches long. Growing in baskets suspended from the roof in the Cattleya-house were several blooming plants of Odontoglossum citrosmum, which greatly enhanced the general effect, and Epidendrum vitellinum also added its share. Masdevallias are not much grown, but the following were in bloom:—M. Chelsoni, M. ignea, M. Harryana rosea, and M. xanthina; O. Miltonia Rozelii album and O. R. nigrum were both good. There are two houses of considerable size, the greater part of which is devoted to Odontoglossums, many not long imported, and others well established. Most of the best species are represented, and there are many rare varieties. Of Odontoglossum crispum many plants of a fine strain were in bloom, and many spikes were in course of development on plants never yet bloomed; these are being watched with great interest and no little anxiety, for already what must be natural hybrids have put in an appearance. One plant looks like a natural hybrid between O. nævium and O. cirrosum, others as if O. Andersonianum, O. Ruckerianum, &c., had all got mixed up together. There were some grand forms of O. luteo-purpureum in bloom. I know I am encroaching on your valuable space, and wish only to add that I never before saw so many Odontogots with such deep, ruddy, purple foliage. I have omitted to note the contents of other two small Orchid-houses, these being little in bloom, except a recently imported Bollea, with the upper half of the flower white and the lower yellow. The whole collection is in the best of health. Mr. Fraser (the gardener) evidently being well versed in their cultivation. *Robert Bullen.*

Dendrobium crassinode × -Wardianum.

This is a supposed natural hybrid, and therefore a plant of considerable interest, as well as of great beauty. It originally appeared with Messrs. Veitch, in the spring of 1886, and subsequently passed into the collection of Baron Schröder. It was exhibited by the latter at a meeting of the Royal Horticultural Society, held March 23, 1886, when it was awarded a First-class Certificate. An excellent figure of the plant may be found in the *Journal of Horticulture* for 1887, part 1, p. 312, fig. 58. It was also described in these columns in 1886, by the late Professor Reichenbach, as D. melanophthalmum. It now appears from another source, for the other day a pseudobulb with flowers was sent to Kew by the Liverpool Horticultural Company, which is identical in every respect. The nodes are thicker and less distant than in D. Wardianum, but not so close or so much swollen as in D. crassinode, while the dark blotch on the lip is but half the size of that of the former, yet not absent altogether, as in the latter. In size and general appearance the flowers resemble D. Wardianum rather more closely than the other parent, yet the characters generally could not well be more thoroughly intermediate. Dendrobiums hybridise so readily in cultivation, that it is somewhat singular that no other well authenticated natural hybrid should have appeared. In Odontoglossum we see a reversed condition of things; natural hybrids abound, but I believe no artificial hybrid has yet flowered. *R. A. Rolfe.*

Orchids in Flower, Woolton Wood, Liverpool.

At the present time the numerous Orchid-houses in Mr. H. Gaskell's garden have an exceedingly gay appearance. In the Masdevallia-house several thousands of spikes could be counted of the Lindeni, Harryana, and ignea types alone, and some very beautiful forms of M. Veitchiana were noted, and a very fine example of M. Schlimii carrying twenty-one spikes, with from four to seven flowers each. In the cool Odontoglossum-house a plant of Oncidium serratum bore a spike with thirty open flowers, and a fine form of Odontoglossum Hallii with three spikes. Miltonia vexillaria were well flowered, some very dark forms figuring prominently amongst a large collection. In the Miltonia-house a good specimen of Maxillaria Sanderiana with five flowers hung from the roof. In this house were nicely flowered examples of Anguloa Clowesii, Oncidium splendidum, O. crispum, Cœlogyne tomentosa, described by the late Professor Reichenbach in *Gardeners' Chronicle*, 1873, p. 843, from a specimen which had flowered in A. D. Berrington's garden, Pant-y-goitre, Abergavenny; Odontoglossum Reichenheimii, Trichopilia suavis and its variety alba, T. coccinea, T. crispa, and T. lepida, a somewhat unusual occurrence to see so many species of

Trichopilia flowering together. A plant of Vanda teres with twenty spikes was observed in another house with Cattleyas, also a pair of Calanthe veratrifolia with three and four spikes respectively, and its pink variety Melamii. Cattleya Mossiæ and C. Mendelii were at their best, and several very high-coloured forms were found. Amongst Cypripediums in flower in the warm house, mention may be made of grandis with five spikes; the beautiful and rare C. Curtisii, C. Druryi, C. Schroderæ, C. bellatulum, C. Lawrenceanum, &c.; some Dendrobes, and a number of finely flowered specimens of Miltonia Roezlii, inclusive of a few plants of the chaste variety, M. R. alba. The whole collection is well cultivated by Mr. Todd. *F. Ashton, The Vineyard, Garston.*

CATTLEYA SKINNERI.

Of all the Cattleyas this is one of the most useful for decorative purposes, as it produces its rose-coloured flowers in great profusion. Nevertheless, a specimen such as the one now illustrated (fig. 113) is not frequently to be seen. We are enabled to present this to our readers by the kindness of O. O. Wrigley, Esq., Howick House, Preston, in whose garden the plant was grown. It is one piece, and bore 200 flowers when photographed last year by Mr. Beattie, of Preston.

THE ECONOMIC USE OF BARKS.

How few persons ever give a thought to the sources of supply and the various uses of the different vegetable substances which enter into commerce, or are utilised in different forms. Of the three kingdoms of Nature, the products of the vegetable kingdom are certainly the most important, inasmuch as man may be fed, clothed, sheltered, and kept in health by the materials it supplies him with. And what a wide range of useful products is furnished to commerce by every part of plants and trees—the roots, the stems, and stalks, barks, leaves, saps and other exudations; flowers, fruit, and seeds, all comprise extensive lists, the descriptions and details of which would be interesting and instructive. Let us consider but one of these—the different barks. How important are these, and what employment their collection and distribution afford, and how manifold are their economic uses! For general considerations they may be conveniently grouped into three classes:—1, Those employed for their fibrous nature; 2, those used for colouring and tanning purposes; and, 3, those having medicinal uses. I shall confine myself here to the first class; but it may be well to state at the outset, what is the declared value of those we import, which are considered of sufficient importance to be enumerated in the Board of Trade returns.

The value of our imports last year were:—

Cinchona bark	£361,682
Tanning barks	147,107
Extracts for tanning and dyeing	394,774
Cork	718,111
Cinnamon	44,061
	£1,965,835

To these we may add by estimate:—

Oak bark, produced at home	£1,200,000
Larch bark ,, ,, ...	200,000
	£1,400,000
	£3,365,835

This, be it remembered, is exclusive of many minor barks, and only comprises the British trade, irrespective of the commerce carried on in other countries.

It is impossible within reasonable limits to give more than a general brief glance at some of the uses of barks by different peoples—for different economical and manufacturing purposes.

The inner bark of the Lime, Ash, Elm, and Maple, as formerly used for writing on, whence our word library, from the Latin—*liber*, a book. The strips of bark were rolled up to make them more portable and termed "volumen," a name afterwards retained for rolls of parchment and paper. It is doubtful whether the leaves of Palms and other trees were not used even before the fine layers of bark, for the Roman oracles were impressed on leaves.

The bark of the grey Birch, as well as that of the white Birch, is much used in North America in the manufacture of canoes. These are used by the Indians in navigating the rivers and shallow streams. They are long, narrow, light, and fragile in appearance, but when guided by a skilful hand, are capable of being propelled with great rapidity. Birch bark has been used to fumigate rooms.

The inner bark of the white Birch was formerly used for writing tablets before the invention of paper. With the outer thick coarse layers, houses in Russia, Poland, and other northern countries are often covered, instead of with slates or tiles.

The Kamschatdales chop up the bark with the eggs of the sturgeon, and use it as their ordinary food. An empyreumatic oil is obtained from Birch bark, which gives the peculiar odour to Russian leather.

Allusions to the use of the inner bark of the Himalayan Birch (Betula Bhojpattra) for writing on are met with in Indian works 2000 years old. The early Aryans, in their settlements in the Punjab and along the foot of the Himalayas, must have found this material ready at hand, and employed it for various purposes of domestic economy, as well as for writing. At present its use is limited to the lining of boots and shoes, and to writing amulets on, which are enclosed in gold, silver, or copper beads, and borne on the person as charms against evil influences. For this purpose the bark is held in high esteem, on account of its lasting quality, for though thin and fragile to look at, it lasts for centuries without decay. In one instance a piece of Churja bark about 2000 years old was found in the sanctuary of a Buddhist tope.

Of the bark of the Paper Birch (Betula papyracea) canoes are constructed, and it is used in the manufacture of various utensils for domestic use, such as drinking cups, dishes, baskets, and chair bottoms. Touchwood of the best quality is made of it, and the Christian Indian tribes of North America use the bark for paper on which to engrave their syllabic literature, as well as for letter writing.

The bark of the White Spruce (Picea alba), being skilfully removed in one piece by the Indians, receives the canoe shape by being skewered together, and stiffened by having a few Willows inserted. It is serviceable for a short period only, heat and cold being alike destructive to this species of craft, by rendering the bark dangerously brittle. Pieces of the bark are used for covering houses, and also by the natives for roofing temporary sheds or cabins.

The bark of the Lime (Tilia europæa) when steeped in water soon separates into thin layers, which are employed for making a coarse kind of rope, for a matted shoe, much worn by the Russian peasantry, and also for making the bast mats which are so largely imported from Russia, and which are so extensively used in this country for packing furniture, as well as for gardening purposes, &c. For every pair of shoes the barks of three or four Linden trees are requisite; and though these grow faster as they are cut, yet the consumption is enormous, and the destruction of the trees is in consequence immense. One hundred million of these shoes are stated to be made yearly. When the bark is whole it is employed for roofing, for covering the river boats, as well as for making sledges, carts, boxes, &c. When the bark is in several pieces it is used for matting and bags. That of the young Lime tree is used for making cordage, sandals for the peasants, and all sorts of baskets, &c. More than 1,000,000 trees, it is said, are destroyed annually for the bark manufacture at Viatka alone, and the value of the articles produced exceeds £500,000.

Substantial and useful rope is also made of the inner bark of the Lime tree. The best matting or bast is imported into England. After the Lime the Elm, among European trees, produces a fibrous bark, most tenacious and durable, which is employed to make mats and coarse ropes. The bark contains in its cells an abundant mucilaginous principle (20 per cent.), and about 6 per cent. of tanning, but it is not used for this purpose.

From the boiled inner bark of the Russian Larch, mixed with Rye-flour and afterwards buried a few hours in the snow, the hardy Siberian hunters prepare a sort of leaven, with which they supply the place of common leaven when the latter is destroyed, as it is frequently by the intense cold. The bark is nearly as valuable for tanning as Oak bark. From the inner bark the Russians manufacture fine white gloves, not inferior to those made of the most delicate chamois, while they are stronger, cooler, and more pleasant for wearing in the summer.

In North America from the fibrous bark of the Willow a species of twine is made, which the natives manufacture into nets of great durability. The dead inner bark is mixed with oatmeal in Norway. In Russia and Sweden the bark is used for shoes, buckets, boxes, and for roofing. It is also employed as a tanning substance, and when separated into fibre is woven into cloth.

The bark of the Sinaia or Locust tree, Hymenea Courbaril, of British Guiana, is used in the construction of canoes—or wood-skins, as they are termed.

The bark of the Purple Heart, Copaifera pubiflora, is also used for this purpose. Some of these canoes are large enough to carry from twenty to twenty-five persons with perfect safety in smooth water.

The bark of several species of Bauhinia have economic uses in India; that of B. acuminata is considered a remedy in cutaneous diseases; that of B. variegata is astringent, and employed by dyers and tanners; that of B. tomentosa for cordage; the thick bark of B. racemosa is used as a slow match; bast and strong ropes are made from the fibrous bark of several of the species, and also from those of Hibiscus and Sterculia.

In Australia the bark of several trees have been experimented on by Baron Mueller for paper-making. The stringy bark of Eucalyptus obliqua is extremely thick and bulky, separates with the utmost facility, and is hence universally used for thatching rural dwellings. The supply is available by millions of tons. It is easily converted into packing, printing, and writing-paper, and may also be employed for mill and pasteboards. The pulp bleaches readily. The paper made from the bark of E. rostrata is much coarser than that from the stringy bark, but the pulp may be used as an admixture to that of packing paper and pasteboard, or as an ingredient for blotting and filtering paper. The barks from several other Eucalypts also make good rough packing papers.

Among savage nations, pieces of bark are piled up to make huts for shelter; and the bark simply beaten forms rude cloth, used as petticoats and other garments. The natives of Port Mulgrave, north-west coast of America, are wretchedly clothed in mats woven with the inner bark of a Cypress, which is tough, flexible and very soft.

Rolls of bark are worn in the lobe of the ear by the native women of the Anamallys, India.

Curious sacks, made in Coorg from the inner bark of the Antiaris saccidora, are used for conveying rice and coffee by the villagers in Mysore.

A kind of cloth is made in India, called Arnful, from the bark of Celtis orientalis. The inner bark consisting of numerous reticulated fibres, forms a kind of natural cloth used by certain tribes in Assam.

The inner bark of some of the Conifers contains a fecula which, properly prepared, furnishes when boiled, a very edible broth. The Laplanders are very fond of it. When they prepare a meal of it, they bark the tree all around up to a certain height.

The dried bark of the Dogwood, commonly called Red Willow, was used in Lower Canada for smoking by the Indians before they were supplied with tobacco, and many of them still, from motives of economy, mix it largely with their tobacco.

From the inner bark of the Holly, macerated in

water and boiled during a long period, birdlime is procured.

The bark of Careya arborea serves as cordage, and is used as a slow match for guns in the Northern Carcass, India.

Hemlock Spruce bark in Canada is stripped off the trees in long slabs, and answers as a substitute for boards in covering the camps or hovels used by the timbermen or woodcutters when engaged in the forests. This bark is largely employed by tanners in North America.

A curious use of bark is that made in Sumatra of Lawang bark (Sideroxylon Zwargesi?) to clear muddy water, so as to render it drinkable; it acts in a similar manner to the clearing nut, Strychnos potatorum.

The bark of Quillaia saponaria, a colossal tree of Chili, is rich in saponine, and thus valuable for dressing wool and silk. It is much used in France and Belgium, and occasionally appears in commerce here.

There are many other fibrous barks which have a commercial value, such as that of the Mulberry (Broussonetia papyrifera), for the paper manufacture in Japan; that of the Daphne longifolia and D. papyracea, for the same purpose in Nepal; and of Adansonia digitata, which has been imported from Western Africa for our own paper mills. The curious inner bark of Lagetta lintearis is tough, but of a fine texture, consisting of twenty or thirty layers, each of which, on being soaked in water is easily separated, and extended or drawn out diagonally exhibits the appearance of a fine net lace, from which it derives the name of Lace-bark Tree. The ladies of Jamaica are exceedingly dextrous in making caps, ruffles, doyleys, fans, and other fancy articles of the bleached bark. Cork and many other fibrous barks have not been noticed in this sketch.

P. L. Simmonds.



Fig. 113.—Cattleya skinneri with 200 flowers: grown by O. O. Wrigley, Esq.: flowers rosy-purple. (see p. 684.)

LILIES.

I have happened to hit upon a very simple idea which seems to me to be of some use in Lily growing. It came about in this way: owing to the exigences of a moderate-sized garden, I have grown my Lilies for the most part, in rather close proximity to a large Elm tree. I fancied that I had taken away all power of harm from the Elm by means of a sunken wall, which ran the whole length of the border where the Lilies were planted. But no such thing took place at all, and Lily growing even when the soil had been most carefully prepared, was never what it ought to be in this particular spot, and I was very much baffled. My gardener, however, and I discussed the matter together, and it was determined in the first place to examine all the bulbs in the border; and three autumns ago we took away some cartloads of earth and they were all exposed to view.

Then the cause of the misery was apparent enough. The roots of the Elm had dived beneath the foundation of the sunken wall, and had come up victorious on the other side of it—and what a work of mischief they had managed to bring about! No wonder it was that Lilium auratum looked very uncomfortable with a tough thong of roots going close alongside of it—or that L. Washingtonianum was very far from prospering, when all the moisture was being sucked out of the soil by its inexorable neighbour—or that L. monadelphum, which is reasonable enough under any decent circumstances, should have refused to blossom; and so on through a long catalogue of woes. No wonder was it that the labels stood bolt upright, and seemed to mock one in great empty spaces here and there over the border. The whole thing was a failure, and at first it seemed that I must either cut down the Elm or give up growing Lilies in that particular spot. But there was a strong reason against the expedient which first of all occurred to me. The Elm stands on land which belongs to St. John's Church, and it could injure me and destroy my Lilies by running underground into my precincts without me

being able to lift a finger against it. So I had to think again, and this time the right thing occurred to me. All the bulbs were taken out of the border, and the whole of it was excavated to the depth of some 4 feet, and a thick bottom of concrete was then laid down, and the soil was afterwards filled in.

This was done according to the directions which Dr. Wallace gives in his pamphlet on the subject, and different Lilies were treated to loam, leaf-mould, peat, or sand, as they seemed to require it. I should say that I took good care to make this concreted bottom with a gentle incline, so as to throw off the water, and not to hold it for long, or otherwise there might have been trouble from that. But after a trial of three years, I think I may say that the idea has certainly not proved a failure, and at any rate I get on with Lilies better than I have done before, and if last summer had not been so wet they would be even more flourishing than they are. But what I have now in my mind, is to make a border of this sort for a Lilies, not in a semi-shady place as mine at present is, but in full sun in some very open spot.

Your correspondent "J. S." (see p. 627 of your last impression) seems to wonder why such tens of thousands of imported Lilies die away and are lost, and so I should think many others have wondered besides him. But may not this give the reason, or, at any rate one reason, for our comparative failure? Lilies are grown for the most part in full sun in Japan, and somehow they are never dried up at the roots, even while fully exposed to solar influences; but we—or, at any rate I speak of myself—I am at this point very much puzzled. When I had planted my Lilies in an ordinary exposed border, they have sometimes got on very well for a time, but in July and August they have been so baked and dried up that they could never recover from it. All moisture was for the most part denied to them; one could not be surprised that they then suffered accordingly. But would it be so—and this is the very thing which I hope will be revealed to me in the future—if Lilies were planted in full sun in a border with a concreted bottom? I do not speak of all Lilies, *e.g.*, I do not fancy that Lilium Washingtonium would like it; but I certainly believe that Lilium auratum would enjoy the situation, and by thus being kept from ever being dead dry, it would have a nearer approach to the condition of its own native habitat than is sometimes the case. At any rate, to end a long story, the survival and comparative well-being of some thirty specimens of Lilies out of thirty-three or thirty-four in my border, seems to tell me that the concreted bottom is duly appreciated by them, and the Elm tree now having its branches close by without the smallest chance of doing them any harm. Its teeth have been drawn—to use a strangely incongruous figure—and I hope for still better results in the future for Lilies from the hint it has given me. *W. Ewbank.*

Colonial Notes.

NEW ZEALAND FLAX.

The *Canterbury* (New Zealand) *Times* of March 14, contains an excellent article on the history and cultivation of this plant, the commercial prospects of whose fibre have lately looked up considerably. Hitherto the colonists have relied upon the wild plant, and owing to careless manipulation the quality of the fibre greatly deteriorated.

Now, however, it is proposed to cultivate the plant, and when once growers begin to cultivate, they begin to appreciate the necessity for care in preparation also. Few, if any, vegetable products can be made commercially profitable for any length of time save by systematic cultivation.

Durban.

The lime-juice prepared in the botanic garden was sent to England for examination, and has been very favourably reported on. Tristania conferta, the so-called Box tree of Brisbane, thrives well in the gardens, and is, says the Curator, Mr. Medley Wood, a very suitable tree for coast planting. It does not grow so fast as the Eucalypts, but has the advantage of not being injured by white ants. In the report whence we take these particulars, we find that the flower-spikes of a species of Aloe are used by the Zulus as a vegetable, and are spoken of as delicious. The species is not yet ascertained, hitherto only bitter recollections have been associated with Aloes. The maximum temperature at Durban varied from 85°·97 in February to 75°·7 in July. The minimum temperature ranging from 68° in February to 54°·5 in July. The rainfall amounted to 37·74 inches, distributed over 145 days.

Singapore.

The guide to the Botanical Gardens lately published, mentions the mean annual temperature of the town as over 80° F., the highest temperature being 91°8, the lowest 68° F.; the rainfall 112 inches, distributed over 135 days; as much as 6 inches sometime falls in twenty-four hours. The gardens comprise an area of 66 acres, ten of which are left in the original state of jungle.

PINE-APPLES.

[See Supplementary Sheet.]

In reference to the supplement sheet illustration issued with this number, Mr. Gleeson, Clumber Gardens, Worksop, has kindly forwarded the following particulars:—

The fruits represented form part of a group of twelve (of which, unfortunately, three were not ripe when the photograph was taken) which were cut on November 18, 1888, and exhibited at Manchester on the 27th of the same month, receiving the Society's large Gold Medal. The average weight of each of the twelve Pines was over 9½ lb., while that of the entire bed, comprising fifty-five plants, was over 8 lb. The mode of culture by which such very favourable results was obtained, differed little from the ordinarily accepted methods of treating these plants, but at the same time it may be interesting to give a brief outline of the system which was found so successful.

To begin with the houses: I made a special endeavour on the reconstruction of some of the houses here, making the new ones perfect sun-traps, and this was effected by the closest possible system of glazing consistent with proper ventilation. The object in view was to dispense as much as possible with fire-heat, which was found to have an injurious effect on the plants, especially when the fruit was swelling. The plants, too, were kept quite close to the glass, and this necessitated shading in bright sunny weather. I am in favour of pot cultivation where space is limited, and from recent experience I have learned that too large pots are not to be recommended. I have found that Queen Pines of 4 lb. and upwards can be grown in 7-inch pots, and before the close of the season I intend exhibiting at the Royal Horticultural Society's show some Cayenne Pines in pots of this size. Where the Pine-stove is in three or four divisions, I would certainly recommend the planting-out system, as it lessens the labour, and gives much better results than can be obtained from pot plants. On July 20, 1887, I had a nice batch of Smooth Cayennes and a few Charlotte Rothschilds, and after much hesitation and with some misgiving, I determined to adopt the planting-out system, and was rewarded with the best results I had hitherto experienced. For compost I used fibrous loam of strong and sandy kinds in equal proportions. To these were added crushed bones, bone meal, deodorised manure, and a liberal sprinkling of soot.

The temperature for both successional and fruiting plants is maintained at from 70° to 75° by night, and from 80° to 90° by day, though after shutting up the houses on bright days a maximum of 110° is often reached. I endeavour to secure in these stages an uniform bottom-heat of 90°. During the winter months and while the plants are resting, I seldom allow the temperature to fall below 60°, and endeavour to preserve the same standard of heat during the day.

In the early stages of growth, water is sparingly supplied to the roots, while the syringe is freely used overhead both night and morning. After the resting period and when the plants have shown fruit, water is more freely supplied to the roots, and as the fruits develop, copious doses of strong liquid manure are administered, the evaporating troughs are kept dry, and the use of the syringe overhead is discontinued.

The varieties I grow are not numerous, and are limited to those from which the best results have been obtained—these are the Queen for early summer, and for autumn and winter the Cayenne.

Plants and Their Culture.

Greenhouse Plants in June.—This house should be gay with the Ericas and New Holland plants now in full bloom, and to enable them to retain their brilliant colour as long as possible, a thin shading should be given them during the hours of bright sunshine. Plants which have bloomed should be given all the light possible to assist them to make a sturdy growth, more water at the root will be needed, and particular efforts should be made to prevent them suffering from dryness. Soft-wooded Ericas and Epacris which have made free growth should be removed to a cooler house or cool frame to gradually harden off, preparatory to placing them in their summer quarters. Coronillas and Chorozemas which have done blooming should be regulated, and repotted if this be found necessary, keeping them close for a time till new roots are made. Pelargoniums coming into bloom should get liquid manure frequently; Calceolarias must be well supplied with water, and kept as cool as possible and shaded. The succession plants of the latter should receive liquid manure rather frequently, and be well fumigated with tobacco or tobacco-paper before the blooms expand. Balsams should be shifted into their flowering pots, and seed should be sown in a cold frame for late summer and autumn decoration. Cinerarias sown for early blooming will be ready to transfer to small pots; a larger sowing may now be made for the main stock of plants, and this should be done in pans, which will be best put in a cold frame and kept well shaded. A small sowing of Primulas for late decoration may be made as advised for Cinerarias.

The shoots of Fuchsias should be stopped, and the plants shifted as required, and any plants coming into bloom should be regularly watered with a good kind of fertiliser. Cuttings of Fuchsias struck now will make useful plants by the autumn. The early sown Cyclamens should be attended to, not allowing the plants to suffer for want of being shifted into larger pots. Small plants in pans should now be moved into 3-inch pots, using a good rich light compost. Statices will now be coming into bloom, and will take abundant supplies of liquid manure. Later flowering plants may require to be shifted, and will want keeping free from greenfly and mildew—fumigating for the former, and dusting the under-sides of the foliage with sulphur for the latter. Zonal Pelargoniums for winter-blooming should now get the last shift for the season, and have the shoots stopped, to induce compactness—6-inch pots will be found a useful size, or 5-inch for later plants, keeping the plants through the summer months plunged in coal-ashes or cocoa-fibre, and well exposed to sunlight.

Acacias and Cytisus whose blooming is past should have the shoots shortened back if the plants are very large, or have grown out of shape, and be repotted, giving them a thorough cleansing before repotting, if they are infested with scale, &c. Keep the plants rather closer after re-potting, and syringe them heavily every day.

The earliest of the Lilies will take abundance of water, and those coming into bloom should have some rich decayed manure as a top-dressing; a few neat stakes will be needed by the taller growers. The later-flowering plants should be plunged in a cool material, to retard, placing the latest of all under the shade of a wall facing north. The useful

Hyacinthus candicans should be placed in a like position. This is a very useful plant for the cool conservatory, and if grown in the same way as Liliums, it is very serviceable.

Hints for the Conservatory.—Keep strong-growing climbers in order, so that there is no undue shading of the plants beneath them. This thinning and regulating of growth will be often found necessary, but note should be taken of the natural habit of the plants, following this in the training as nearly as is possible, and avoiding all needless fastenings. Camellias making healthy growth must have the syringe used amongst them twice daily, shading the plants in bright weather up to 4 P.M. Assist the plants with liquid manure, and as they complete their growth, more and more air should be admitted to the house. *G. Wythes, Sion Gardens, Brentford.*

The Orchid Houses.

Hints on Treatment in the Warmer Houses.—The alternations of heat and cold lately experienced are very trying to the plants, and a source of trouble to the Orchid grower.

Throughout the month of June, the growing Dendrobes and East India plants, Saccolabiums, Vandas, Phalænopsis, &c., must be looked well after, in order to keep them growing healthily. A moist wholesome atmosphere of a temperature recommended for the warmest house must be kept up, and which by sun heat may be a little in excess of those figures. Where there is convenience to grow these plants in baskets, it gives them a better chance; and where they are found to be doing badly in pots, a change to hanging baskets often brings about beneficial results.

Remarks on Watering.—These and all other growing Orchids and cool house plants require careful but liberal watering with rain water, not just damping the surface of those requiring water, but well soaking them, and then letting them go until another good watering is required. Little waterings every day are productive of much harm, as some plants get sodden and others are not thoroughly wetted. Dry baskets should be taken down, dipped until thoroughly wetted, and allowed to drain before hanging up if placed over other plants, or injury to those below may, and probably will, result. I am very much against syringing Orchids of any kind, and counsel amateurs to endeavour to do without wetting the leaves of their Orchids as much as possible, but to well and frequently syringe the back and side walls of the houses, and under the stages, and otherwise by keeping plenty of moisture about attain the end for which the syringe is supposed to be used. In the matter of watering in summer, the early morning is the best time to do it, and in the afternoon the plants should again be looked over to see if a few which did not appear to want water earlier are now dry. A little ventilation in all the houses at night will help to keep the plants vigorous.

Shading the Plants.—Shade carefully but keep the blinds up unless absolutely wanted to exclude the sun's rays, but on the Phalænopsis and warm house they had better be down a little too much than not be down when bright sun does appear. The temperatures for the month of June should be: warmest house 75° to 80° by day, 70° at night; intermediate house 70° to 75° by day, 65° at night; cool house, 60° to 65° by day, 55° at night. *James O'Brien.*

The Flower Garden.

Roses and Insect Enemies.—Hereabouts the growth of Roses is all that could be desired, but the leaf-roller has now made its appearance, and the foliage is being devoured wholesale. I have tried hitherto every advised means for its destruction, but in vain, and the only trustworthy one is to pick off all affected leaves, smashing the maggot in the act of picking. Repeated syringings with strong soapsuds serves as a deterrent to the pests, and it is also an excellent prevention against mildew. If greenfly be the only insect that is troublesome, clear water, applied with sufficient force to dislodge them, will be found effectual.

Pull up stock-suckers; their only use is to rob the plant. Stake standards, peg out dwarfs to cover the beds, and train and tie climbers. Any of these that are planted in sheltered places, and under the eaves of walls, where the rain cannot reach them, should occasionally be heavily watered at the root in addition to the overhead syringing, which, as a matter of course, they should always get throughout the summer. Though I am a strong advocate for allowing every plant its full right, namely a plot of ground to itself, the exigences of space are sometimes such as to hinder the carrying out of this plan, and in many cases it is so with Roses. The conspicuous part of the garden they occupy may render the carrying out of this plan impracticable, and, therefore, to make amends for this, in my case a more abundant supply of farmyard manure is given to the beds in the first instance, and next, surface-dressings of artificial manure are given sometimes twice in the summer time. The first of these surface-dressings will be applied as soon as the principal flower-buds are formed, and the next application as soon as the first bloom is over, which is the time when the plants need stimulus to get them into growth for autumn flowering. In my case the flowers that at present share the soil with Roses are Gladiolus, Lilium auratum, Asters, Stocks, and Indian Pinks. They are, of course, planted at as great a distance from the Roses as possible, and the top-growth of the flowers is never allowed to over-top the Roses.

General Work.—There never has been a more favourable time for bedding-out. When this kind of work in the flower garden is finished, the tying-up of all plants requiring it, such as Dahlias, Abutilons, and Fuchsias, all tall growing seedling sub-tropicals should follow. The heavy rains have beaten the soil so hard that a few sunny days will cause it to crack, to the injury of the roots of plants, but this cracking may be prevented by breaking up the soil with a sharp pointed stick as soon as it is in workable order, and then all trailing and ground-work plants may be pegged down. Pick off all flower-buds, thereby assisting the growth of the plants, and for neatness sake, all dead foliage also; and if a mulching of cocoa-fibre refuse can be applied to all the beds, the growth of the plants will be accelerated. For Violas, Calceolarias, Verbenas, Alternantheras, and Coleus, this mulching ought to be considered as indispensable. Slugs are more troublesome than usual this season, and, despite the application of soot, lime, and sawdust, still they come; so that, as regards seedling plants, there is nothing for it but to continue to fill up blanks from reserve stocks till the weather becomes drier, and the slugs less troublesome. *W. Wildsmith, Heckfield, Hants.*

Fruits Under Glass.

Melons.—As soon as the fruit in the early house has ripened, have some nice strong plants ready for replanting; remove some, if not all, of the old compost, and replace by a strong loam, made firm, planting as soon as the soil is warm enough, keeping the house close for a day or two. Top-dress and water those that have set their fruit, stopping to one joint beyond; impregnate those in bloom, on a bright day, when fully open; give air more freely to those ripening, to help the flavour, also keep them drier. Maintain a night temperature of 70° to 75°, and 80° to 85° by day, with air, which should be put in early on mild, bright days, and the pipe-heat stopped. Shut up in the afternoon with sun, damping down the walls, paths, &c. Sow for successional crops.

Strawberries.—The few hot days in last week were very trying for the plants on high shelves. They will be found to do much better in frames from which French Beans and Potatos have been removed; set on ashes close to the glass, and not too close together Hardened off plants can be planted out in their quarters. *W. Bennett, Rangemore.*

The Hardy Fruit Garden.

Trees on walls require constant attention in stopping shoots to form fruiting-spurs, also laying in of those shoots which are to cover blank spaces and to fruit, and also the leading shoots if the trees have not yet reached their limits. Peaches and Nectarines, as a rule, receive first attention, and if disbudding has been properly attended to, little will remain to be done with the exception of cutting back to a few buds any shoots likely to overcrowd the trees. The leading shoots should be carefully fastened to the walls with shreds, not allowing the young growths to touch the nails, while the inner shoots may be secured by twigs or split bracken stems, so long as they do not press the young wood too tightly, placing the ends behind the older branches to hold them fast. It will be necessary to place a tie of matting near the base of these shoots, to enable them to make a straight growth from the main wood. Trees making weak growth should be assisted either by a heavy mulching with rich manure, or sprinkling the surface of the soil about the roots with guano or bone-meal, pricking it in with a fork, and giving a thorough watering. Blister or curl has put in its appearance more severely than usual. Picking of the affected leaves and burning them are the only means of checking it.

Sweet Cherries on walls must receive attention. Lay in young growths to furnish spaces as required, cut out others to give light to the fruit, and shoots to form fruiting spurs should be cut back—but not too closely, otherwise all the lower buds may break this season, and thus spoil the desired object. Heavily cropped trees should have a good dressing of guano, or some other stimulant, during the stoning and ripening period; and if black-fly be troublesome, get the trees freed of it before the fruit gets too advanced. Soap-suds, diluted tobacco-water, or Quassia-chips are all first-rate remedies, and may be applied with the garden-engine. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

Peas.—The early crop, which is now well in blossom, will have the podding hastened by the removal of the tops. Attend to the staking of advancing crops, and do not let them fall over, as no after care can ever repair the injury then done. Where the ground is light, a good mulch of short grass 15 inches wide, laid along each side of the lines, will be of great service; and when watering, this assists in the retention of moisture. Late Peas are best cultivated in trenches about 1 foot deep and 18 inches wide, digging in a liberal supply of well-rotted manure. This method should always be adopted in a light soil and exposed situation.

Carrots.—On heavy soils these have done badly, slugs having been very destructive; soot, lime, and Hellebore seem to be of little effect in stopping their depredations. Where the crop has withstood the attack, thin out and transplant the thinnings, being careful to get the root entire. The root must be made firm; and shade and water until growth takes place, if the weather be dry. Parsnips and Beetroots may be similarly treated. Thin all such crops in good time, and keep the hoe well plied.

Broad Beans.—The last sowing of the season may now be made. Any plants from earlier sowings which are now in blossom may have their tops removed, which will cause the pods to swell more rapidly than they would otherwise do.

Globe Artichokes will now be growing rapidly, and a good mulch of short dung will prove of great service in maintaining the requisite moisture at the root. If the plants are growing in good rich soil, they will yield a supply of tender heads; if, on the other hand, the plants are starved, the yield will be poor and almost worthless.

Cauliflowers and Cabbages will be much benefited by a mulch of short grass, 4 to 6 inches thick, where the soil is thin and sandy. As spring Cabbages are cut, the bottom leaves should be cut from the stumps and a good mulch applied; the result will be a useful supply of serviceable Coleworts by-and-bye; in fact, they will come again and again, if allowed to do so. *W. M. Baillie, Luton Hoo.*

Garden Allotments. — The success and benefit to all concerned of garden allotments are generally acknowledged. Nottingham has for years past taken a prominent part in this matter. Mr Wright, of the *Journal of Horticulture*, a very competent judge, has lately expressed his surprise at what he saw in that town. While congratulating the Nottingham folk on the excellence of their method, Mr. Wright, in the course of an able lecture, gave his auditors sound advice, based on practical experience. This is the sort of work which we often urged should be undertaken by the Royal Horticultural Society, and who, when they get their local districts scheme settled, will, we hope, arrange for the delivery of practical lectures and demonstrations by competent men in the various centres.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, JUNE 6—Linnean Society.

SHOWS.

WEDNESDAY, JUNE 5 { Bath and West of England: open till June 10.

FRIDAY, JUNE 7 { Manchester Royal Botanical Society: open till June 14.

SALES.

TUESDAY, JUNE 4 { Unreserved Sale of the Foston Hall Collection of Established Orchids (two days), at Protheroe & Morris' Rooms.

THURSDAY, JUNE 6 { Imported and Established Orchids, and Stove and Greenhouse Plants, at Stevens' Rooms.

FRIDAY, JUNE 7 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—59°.3.

Professor Reichenbach's Will.

THE subjoined extract from the will of the late Professor REICHENBACH, and of which we have been favoured with a copy, will be received with profound regret. The late Professor had at all times the fullest and freest access to Dr. LINDLEY'S herbarium in the lifetime of that botanist, and subsequently for the last twenty or more years at Kew. The resources of that establishment were always at his disposal, while from hundreds of Orchid growers in this country he received freely and continuously material for his researches. The notes and memoranda on living plants received, directly and indirectly, from this office alone must have been very considerable, even if they did not form the bulk of the material at his disposal. It would be affectation to pretend that we do not receive the announcement we have now to make with chagrin and sorrow. The future task of orchidists in this country is, by this step, rendered peculiarly laborious and perplexing. Happily the difficulties are by no means insuperable. The rich collections at Kew, comprising all of LINDLEY'S types, the otherwise unrivalled resources of that institution, and the collections at the British Museum, will go very far to nullify the perverseness of these testamentary dispositions. Our own columns, containing, as they do, almost everything of horticultural value published by the late Professor, are, of course, public property. There need, therefore, be no fear that the systematic study of Orchids will be neglected in this country. Sir JOSEPH HOOKER is at this moment engaged in the elaboration of the Indian species. The staff at Kew is, moreover, not only amply competent for the work, but the resources of that great establishment are adequate, and every day becoming more so. We would, therefore, strongly urge upon Orchid growers to take advantage of the invitation by the Director to forward their specimens to the Royal Gardens, with the full certainty that while every facility will be given by the officers of that establishment, their specimens and the information they communicate will not be sealed up in boxes for a quarter of a century, but will be available for scientific and cultural purposes in perpetuity. Other botanists we know have hesitated from entering on the study of the order out of courtesy to the late Professor, and a disinclination to tread in what were looked on as his preserves. All such hesitation is at an end. And though we may deeply regret that Professor REICHENBACH has clouded his memory with an act which shows equal distrust of the generosity of his fellow-botanists and of the strength of his own scientific reputation, we may rest assured that the scientific study of Orchids in this country will not be arrested, but that the rich material which this country, more than any other, affords will not be neglected, notwithstanding Professor REICHENBACH'S ungenerous attempt to paralyse its study.

"EXTRACT FROM WILL OF LATE PROFESSOR
"DR. REICHENBACH.
"H. B. M. Consulate-General, Hamburgh.
(*Translation.*)

"My herbarium and my botanical library, my instruments, collection of seeds, &c., accrue to the Imperial Hof Museum in Vienna, under the condition that the preserved Orchids and drawings of Orchids shall not be exhibited before twenty-five years from the date of my death have elapsed. Until this time my collection shall be preserved in sealed cases. In the event of the Vienna Institute declining to observe these conditions, the collection falls under the same conditions to the Botanical Garden at Upsala. Should the last-mentioned Institute decline the legacy, then to the GRAYEAN Herbarium in Harvard University, Cambridge, Mass. If declined by that Institute, then to the Jardin des Plantes, at Paris, but always under the same conditions, viz., of being sealed up for twenty-five years, in order that the inevitable destruction of the costly collection, resulting from the present craze for Orchids, may be avoided."

The Temple Show.

THE Royal Horticultural Society may fairly be congratulated on the excellence of its show in the Temple Gardens on Thursday and Friday. As full a report as is possible is given in another column, so that it is unnecessary here to enter into details, and, indeed, if omissions occur, we must plead to be excused, on the ground that the show was held as these pages were passing through the press.

"The Temple Gardens, in which the Summer Show of the Royal Horticultural Society is held, are 'beautifully green retreats' in the midst of the noise and smoke of city life. Historically they are of great interest. SHAKESPEARE has made them famous (*Henry VI.*, Act ii., sc. 4) by his description of the origin of the Wars of the Roses. PLANTAGENET and his followers here gathered the Yorkist White Rose, while SOMERSET and his followers gathered the Lancastrian Red Rose. There are no Roses nowadays in the Temple Gardens (albeit they are celebrated for their annual display of Chrysanthemums), except when brought here, as on the present occasion, with other beautiful flowers, to brighten early summer days in town by their beauty and fragrance.

"The aim of the Royal Horticultural Society on such an occasion as this is, to bring together rare and beautiful plants of the highest excellence as regards growth and culture, and at the same time give a vivid representation of the progress of Horticultural art in this country.

"In the several tents will be found collections of Orchids, Roses, Azaleas, Palms, Ferns, Tulips, Violas, &c., contributed by members of the Royal Horticultural Society and their friends, supplemented by plants from several well-known Horticultural establishments. Exhibits have also been sent by the Market Growers and Salesmen from Covent Garden, illustrating the latest development of the culture of plants for decorative purposes, as well as vegetables and fruit."

This passage cited from the Society's programme gives a fair idea of what was exhibited, but by no means does justice to the magnificence of the display as regards Orchids, which were exceptionally well and numerously shown, occupying almost the whole of one very large tent, wherein also some splendid Pot Roses, Clematis, Japan Maples, and a few other specialties, were exhibited. Other tents were filled with Azaleas, Ferns, fruits, vegetables, cut flowers, and the usual miscellaneous collections. Contrasting the show with those in former years, we note with regret the relative absence of new plants (Orchids excepted). It was to these shows that the *connoisseur* used to look to become acquainted with new and interesting, as compared with merely showy and attractive plants. Of course commercial reasons will account for this. New plants do not pay, and our plant importers do not, in consequence, care to incur the risk and expense of introducing them. Nevertheless, those who witnessed the crowd of interested visitors who hung over the movements of the delightful little athlete, Bolbophyllum barbigerum, will have come to the conclusion that the public do care for other things in addition to elegance of form and beauty of colour.

One of the most interesting events of the day was the presentation, by the President of the Royal Horticultural Society, on the suggestion of the Trustees of the Veitch Memorial Fund, of a Veitchian Medal to Mr. A. F. BARRON. Sir TREVOR LAWRENCE, in a few appropriate words, the significance of which will be appreciated by all who know the value of Mr. BARRON'S services to horticulture, made the presentation, and Dr. MASTERS, speaking as one of the VEITCH Trustees, briefly thanked the President, and explained the motives which had actuated the Trustees in their proceedings. The Veitchian Medals are usually given for plants or fruits showing excellence of cultivation, but in awarding it on this occasion to a horticulturist, the Trustees and the Council of the Royal Horticultural Society followed precedent, Mr. SEDEN, the expert hybridist and famous cultivator, having received a similar award in 1885, on the occasion of the first Orchid Conference.

ORCHIDS.—We have much pleasure in giving publicity to the following letter, dated May 29, 1889:—"The Director of the Royal Gardens, Kew, is willing to assist cultivators of Orchids in naming their plants in cases where difficulty arises in their correct nomenclature. For this purpose specimens



PRIZE-GROUP OF PINES SHOWN BY MR. GLEESON AT MANCHESTER.

should be sent in boxes sufficiently strong to protect them in passing through the post. These may be addressed either to the Director, or to the Keeper of the Herbarium, and should be marked with the words "Orchids" outside. It is particularly requested that specimens should not be addressed to individual members of the staff. The specimens should be as complete as possible, and should always comprise as much of the inflorescence as can be spared conveniently, as well as a leaf. They may be packed with damp paper, but cotton wool should not be used."

Gardeners' Orphan Fund.—It is satisfactory to learn that as the result of the recent Floral *Fête* in Covent Garden Market, the Fund will be enriched by about £200. And from the exhibition of Orchids at Blenheim Palace Gardens, Woodstock, there will be over £70 handed over to the Fund.

Paris Exhibition.—Our representatives complain bitterly of the want of organisation in the Horticultural Department. It is not the first time that we have had occasion to notice that "they do not do these things better in France." A lesson from their Belgian neighbours might well be taken.

Alexandra Palace Rose Show.—We are informed by Mr. R. Beale, Secretary, that a show of Roses will be held early in July, the exact date of which will be announced by advertisements.

Rose Madame Bruant.—In Mr. Gumbleton's garden at Bell Grove, Ireland, is a bush of Madame Bruant Rose, which is about to flower. This rose, illustrated in these pages, p. 169, Feb. 11, 1888, is, it will be remembered, a hybrid obtained by M. Bruant, Poictiers, from Rosa rugosa, the red variety crossed with Madame Sombrieul (Robert), a Tea-scented Rose. The flowers are semi-double and white. It stands in Mr. Gumbleton's garden between plants of the red and white forms of R. rugosa, possibly with a view of obtaining other crosses from one or the other.

Patchouli.—In an extract taken from an Indian paper, as cited by us at p. 626, this is spoken of as the produce of Ocimum basilicum var. pilosum. This is an error. The proper name is Pogostemon Patchouli var. suavis. The leaves of the former plant are used as an adulterant.

A Corner in Peaches.—The Paris correspondent of the *Daily News* telegraphed at the time of the visit of the King of Italy to Berlin:—"A result of the Royal visit to Berlin has been to send up Peaches in Paris to fancy prices. Montreuil, a suburb near Vincennes, enjoys a monopoly of growing early Peaches, unrivalled for their delicate quality. Three days ago the Emperor William sent a messenger to Paris with orders to buy up all the Peaches in the market. It is said that in consequence Peaches are dearer than they ever were, one being sold yesterday for 27 fr."

Horticultural Club.—The annual excursion (to which ladies are invited) will take place on Wednesday, June 12. The members will meet at Charing Cross station, South-Eastern Railway, at 10.15 A.M., and proceed to Tunbridge, whence carriages will be provided to take the visitors to Redleaf and Hever, returning to Tunbridge to dinner, and returning thence at 7.33. Communications should be made at once to Rev. H. H. D'Ombrain, Westwell, Ashford, Kent.

Take Care!—M. Georges Guérault, in a recent number of the *Comptes Rendus* of the French Academy of Science, speaks of a method of reproducing, through Edison's phonograph, not only the voice but the actions of the speaker. The orator, or actor, is supposed to speak into the phonograph and to so stand before it that every motion and gesture will be instantaneously recorded by the machine, to be afterwards reproduced with the accompanying sounds. The phonograms will pass rapidly before the spectators, who will thus be able to follow the actions as well as the words of the speaker.

The President of the Royal Society is now Sir William Stokes, Bart., M.P. This recognition of Science in the person of one of its most distinguished representatives will be received with satisfaction by the world of science. To the repute in which Professor Stokes himself has been long held, this new honour will necessarily add nothing.

Tulip Show at Stuart & Mein's Nursery.—This fine collection, which has been got together at a considerable expenditure of time and money, has this year flowered in a most gratifying manner, and is more than able to bear comparison in regard to the symmetry and marking of the colours with any which the Dutch have to show. The firm procured the collection from Mr. David Barber, Stanton-le-Dale, Nottingham, a well-known Tulip fancier, who was only prevailed upon to dispose of it on account of advancing years. The collection comprises 2700 flowering bulbs, independent of offshoots, and some idea of its value may be formed when it is stated that no less a sum than £5 5*s.* was paid for a single bulb of Kamp's "Fanny Byb." Indeed, it may be safely said that there are few, if any, collections to beat it. Mr. Barber has two or three times taken the Champion Cup, and in bringing the collection to its present satisfactory stage the long period of fifty years has been covered.

Plants in Flower.—To Mr. Gumbleton, of Queenstown, South Ireland, we are indebted for flowers of Libertia formosa grandiflora, a pure white, with flowers larger than the type, a very distinct looking Irid — quite hardy. Wistaria multijuga is in the way of W. sinensis, but with much longer racemes and smaller flowers. Abutilon vitifolium album is a very beautiful form, with pure white flowers more than 3 inches across. The way in which the stamens are marshalled in five bundles, is not only very symmetrical, but highly interesting to the botanist, who wants to know the "reason why" of what he sees. Sphæralcea nutans is a fine malvad with sharply-lobed palmate leaves, covered more or less densely with woolly pubescence. The flowers are pear-shaped, exceeding 2 inches in length, rather less in breadth. There are three linear bracts outside the tubular calyx, which divides into three ovate acute lobes. The corolla, narrow at the base, distended near the top, and incurved at the upper edge, is made up of fine obovate petals of a purplish colour, streaked with white—a very attractive flower.

The Oxford Parks.—These comprise an area of about 90 acres, and are under the care of Mr. W. H. Baxter, whose special knowledge of plants renders him peculiarly fitted for the task. The central portions are allotted to cricketers, but the plantations and shrubberies contain a select assortment of trees and shrubs, which thus form a serviceable adjunct to the Botanic Gardens. We regret to hear that complaints are made of wanton damage, which does no credit to a home of learning.

The Home of Flowers.—The Lord Mayor of London, accompanied by the Lady Mayoress, paid a visit to Messrs. Cannell & Sons' nursery, at Swanley, on Saturday last, and were struck, as all visitors are, with the Begonias and other floral treasures of the Home of Flowers.

Orchids at Studley House.—There is a beautiful display of Orchids in bloom at the present time in Mr. Tautz's garden; one plant of Cattleya Mossiæ was noted with eighteen perfect blooms, and C. gigas with eight flowers. The Miltonias, of which many were observed, constitute an important part of the display, and give many fine plants in fine flower. Cypripedium bellatulum is blooming admirably—a paler-coloured form of it here deserves notice. The whole collection bears the stamp of first-rate management on the part of Mr. J. C. Cowley.

Chinese Rush Hats. - A recent Foreign Office report from Ningpo states that the production of Rush hats, which were introduced to this country some few years ago, show during the past year a very large increase, the figures being 14,213,000, as against 11,542,000 in 1887, or an increase of nearly 2,700,000. This, it seems, is not so satisfactory as it appears, and complaints have been heard of hasty production, deteriorated quality, and the necessity of most rigid inspection. Similar troubles were experienced some time ago in the northern straw braid district. One of the largest braid firms in France has recently sent an agent to Ningpo to engage in this branch of trade. The Rush (Cyperus tegetiformis) is specially cultivated, and the braiding of hats gives occupation to thousands of women and children. Mats show a decrease of 54,520 pieces, which is probably accounted for by the heavy drain on the stock of Rushes indicated in the enormously increased exports of hats.

Miss Ada Bell's Flower Pictures. — The Princess of Wales, accompanied by an attendant, visited Messrs. Tooth & Son's galleries on Tuesday week, to superintend personally the hanging of Miss Ada Bell's flower pictures, and offered suggestions respecting the floral decorations of the gallery. A private view of the exhibition took place on Saturday last in commemoration of the Queen's birthday, and as a graceful acknowledgment of the great interest displayed in Miss Bell's undertaking by the Empress Frederick, the Princess Louise, and other members of the royal family. The natural flowers shown in conjunction with the painted ones consist chiefly of hardy herbaceous plants, specially grown for the artist by Mr. Thomas Ware, of Tottenham, and the proceeds derived from the sale of three of the flower pictures will be devoted to the funds of three hospitals in which the Princess of Wales is interested.

The Firm of Messrs. Veitch & Sons.—As was previously announced in these columns, the coming of age of two of the grandsons of the late Mr. James Veitch, of Chelsea, was celebrated on the 24th inst. by a dinner at the Grand Hotel, Charing Cross, to which sixty-two friends of the family sat down. Mr. H. J. Veitch presided, being supported by Baron H. Schroder, Mr. W. T. Thiselton Dyer, of Kew; Mr. Haywood, Dr. R. Hogg, Rev. W. Wilks, &c. The two young gentlemen who have now made their entrance into horticultural life are Mr. J. H. Veitch, the eldest son of the late John Gould Veitch and Mr. Arthur J. Veitch, a son of the much esteemed Arthur Veitch. Among those friends who came from abroad to assist at the interesting function were M. Van Houtte, M. Pynaert, M. De Smet, of Ghent; M. de Graaf, of Leyden; and others. To those present who were either old friends or members of the family, the occasion was one of much interest, marking as it did the entry into public life of the fifth generation of a family, so intimately connected with the progress of horticulture in this country as that of Veitch. The saloon and tables were tastefully decorated—the banquet, a sumptuous one. Miss Marie Belval and her company contributed to the pleasures of the evening by some charming singing.

Linnean Society.—The anniversary meeting was held on May 24, Mr. Carruthers, F.R.S., President, in the chair. A portrait of John Jacob Dillenius (1687—1747), the first professor of botany at Oxford, copied from the original picture at Oxford, was presented to the Society by the President, who gave a brief outline of his career, and of his personal acquaintance with Linnæus. Dillenius, we may add, was the author of one of the first garden floras, and his *Hortus Elthamensis* is still referred to. The portrait shows a chubby, rosy-faced don, with a flower of Amaryllis in his hand. The Treasurer having made his annual statement of accounts, which was of a

very satisfactory character, the President delivered his annual address, in which, after reviewing the progress and prosperity of the Society during the past year, and noticing with regret the loss which the Society had sustained by the death of several of its Fellows, he gave an elaborate and interesting history of the existing portraits of LINNÆUS, a great many of which were in the possession of the Society, and would now be supplemented by others which he had the pleasure to present to the Society. The result of his inquiry showed that there are at least seven original and authentic portraits of LINNÆUS in existence; that the engravings most widely known are from the originals by INLANDER and ROSLIN, and that these give the most faithful representation of the features of the great naturalist. The ceremony of awarding the Society's gold medal then took place. This medal, having on the obverse a fine bust of LINNÆUS, and on the reverse the arms of the Society, below which is engraved the name of the recipient, was founded last year in commemoration of the Society's centenary anniversary, and is bestowed upon a botanist and zoologist alternately, for distinguished services to biological science. This year it was awarded to the eminent botanist, Professor ALPHONSE DE CANDOLLE, of Geneva, and in his unavoidable absence was handed to his grandson, M. AUSTIN DE CANDOLLE, who attended on his behalf to receive it. Addressing his representative, the President said: — "MONSIEUR DE CANDOLLE, it is a great satisfaction to me to place in your hands for transmission to your distinguished grandfather, the Linnean gold medal in recognition of his many important services to botanical science. These services have been so great and are so universally acknowledged, that it is unnecessary for me to do more than to refer to them. His many systematic monographs justify his being awarded any honour that botanists can confer. His philosophical treatment of the geographical distribution of plants has greatly advanced this department of science, and his successful codification of the laws of botanical nomenclature has been of the greatest practical service to systematists; but botanists will always look with gratitude to ALPHONSE DE CANDOLLE for the successful carrying on of the gigantic enterprise inaugurated by his father when he undertook the publication of the *Prodromus Systematis Naturalis Regni Vegetabilis*. By his own work, by securing the aid of accomplished *collaborateurs*, and perhaps not least by the plodding toil of reading the proof sheets of volume after volume of dry systematic descriptions during the thirty-two years in which he took charge of the *Prodromus*, he has laid science under a debt which cannot be estimated. The work as now completed contains descriptions of all the Dicotyledonous Phanerogams, and of Gymnosperms, which were known when the different volumes were published, amounting to nearly 60,000 species. By his numerous labours, ALPHONSE DE CANDOLLE had added lustre to a name that had already obtained a first place amongst botanists. His son, CASIMIR, by his scientific researches, maintains the credit of that name, and now in handing this medal to you, M. AUSTIN DE CANDOLLE, the representative of the fourth generation, may I venture to hope that this imperfect estimate of the services rendered to science by ALPHONSE DE CANDOLLE may help you to realise the honour of the name you inherit, and encourage you by similar true and honest labour to transmit it with added renown to posterity." The presentation having been suitably acknowledged by Dr. MARCET, F.R.S., F.C.S., a countryman and relative of the recipient, the proceedings terminated with a vote of thanks to the President and officers. In presenting this summary of the proceedings, it is allowable to express regret at the delay in issuing the record of the very interesting ceremonial at the centenary meeting last year, when the newly founded medals were awarded to Sir RICHARD OWEN and to Sir JOSEPH HOOKER as the first recipients, and when noteworthy addresses were made in reference to the works of LINNÆUS, ROBERT BROWN, BENTHAM, and DARWIN. — An evening meeting will be held on June 6, at 8 P.M., when the following paper will be read:—"A Monographic Revision of the (Willows) Salices," by Dr. F. BUCHANAN WHITE, F.L.S.

MR. WOLKENSTEIN.—We learn that, from considerations of health, Mr. WOLKENSTEIN has been obliged to quit St. Petersburg, and reside in Little Russia. His present address is Sourash Tschernigoffski, Selo Wisokoe.

CARICA CUNDINAMARCENSIS. — This species, with the dreadful name, produces fruit not only in its native province of Cundinamarca (New Granada), but also on the Riviera. Mr. HANBURY kindly sends us fruits produced in the open air in his garden at La Mortola, near Ventimiglia. They are of the size and form of a small hen's egg, somewhat angular, of a yellowish-olive colour, and very fragrant.

FRUIT PROSPECTS AT CHISWICK. — In the Royal Horticultural Society's Gardens, Apple and Pear trees give promise of abundant crops. Strawberries (of which a fine collection is grown) are especially promising; Vicomtesse Hericart de Thury being well to the fore. Peaches probably will be conspicuous by their absence. On the whole, the outlook is a good one.

HORTICULTURAL HONOURS.—H.M. the King of the NETHERLANDS has conferred on Mr. J. H. KRELAGE, of Haarlem, the Cross of the Order of the Lion of the Netherlands. No one who knows Mr. KRELAGE, and what he has done, will dispute the propriety of this award.

THE PRODUCTION OF SEEDS ON THE PACIFIC COAST.—The seed trade appears to be destined to a very great expansion in California, at a not very distant period. In the single county of Santa Clara, not less than 1200 acres are now devoted to the production of garden seeds. Over 60,000 lb. of Lettuce seed, and 120,000 lb. of Onion seed have been shipped east from these grounds in a single season. In other counties a quite important business has been developed in the production of Clover seed, Beans and Peas, for the supply of distant markets. Whilst that State may not secure the monopoly of the seed business, because good seeds are grown in the Atlantic States, the rapid increase of business in California indicates that one at least of the great centres of the seed business is to be in this State. The quality of many small seeds produced here, such as Onion and Lettuce, will have much to do in bringing the seed interest into greater prominence. *Journal of the Society of Arts.*

PLUMS AND WALNUTS AT BORDEAUX.—A report on the trade of the consular district of Bordeaux for 1888, states that the quantity of Plums marketed during the year was the same as in the year 1887, and amounted to 150,000 cwts. The quality was rather inferior, owing to the wet summer; and growers, fearing that the fruit would spoil quickly, were in a great hurry to send their produce to the market. The consequence of this was a steady decline in prices—25 per cent. lower than in 1887. Nevertheless, the trade in Plums was not brisk, and stocks still remain on hand. The reason for the falling off in the foreign demand for French Prunes is stated to be the recent great development of the Bosnian and Servian Plum export trade, which packs the Plums grown in those countries in boxes imitating the French article. These imitations are put up at Pesth, Belgrade, and Trieste; and the fruit, though inferior to the French, being of a fair quality, while costing much less than Bordeaux Plums, meets the universal demand for a cheap article. The Walnut crop was large, and turned out well. Prices were very moderate, and consequently there was an extensive export trade, which was favoured by the failure of the crops of Walnuts in Chili, whence large quantities generally find their way to Europe. The aggregate exports from Bordeaux are given at 65,000 cwts.

NOTES ON KEW PLANTS.

PRIMULA SIKKIMENSIS.—One of the most beautiful, and certainly one of the best garden species, is the Sikkim Primrose. Next to P. denticulata, it is, perhaps, the easiest to manage, and never fails in producing an abundance of the loveliest drooping sulphur bells, as sweetly scented as the Violet. It is truly a very unsatisfactory perennial, but seeds are so plentifully produced and easily raised, that no trouble will be experienced in keeping up a stock of plants. It seems to thrive best in a partially shady spot in moist peaty soil, and is all the better for an abundance of water during the growing season. The seedlings, if liberally treated, will be at their best in the second year, after which they may be destroyed, to make room for the batch which will flower the year following. Many will, if allowed, continue to flower the third and fourth years, but they never give so much satisfaction as in the second.

PRIMULA ROTUNDIFOLIA.

Another of the Himalayan species, but rare in cultivation as yet, the seeds having been sent over only three or four years ago. It is figured in Wallich's *Tentamentum Floræ Napalensis Illustratæ*, fig. 32, and proves almost as beautiful as P. rosea, with handsomer foliage, and neater habit. It grows about 6 inches high. The flower-stems and under-sides of the leaves are mealy; leaves 2—5 inches in diameter, round, cordate, toothed, crenate, or erose; usually one, but often two, umbels, bearing numerous large bright rosy-purple flowers, the tube twice as long as the calyx. A native of the temperate Himalayas from Kashmir altitude 11,000 feet, to Sikkim, 12,000—13,000 feet above sea-level. It is very distinct from all the other Primulas in cultivation, and is easily recognised by its round dark green leaves. The leaves are deciduous; in winter reduced to a large bud covered with meal. Flowering in the Alpine-house.

CYPRIPEDIUM CALIFORNICUM, GRAY.

This plant, now flowering in the alpine-house at Kew, is small and pretty, but by no means so showy as the other species from that region. The present species and C. montanum are the only two found in California, the former only recently discovered, and described in the *Proceedings of the American Academy*, vii., 389, by Dr. ASA GRAY. Its nearest ally amongst those in cultivation is the well-known C. candidum, from which it differs in its shorter sepals and smaller lip. C. californicum grows from 1—3 feet in height, leafy, and is pubescent; the lower leaves ovate-lanceolate acute, the upper lanceolate, 2—4 inches long, of a bright soft green colour; flowers 2—12, shorter than the bracts, the sepals broadly oval, petals oblong, linear, acute, and as well as the sepals of a greenish yellow. The lip is obovate globose, white, rarely rose-coloured, with two bright purple spots near the opening; hairy within at the base, yellow and brown spotted. It is found in damp soils in open woods in the northern parts of the State in Upper Sacramento in an upland swamp, growing along with Darlingtonia. In a wild state it flowers in August and September. It will probably be earlier in this country, as the plant in flower now has only had the shelter of a cold frame. For its introduction we are indebted to Mr. T. S. WARE, of Tottenham. *D.*

SCOTLAND.

ALPINE PLANTS.

IN the rock garden of the Royal Botanic Garden, Edinburgh, we noted in the last week of May the following gems among others:—Cortusa pubens, one of the most charming of alpine plants, forming neat cushions of its pale green, densely pubescent leaves, which are miniature resemblances of the better known C. Matthioli. The flowers are borne on wiry erect stems about 6 inches high, clear above the mass of leaves, and are deep purplish crimson. Here

it was doing well in a south-eastern aspect along with other Primulaceæ.

Veronica linifolia.—A new species from New Zealand, is flowering here this season for the first time, and probably for the first time in Europe. It is a dwarf decumbent species of very distinct aspect in foliage and habit, so closely resembling Glaux maritima as to appear to mimic that interesting species. The flowers are pure milk-white, and large individually compared with those of many of the New Zealand shrubby species. Only a few flowers were open at the time of our visit, but there were numerous unopened buds which gave promise of a long continuance of flowers. This will be a favourite with lovers of alpine plants when it is better known and more easily attainable.

Lithospermum canescens.—This is a very distinct and pretty new species, which grows to the height of about 6 inches, erect and branching in habit, the extremities of the stems and branches terminating in clusters of deep yellow flowers. There were several plants in different aspects in the rock garden, but it seemed to succeed best at the base of rocks facing the north.

Cypripedium pubescens and C. macranthum were both doing well, the former flowering very strongly in a position facing the south, while the latter was growing and throwing up its flowers vigorously in the opposite aspect.

Royal Horticultural Society of Aberdeen.

The acting directors of this Society met recently in the office of the Secretary (Mr. A. M. Byres, C.A., 21, Bridge Street, Aberdeen), Mr. Alex. Robson, Vice-President, in the unavoidable absence of the President, Mr. James Murray, Garden, Advocate, occupied the chair. The meeting proceeded to discuss the estimates for the various works in connection with the grand floral *fête* to be held under the auspices of the Society in the Duthie Public Park, Aberdeen, on August 22, 23, and 24 next. Additional marquee accommodation is to be provided, and the grounds are to be brilliantly illuminated on an extensive scale; indeed, the programme of fireworks promises to be one of the most elaborate ever witnessed in the north of Scotland. Altogether, the *fête* will probably be the most successful held under the auspices of the Society. It was agreed to recommend to the annual meeting that a spring show be held in April next year. A vote of thanks to the Chairman terminated the proceedings.

Notices of Books.

Report of Observations of Injurious Insects and Common Farm Pests during the Year 1888. By Eleanor A. Ormerod, F. R. Met. Soc., &c. (London, Simpkin, Marshall & Co., 1889.)

Miss E. A. Ormerod's *Report of Observations of Injurious Insects and Common Farm Pests during the Year* 1888 has recently been issued. This is the twelfth annual report that has appeared, and runs this year to 130 pages. Miss Ormerod starts by noticing that the worst attacks last year, except those of orchard caterpillars, were of unusual kinds, and occurred early in the year. The corn-ground beetle maggot on young Wheat plants, and the Beet carrion beetle and its woodlouse-like grub on Mangels, have not been, so far as she is aware, previously recorded as injurious crop-pests in England.

The first of these pests is stated by Miss Ormerod to do considerable harm in both beetle and maggot state. The beetle, coming out at night and crawling up to the top of the corn stems, eats the grain in the ears; the maggot feeds below-ground or near the surface on the young plant. Wheat, Rye, and Barley are recorded as having been attacked on the Continent; but although this species has been observed in various places in England, it was noted up to 1859 as not having been ascertained to have attacked the crops in England as it did on the Continent, and up to the past season Miss Ormerod says she is not aware of its having done so. It seems to have done most harm in the following localities:—Lymington, Hants; Harlington, Middlesex; Bishop's Teignton, South Devon; near Ipswich, and also near St. Albans. Hessian fly, it is satisfactory to learn, was reported only from six to ten localities, instead of, as in the previous year, from about one hundred.

In her raid against sparrows, Miss Ormerod is as energetic as ever; she says:—"The observations of the 'Sparrow nuisance,' as it is well described, continue to show the same points, which are observed year by year—namely, loss from depredations of this bird on fruit tree buds, &c., to fruit farmers; on young crops of vegetables, as Peas, &c., in gardens; and deplorable loss where the birds flock to the standing corn in autumn; and, further, the increasing and widespread evil which is threatened through sparrow persecution of our most valuable insectivorous birds. As every farmer throughout the country is well aware of the damage done to his crops, it does not appear necessary to go over details again which have been so often given, though they are not wanting, both from farmers and fruit growers, and in my own garden I have had full opportunity of watching the feathered pests doing damage, whilst at the same time they left the insect pests unharmed on the plants amongst which they—the house sparrows—were feeding."

It is further stated that in South Australia, where the sparrows are a grievous evil, the Royal Agricultural and Horticultural Society are taking the matter up, and offering prizes and rewards for their wholesale destruction by the largest number of heads and eggs.

On the Growth of Potatos.

(*Continued from p.* 593.)

In continuation of our summary of Dr. J. H. Gilbert's lecture on the growth of Potatos, we next have to consider the percentage composition of the Potato, and the direction and the degree in which this is influenced by season and manuring.

In countries where the Potato is largely grown for the manufacture of starch or Potato spirit, the specific gravity of the tubers serves as an important indication of quality; and the Rothamsted investigations show that there is, with high specific gravity, a high percentage of dry substance in the tubers, and *vice versâ*. In the produce without manure, and with purely mineral manure—that is to say, with the least luxuriance, and consequently the earliest maturity, there is found the highest specific gravity and the highest percentage of dry substance in the tubers. With the nitrogenous manures alone and very restricted growth, there is both lower specific gravity and amount of dry substance; and, lastly, with both nitrogenous and mineral manures, and the greatest luxuriance and imperfect maturity, there is the lowest specific gravity, and the lowest percentage of dry matter in the tubers. As between one set of seasons and another, the experiments have shown lower percentages of mineral matter in the produce of those of the best maturing conditions; but as between one condition of manuring and another, the proportions both of mineral matter and of nitrogen are found to have a very direct connection with the relative amounts of them supplied within the soil. The percentage of dry substance in the tubers ranges from 27·6 per cent. in the unmanured produce, to only 23 per cent. with a manurial dressing of ammonium salts alone.

There is also indication that the juice of the Potato remains the richer the less matured the crop; in other words, that the juice includes a good deal of not finally fixed matter, which is, in fact, material for further maturation; or, like the starch itself, for the nutriment of the plant which would in natural course be grown from the tuber.

Analysis of the Potato shows that the percentage of potash ranges relatively high where the supply of it is liberal, as, for instance, with purely mineral manures, with farmyard manure, and with nitrogenous and mixed mineral manures together; and when there was deficiency of potash in the manurial supply, and in the ash, there was generally an increased percentage of lime in the ash, doubtless derived from the resources of the soil itself. The percentage of phosphoric acid is found not to be so uniform as that of the potash.

Distribution of the Constituents.

The general conclusion as to the distribution of the various constituents of Potato tubers is, that from 80 to 85 per cent. of the total nitrogen of the tubers may be in the juice, and that about the same proportion of the total mineral matter, may be in the juice, with about two-thirds of the total phosphoric acid; and as two-thirds or more of the nitrogen existing as albuminoids is in the juice, it is obvious that, if the mode of cooking the Potato is such as to exclude the constituents of the juice from the final food product, there is considerable waste of nutritive matter. When Potatos are used as a mere adjunct to an otherwise liberal diet, the general practice is to cut off the rind, and to put the peeled Potatos into cold water, by which a large proportion of the soluble albuminoid matters must be washed out, before the temperature of the water becomes sufficiently high to coagulate and fix them. A very large proportion of the potash must also be washed out under such circumstances. When, however, Potatos constitute an important item in the diet, as in the rural districts of Ireland for example, it is usual to boil them in their skins—or, as is said, in their jackets. Under such conditions, certainly a much larger proportion of the albuminoid matter will reach the stomachs of the consumers; and doubtless much more of the potash and phosphoric acid also. Still, it is obvious that a Potato diet must be very deficient in the proportion of nutritive nitrogenous compounds.

Increased Production of Starch by Nitrogenous Manures.

The produce of starch per acre is 1120 lb., without manure, and nearly 2000 lb., with purely mineral manure—that is without nitrogen. The amount with purely nitrogenous manure is not so great as that by the minerals. But with nitrogenous and mineral manure together, the quantity of starch is raised to an average of 3400 lb., or about 1½ ton per acre.

Here, then, in the Potato, we have a great increase in the production of the non-nitrogenous constituent—starch, by the use of nitrogen in manure, just as in root crops we have a great increase in the produce of the non-nitrogenous constituent—sugar, by the use of nitrogenous manure.

There is, however, under corresponding conditions as to manure, somewhat more sugar produced in Mangel Wurzel for one of nitrogen in manure, than of starch in the Potato.

As then the root-crops are essentially sugar-yielding crops, so the Potato is essentially a starch-yielding crop; and it is seen that, provided the mineral constituents are not deficient, the produce of both sugar and starch is greatly increased by the amount of nitrogen available within the soil, whether derived from previous accumulations, or from direct nitrogenous manuring.

Conditions of Season and Manuring Favouring Disease.

The investigations at Rothamsted have certainly thrown light on the conditions, both without and within the Potato plant, under which the development of the fungus is the most favoured, and on the results of its growth on the chemical composition of the tubers.

The fact that wet seasons favour the development of the disease would seem, independently of an influence favouring the migration of the spores, to be largely dependent on the condition of succulence and activity engendered in the juice; and the fact that there is much less disease with restricted growth and

early ripening, may simply mean that, under such conditions of the tuber, there is in the juice a restricted supply of food for the fungus. At any rate, it is under the contrary conditions—those in which the juice is relatively rich in nitrogenous and mineral matters—that the development of the disease is the most pronounced.

It has also to be borne in mind that, in the experiments under consideration, the occurrence of the meteorological conditions favouring the development of the disease, finds the tubers of the different plots in very different conditions, not only as to richness of juice due to supply by manure, but, owing to these very conditions, in very different states as to maturity, that is, as to fixity of composition or susceptibility to change. For it is certain that, when the unsuitable weather comes, those tubers suffer most which have the richest juice and the least fixity of composition.

Chemical Changes in the Tubers, induced by the Disease.

To sum up the evidence as to the changes suffered by the tuber under the influence of the disease, it would seem that the first material change is the destruction of starch, and the formation of sugar, apparently partly, cane sugar and partly, glucose. There is also a considerable loss of organic and chiefly non-nitrogenous substance.

This is probably mainly due to the evolution of carbonic acid, as a coincident of the growth of the fungus deriving its nutriment from ready-formed organic substance, this being a characteristic action in the growth of these non-chlorophyllous plants.

Finally, as the disease progresses, a very large proportion of both the mineral matter and the nitrogenous substance of the tuber is accumulated in the fungus. This is more especially the case in regard to the nitrogen, and in this fact we have doubtless some explanation of the further fact, that the disease develops much more in tubers grown by highly nitrogenous manures, and having a highly nitrogenous juice, than in those grown under contrary conditions. *John J. Willis, Harpenden.*

PSORALEA PINNATA.

This is a Cape shrub of moderate size, now rarely seen in greenhouses, but worth growing for its elegant pinnate foliage, the leaf segments, in two to three pairs, being linear and dark green. The flowers are axillary, pea-shaped, blue, with the wings white, forming a very pretty mixture. It was introduced so long since as 1690, but is scarcely ever seen nowadays fig. 114, p. 693).

HOME CORRESPONDENCE.

☞ *Correspondents will greatly oblige by sending early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Photographs or drawings of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

A TREE IN TROUBLE.—This appears to be the most appropriate designation to apply to a tree at Gunnersbury Park, which is in a condition to excite the sympathy of the arboriculturist. It is the case of a Sycamore, with a tall, straight trunk, from which the lowermost branches have been cut from time to time, and it has a girth of some 3 feet or more. Some inward process has caused the tree to split its trunk to the length of 4 or 5 feet, and it appears to have been the result of some violent inward commotion, as a portion of the bark is forced away, leaving the wood bare. Mr. Roberts thinks there must have occurred something in the way of an explosion, as if the tree had endeavoured to rid itself of something it could no longer contain, and in the act of emission the matter was discharged to a distance of 10 feet from the tree. The discharged matter appears like moistened sawdust, but is of a very light character; and Mr. Roberts' theory that it might have fermented, and so forced an exit. The slit in the trunk is large enough to admit the handle of a budding-knife. Mr. Roberts inclines to the theory that the tree is in a diseased condition, though the upper branches appear to be vigorous, and that water has found its way into the trunk from some point above where a branch was lopped, and that the presence of this water in the heart of the trunk operated to produce this forcible ejectment of matter. The rent reaches to within 2 to 3 feet of the ground, and a great deal of moisture exudes from it. *R. D.*

PROTECTING LILIES, &C., IN WINTER.—It is so often advocated, and for so many different subjects, and that, too, without the advocates of the method giving the fullest details, that protection often defeats its intention, and is sometimes the means of bringing destruction on the very plants it was meant to preserve. I will say nothing of the protection of hardy plants by means of glass structures, but only of that form of it which is carried out by means of the staple soil, leaf-mould, cocoa-fibre, coal ashes, Fern manure, and the like. Some years ago, when Lilium auratum bulbs fetched good prices —much higher than now—I had a considerable number planted in a peat bed at the depth of 1 foot. The climate was almost Russian—60°—70° of frost being not infrequent, and it was necessary to make plants, which are here regarded as almost always equal to enduring our winters, quite safe by covering with Spruce Fir branches laid on the beds to form a roof, which was covered with fallen leaves to the depth of 18 inches; this applies to Roses, tender shrubs, &c. The Lilies were also covered in this manner, and it was thought that they would go through the winter safely. Not so, for the soft earth had tempted some rats to make nests in the clumps, and there they had bred during the late winter months, and for food had taken my Lily bulbs, not one of the latter being visible on digging down for them, but the hollows which had been formed by the bulbs. This loss was entirely due to the clumps having been covered before the frost had penetrated to the depth of 9 or 10 inches. Had we waited till this had occurred, the rats would have had no inducement to form nests there, and the bulbs would not have been molested by them. "Wait till the soil freezes" is good advice to give, even in this mild climate, for not only are the plants which are to be covered rendered more thoroughly inactive, but slugs, mice, rats, &c., are less to be feared. That is perhaps the reason that moulded-up dwarf Roses and standards which may have been bent to the earth, laid in a hole, and the earth taken therefrom laid on their heads, are found to be in good condition at the end of the winter. *Lilium.*

VEGETATION AFTER FOREST FIRES.—I have lived fifteen years in the jungle of the Island of Sumatra, and have been engaged in the cultivation of a very fine quality of Tobacco used only for cigar covers. Each year we are obliged to clear away large tracts of virgin forest, which I need scarcely tell you consists of trees of enormous size—mainly of the Ficus family, clothed with parasitical trailers, so thickly as to make the jungle like a solid wall. After the trees have been cut down and burnt, and the ground properly prepared, the Tobacco is transplanted from nurseries, and the land is kept clear and free from weeds. This planting begins in April, and by the end of September the Tobacco is all cut off, and a crop of Paddy put in. Scarcely are the reaping operations completed, when the ground becomes covered with a dense growth of trees of a totally different character from the original giants; and so rapid is this growth that in a few months the new trees reach a height of 15 to 20 feet. The native (Malay) name of this tree is Minkali. The wood is soft, and the leaf broad and large, not in the least point resembling any of the forest trees that were cut down during the previous season. The theory I have formed is that at some enormous distance of time the land was covered by Minkali, that some tremendous volcanic eruption (like that at the neighbouring Krakatra), utterly destroyed that growth; that the seeds became limited, and the land invaded by an entirely different flora. Now that the invader is being destroyed, and the ground re-worked, the seeds of Minkali germinate under the influence of sun and air, and re-conquer their former habitat. The upper soil is a rich vegetable formation, and in digging, the subsoil is found to be a thick layer of tufa or volcanic formation, and from the way in which the particles are rounded it seems obvious that they have been subject to the action of flowing water, the more so as there are distinct traces of rivers which have flowed over the country, and probably have been diverted into their present channels. The finest Tobacco producing district covers but a small area. The most valued qualities are grown on a space of ground that may be described as being within a diameter of about 30 miles in the districts of Deli and Lankat, while beyond this radius Tobacco of an inferior quality only has, until now, been produced. At a small distance from the Tobacco-growing country is a volcano which emits a thin stream of smoke almost constantly, and I look upon it that Deli and Lankat must have been the centre of a violent eruption. *Arthur B. Thompson.*

[We do not find the word Minkali in Filet's *Plantkundig Woordenboek voor Nederlandsche Indie.*]

THE GARDENERS' ORPHAN FUND.—An election of children on to the Fund is to take place next July, and already I am appealed to in several instances to promise my votes to this, that, or the other applicant. All cases seem to me to be equally meritorious, and the greater the number of the applicants the greater my bewilderment. Naturally, I am anxious to do that which is right—that is, to aid the most needful, but how am I to tell which stands in that position. At present the case or cases will be regarded as the most meritorious which are most urgently pressed, and the supporters of which expend most money upon them; indeed, it does seem deplorable that such large sums should thus be expended in printing and postage, when given at once to the fund they could be so much more fittingly utilised. Perhaps the existing method of canvassing for votes is beneficial to Her Majesty's Post Office, and it may to some extent appeal to the egotism of subscribers. To me it comes as an inscrutable problem, as I cannot possibly tell which of all the candidates most merit support. I can put the names of the applicants into a box and draw out the winners, but that would be to burlesque good acts. I may leave to the committee—which body ought to have before it the fullest confidential information with regard to each case—to make the selection for me, and I believe it to be the preferable course; but all will not so agree, and so the canvassing goes on. In how many of the cases presented ought not the subscribers to be fully informed as to what assistance local friends or relatives may be able to afford, or what resources the mother may have. Such matters as these, if fully detailed, might help to determine the giving of votes. *A. D.*

THE FRUIT CROP.—It is only about a week ago htat I wrote that all then bid fair for heavy crops of fruit all round, and never, perhaps, before were fruit trees more full of flower, and one could scarcely help feeling alarm at the amount of thinning which appeared imminent; but this fear has vanished, and left a feeling of anxiety in its place, as now the concern and query with most of us is—shall we, after all, have a crop? This I greatly doubt, for, from some cause or other, which I cannot make out, blossoms have fallen wholesale without setting, and trees that were white with bloom have but little fruit on them, and a portion of that is not swelling regularly. I can only hope that this failure to set is but local, as to one's thinking, the weather since the fruit trees came into flower has been all that could be desired. Just before the blooms expanded we had a heavy storm of half-melted hailstones, and these were piled on the spurs and branches of trees, and formed along the bottom of the west walls a deep ridge, where the hail lay unmelted for some time. It may be that the chill caused by the hail may have been the means of bringing off the blossoms; but what effect it has had on Apples it is as yet full early to see. Plums and Cherries have suffered most, and I fear these fruits will be thin; but Strawberries are setting well. *J. Sheppard, Woolverstone Park, Ipswich.*

CARNATION MISS JOLIFFE.—"Is this Carnation deteriorating?" This was the subject of discussion a short time ago among a party of growers of this popular flower, and as each of the parties engaged in the controversy has grown this variety alone in considerable quantities for supplying Covent Garden Market, and should therefore know something of the subject, it may not be out of place to ventilate the assumption, at the same time inviting the opinion of others, with suggestions for a remedy in the event of its being considered in any way substantiated. The general impression of the growers in question was in the affirmative, and it was also remarked as losing in some degree its habit of continuous flowering, and of giving place rather to larger quantities of bloom

at one time, in place of the steady profusion hitherto regarded as characteristic of this variety. This falling off, it may be remarked is not sudden, but has been noticeable for three years in the experience of one grower—who alone grows it by the thousand. It is, however, worthy of note that in each case these men continue year by year to grow their plants, and in the main to raise their own stock from cuttings, therefore it is not unlikely that an entire change of soil or stock may place matters in their original place, provided deterioration has really set in. This is of considerable importance in those cases where fresh soil is not obtainable every year, and around London this is a considerable item of expense, good turfy loam, such as is suitable for Carnation growing, being somewhat dear. Probably these Carnations are becoming tired of feeding on similar food year after year, and fresh maiden loam—a change of diet—is what they mostly need. It would be interesting to know if other of your readers have any experience in this direction. The dearth of Carnation blooms since Christmas has never before been equalled, and no doubt is directly due to the cold, sunless summer of 1888; but as this falling off has been noticed two years previous, with hot and dry summers, there must be other reasons, and any suggestions bearing on the point will be welcomed. *J.*



Fig. 114.—Psoralea pinnata: colour of flowers, blue and white. (see p. 692.)

WHITE ROSES.—I am greatly amused at the suggestion on the part of "S" that I should try Noisette Lamarque as a white Rose. My first acquaintance with that pretty and pure variety, dates 40 years back, when it was grown in the garden in which I was employed, as a standard with Aimee Vibert, Jaune Desprez, Queen of the Bourbons, and other varieties hardly found as standard sorts to-day. But then, hybrid perpetuals and Tea Roses were scarce, and the most had to be made of what varieties afforded. I have grown Lamarque as a house Rose since. Like Maréchal Niel it needs a lot of room, but then unlike the Maréchal its blooms are but buds, fit perhaps for button-holes, but in the half expanded state they are hardly worthy the designation of Roses. When fully expanded, the flowers are like inverted Mushrooms, and very loose. Such a variety, except for its buds, has little market value. I have found Lamarque worked on the briar to prove a first-rate stock for Maréchal Niel; indeed, there can be no doubt but that double working is not only for the Maréchal but for some other choice Roses, a good plan. The Maréchal, for instance, when worked direct on to the briar presently assumes a gouty form. That arises from the fact that the affinity between the stock and the scion is not effective, and whilst sap ascends it seems incapable of passing downward into the stock, and hence the gouty or gnarled formation. But by working a strong growing climber like Lamarque on to the briar, perfect affinity of action is created, and when the Noisette has thoroughly distended the stock, then the Maréchal Niel worked on to the Noisette continues the process fully, and the joint growth throughout is remarkably robust and healthy. We want a white Maréchal Niel, or one at least as good. Is there not amidst our wealth of Teas one pure white, which may be recommended as a companion to that golden climber? *A. D.*

PARROT TULIPS AND TURNER'S PICTURES.—What lovely colours are to be found in these flowers when held to the light of the evening sun. One goes to the National Gallery to look at Turner's pictures, and the colours in some of the Parrot Tulips are just what one sees in that well-known picture, "The Old Téméraire," being towed to her last resting place, where the master skill has put the entire background into a regular blaze of fire. No wonder the old-fashioned Parrot Tulips are now becoming so fashionable, and that all the old flowers of the old masters are being brought to the footlights for approval, where what is not natural is readily separated from the gaudy and false. *W. B. H.*

ALLIUM NEAPOLITANUM.—Given cool treatment and small pots, this Allium is especially worthy of cultivation for flowering in April, and may then be employed in a greater variety of ways than when the bulbs are grown in large pots. The flowers being borne in umbels of about twenty on slender stems, are when fully expanded, very attractive, either in a mass by themselves or mixed with other plants of suitable colours. Early in November, we place five bulbs in a 3-inch pot, using a compost of three parts loam to one each of leaf soil and partly decayed stable manure, with a sprinkling of silver sand. The pots are stood upon ashes in a cold frame, but are protected from frost; water is sparingly afforded until growth is being freely made, when the plants are not allowed to suffer for want of it. When growth is 2 or 3 inches high, remove the plants to a cool house, where they will flower. *E. M.*

PRIMULA SIEBOLDI.—We are too much accustomed to treat this beautiful Primula as a greenhouse plant, but the deep coloured varieties are very effective out doors, and in cool places they thrive wonderfully. Away in one corner of the grounds here I have several clumps of P. Sieboldi laciniata, one of the first of the garden varieties, certificated at South Kensington, and it gives a hue of colour so rich and striking as to merit the highest praise. The hue is of a purplish or rosy-magenta, and without parallel in other flowers at this time of the year. It is one of the oddities of this colour that when close to the flowers the depth of hue which really exists seems lacking, but at even a short distance the full depth

of hue is very striking. Out in the open the plants are not only flowering profusely, but the flower-stalks are stout and erect, so that even under heavy rains the flowers are well sustained. We could well do with more deep colours in this hardy Primula. Laciniata, though one of the earliest seedlings, is still the deepest coloured. There are too many of the mauve and puce tints; these are pretty enough under glass, but are of little use for the production of colour effects in the open. Under pot culture frequent breaking up of the clumps is needful, because for their roots more room is needed; but out in the open ground the crowns find their own space with ease. Those who have not tried these dark-hued forms of P. Sieboldi outdoors in sheltered places, have yet to experience a fresh element of beauty in their gardens. *R. D.*

AUBRETIA GRÆCA AS AN EDGING PLANT.—As an edging to a path next to a patch of grass in the gardens here, this Aubretia was very showy this year. Seedling plants of this variety will be found to vary in colour considerably, which, for a purpose like this, is not objectionable, as they give variety. Among the plants, as many as four colours were detected, ranging from purple to a pale lavender. The edging is about 15 inches wide, close, and compact in growth, the plants thickly studded with bloom, not in any way ragged. The edging is kept neat by the manner we treat the plants. Each year after flowering, the plants mentioned have occupied the same position now four years. We cut off all the stems, both flowering and growth alike, within an inch of the soil; the plants then throw up new growth from the base, which retains the dwarf, neat appearance desired, and which flowers abundantly each season. After the cutting down of the plants, the ground is rather bare for a couple of months, until the new growth is made, and to obviate this defect we plant between the Aubretia, seedlings of Linaria triornithophora, a plant which flowers freely during the summer, and whose flowers are much appreciated for cutting, owing to their great range of colour. The growth of the Linaria not being more than 1 foot high, and rather thin, it does not interfere with the well-being of the Aubretia. *M., South Hants.*

DOUBLE WHITE POET'S NARCISSUS.—I send you a few blooms of these. I never had them so fine or so free from blindness as this season. The wet season of last year served them well. There are two varieties; there is no doubt of this, for I have positive proof in my gardens here. We are now (May 27) lifting our crop of Ard-Righ Daffodils, and I never saw the bulbs finer—they are like cricket-balls. Is not this six weeks in advance of what can be done in Holland? *W. B. H., Cork.* [Very fine blooms on strong stalks. Ed.]

SOCIETIES.

PARIS EXHIBITION.

The Great Flower Show: May 24—29. — In delightful weather the second *époque* of the series of shows to be held in connection with the Great International Exhibition was opened by the President of the Republic on May 24, and the extraordinary quantity of flowers and plants of all kinds got together, both in the open air and under cover, rendered it a great success, and apart from the other great attractions at Paris at the present time it was a sight worth seeing. From the high ground of the Rotunda of the Trocadero appear the well-known groups of statuary and the ornamental water, bordered by velvety-green grass, which is now brilliant with beds of all the flowers of the season, fronted by the still green leaves of the groups of Tulips of Krelage, whose flowers have departed. On either side, and extending towards the Eiffel Tower and Exhibition, run covered ways, in which is grouped a most interesting and instructive collection of all materials useful or necessary in gardens. Diverging from these at right angles on either side run the two immense canvas structures, each about 250 feet long and 45 feet wide, in which the chief display of plants is arranged. That on the right contained the Orchids and Azaleas, and formed the centre of attraction, although it must in fairness be stated that to the enterprising Belgians the fine display was in a great measure due.

The Orchids.—In Orchids the only British exhibitors were Messrs. F. Sander & Co., of St. Albans, who had a fine group of about 250 plants of Miltonia vexillaria, extending some 45 feet by 15 feet, and set up well with Maidenhair. Mr. Sander wished his pretty group not to be in competition, but the rules forbidding such a course, the judges were obliged to award a prize.

By far the largest and best group of Orchids was that arranged by Mr. A. A. Peeters, of Brussels, who staged about 450 plants of great merit, among them being the singular Cattleya Mossiæ Germinyana, a very bright rose variety, with crimson and orange lip and crimson blotches on the sepals and petals, the sepals also having two orange marks; and C. M. Peetersii, a finely coloured variety mottled with white. Cattleya Mendelii Morganæ, Lælia purpurata alba, some fine C. Lawrenceana, Cymbidium Lowianum, with ten spikes of 194 flowers; and a new form of Oncidium near to O. Forbesii, but with curiously marked flowers, the yellow being arranged like a honeycomb. Lælia cinnabarina grown cool, and the same grown warm, were interesting exhibits, the cool grown plants being far the better one. All M. Peeters' exhibits were good, and it is impossible to particularise half as many as we should like. M. Peeters took first in this class.

Another Belgian exhibitor, Madame Block, of Brussels, was 1st for a very fine group of Orchids, also very tastefully arranged with Palms, &c., and composed of about 250 kinds, among them were a fine form of Lælia elegans, C. Mossiæ alba Piretti, and some noble Odontoglossums. Madame Block also staged two groups of rare Cypripediums, among which we noted C. superbiens (Veitchii), with twenty, a fine C. hirsutissimum with ten flowers; C. caudatum, also with ten flowers; and C. Measuresianum, C. ciliolare, and C. Io, finely flowered.

Another important group from Belgium was that of M. Charles Vuylsteke, who has some extraordinary things among Odontoglossums, one of them being a great beauty, and in addition to the award made by them to the group, the judges named it for the 1st prize as a new or rare plant. The plant alluded to is the true Odontoglossum miniatum, a much finer thing than its neighbour, O. coronarium, its flowers being larger, the colour rich red, with yellow edge and yellow front lobe to the lip.

Continuing the Orchid display, M. J. Garden, of Bois Colombes (Seine), had a very well arranged and interesting group which attracted much attention, by the end being occupied by a rustic tree which was furnished with Orchids in flower; among them being three very handsome and valuable Trichopilia crispa, with a dozen flowers each, very charming objects. M. Garden also had some good Phalænopsis, the rare Vanda Parishii, Cypripedium Dayanum, and other rare Cypripediums; scarlet Sophronitis, some Cattleya citrina, and many other plants either rare or exceptionally well-flowered. The whole was well set up with drooping variegated Panicum and foliage plants.

In the class for Orchids grouped in the various houses, which firms of horticultural builders have erected for exhibition, M. Truffaut, of Versailles, had a very nice houseful of these plants, tastefully arranged among cork-work, and with suitable Palms, Mosses, and other foliage plants; another house being well filled, with fine Odontoglossums principally, by M. Leon Duval, of Versailles.

The Azaleas.—These formed next to the Orchids the main attraction, and such a collection of 60 varieties as that brought by M. A. A. Peeters, Brussels, have rarely been seen. The plants were perfect in shape, from 3ft. to 6ft. across, and only an occasional leaf being visible through the wealth of bloom. It is needless to say his collection was placed first. Among them were some beautiful varieties recently introduced, the more noticeable being Memoire de Louis Van Houtte, bright reddish crimson, centre petals doubled; Arlequin, pink edged, and flaked white; Madame Louis Van Houtte, salmon and white; Rosa Bonheur, white with greenish centre; Souvenir du Fr. Vervaene, crimped edge white. M. J. B. Labrousse, of Paris, was 2nd with a fine lot, but one which was not to be compared with those of M. Peeters.

M. Chas. Vuylsteke was 1st for 25 Azaleas of very fine quality, and others of less merit were exhibited.

Miscellaneous.—In the same tent containing the Orchids and Azaleas, Messrs. Vilmorin-Andrieux et Cie, had examples of their superb strain of Calceolaria, and also a large trophy of various cones and seeds of Coniferæ. M. E. Forgeot, of Paris, staged a fine exhibit of 2600 varieties of seeds, and a large and showy lot of cut Anemones and Ranunculi. Here, too, were the arrangements with cut flowers for the decoration of apartments, &c., and although not many competed, some superb efforts were brought out. One fine exhibit by Mad. Jeangirard was made to represent a large alcove, the walls and roof lined with the star-like flower of white Marguerite, the same flower also peeping over the front and sides, mingled with Tradescantia; the base of the walls had a dado of coloured Pansies, and the structure contained some magnificent arrangements with Roses, Orchids, &c., among them being a queer little poodle dog of white Lilac seated on a cushion of Maidenhair. La Maison Lachaume also had some superb arrangements of Roses set in long baskets with moss, a light Bamboo work running over the top, from which were arranged Cattleyas, Odontoglossums, &c., in one of the arrangements, most effective being two long drooping spikes of the dull-coloured Gongora galeata, which contrasted well with the rich yellow and large sprays of Oncidium Marshallianum, Anthuriums, O. Papilio, and other bright flowers. A basket of La France Rose, too, was very much admired in this exhibitor's arrangements.

The corresponding canvas structure on the other side contained the great arrangements of Roses, both standards and dwarfs of M. Chas. Verdier, and of M. Lévêque, of Ivry-sur-Seine, which made such a large display, and approached so nearly in quality, that the judges—among which were Mr. Paul, of Cheshunt — could come to no other conclusion than to put them equal 1st. In the same tent, M. J. J. Moser, of Versailles, had a very large, well arranged group of magnificent Rhododendrons and Azalea mollis, &c., with Kalmias and other hardy plants, the whole forming a fresh and beautiful display. Continuing to follow the broad covered way towards the Exhibition, we come to the annuals and hardy plants, here and also in many places outdoors, arranged by the great firm of Vilmorin-Andrieux, of Paris, they make a display which it is impossible to describe. Their collection of Aquilegias was very remarkable, and the Petunias, Pansies, Mignonettes, and in all the other classes of flowers the beauty of their exhibits show how carefully the stock must be selected and worked up. Next came a large stand of Roses and Tree Pæonies from M. Chas. Verdier fils; then a charming and various display of varieties of Primula japonica, by M. J. B. Yvon, Malakhoff, Seine; and the fine Pæonies, &c., of M. Louis Paillet, and fruits in pots of M. E. E. Salomon.

Ascending the Eiffel Tower to the height at present permitted (the pinnacle itself being not yet open), we have the whole of the ground we have gone over, and, indeed, the whole of Paris and the surrounding country, under the eye, though diminished greatly in size; and returning to the Orchid buildings by the other covered way we pass quantities of finely grown and artistically arranged saladings, vegetables, and Strawberries in pots and gathered; the proprietor of three large dishes of fine fruits of Dr. Morère, being evidently proud of them. In fear of any defect in them being found, he ticketed them, "*ayant subi un voyage de* 1050 *kilometres.*"

Anthuriums were well exhibited by M. Dallière, who secured the 1st prize for them in their class; and as an exhibit of new varieties, the collection sent by M. de la Devansaye, Château de Fresne, the result of intercrossing, exhibited marvellous strides, his fine specimen of A. mirabile being superior in size and colour to any we have seen before; A. Marie-Eugénie, distinct and richly coloured; A. Ville d'Angers, a great improvement on other spotted forms; and A. Madame de la Devansaye, a beautiful white tinged with yellow; the smaller seedlings, too, showed marvellous improvements. For the finest new plant seedlings the 1st prize was awarded to M. A. de la Devansaye. The same gentleman also received the 1st prize for a collection of seedling Anthuriums, as well as for seedlings of 1889 exhibited for the first time. These were Ville d'Angers, M. Bleu, Madame de la Devansaye, and Ed. André. The same house was nearly filled by M. Chantrier with fine foliage plants; and in the same classes M. Van Houtte and M. Alexis Dallière had good and well grown exhibits.

Several unexpected disappointments met us at this fine exhibition: the first was the absence of those fine show specimens of Orchids in flower which must be in some French gardens; and another was the want of a sufficient number of large Palms, Tree Ferns, and other things which also must be obtainable in gardens, and which would have been so useful in breaking up the void in the upper part of the large canvas buildings—a void which to English tastes at least can never be made up by the profuse display of flags our neighbours are so fond of indulging in. Nevertheless, it is a fine display, and in the grounds

the seemingly endless groups of greenhouse plants plunged out, and of fruit trees, and hardy shrubs in great variety and in every form, would take too much space even to touch on a tithe of them. *From Our Paris Correspondent.*

ROYAL HORTICULTURAL.

May 30 and 31.—After raining heavily during the early days of the week, the weather cleared up on Thursday, the opening day, and although clouds were floating about, and a little rain fell once or twice, Fortune seemed to shine on the old Society.

Orchids formed the great feature of the exhibition. Market plants were not so strong a feature as they were last year, but the show must be pronounced a decided success, and let us hope that this, the second City show, held in the gardens of the Inner Temple, may prove successful financially.

Orchids.

Of these it may be said that probably never in the annals of floral exhibitions has such a large and varied gathering of these beautiful plants been made, except at the Great Orchid Conference of the Royal Horticultural Society in 1885. At the present Temple Show the whole of the exhibits throughout were characterised by a freshness and excellence hardly to be expected in plants which have to be conveyed long distances, while the number of large specimens gave an importance to the whole not to be attained by no matter how great a number of small plants. The manner of arranging them with Ferns and Palms made the most of the undoubted beauties the specimens each and all possessed.

The grand group, not for competition, so effectively arranged by Mr. H. Ballantine from Baron Schroder's gardens at The Dell, Egham, was, by common consent, adjudged to be the best feature in the show—indeed, it would be impossible to conceive, as it is difficult to describe, the magnificent group of large and rare specimens brought together in it. The centre plant, a grand specimen of Cymbidium Lowianum, had fourteen spikes, averaging twenty-five flowers each, and along the group the eye lighted on specimens of Cattleya Skinneri, 4 feet across, with a score or more spikes of five and six flowers each; C. Skinnerii alba, with four spikes; many C. Lawrenceana, with large heads of dark crimson flowers; the white C. Mossiæ Wagneri, with five flowers; C. M. alba, C. Mendelii, in every variety, the handsomest and most distinct being the richly coloured C. M. Rothschildianum. Large specimens of Cattleya Mossiæ and Lælia purpurata, too, were in this magnificent group, and a profusion of very fine varieties of Odontoglossum crispum — one having four spikes of ten to twelve flowers each—and a grand lot of specimens of Miltonia vexillaria, some with over thirty spikes, among them being of the rare white variety, M. v. alba, the purple-rayed M. v. radiata; the white-margined M. v. Sunrise, and other rare varieties. The Dendrobes were also prominent by the presence of some large specimens of D. thyrsiflorum, D. Lowianum with a fine spray of bloom, D. Jamesianum (a single plant), with twenty-five blooms, and many others; while among very rare plants the fine hybrid Phalænopsis John Seden×, with its dotted rosy flowers; Lælia bella× with four grand blooms; the unique white Aërides Williamsii; Thunia Veitchiana×, Odontoglossum excellens, and a new natural hybrid Lælia Delliense, intermediate in character between Lælia purpurata and L. elegans. The Veitch Memorial Medal was awarded for this grand display.

Beside Baron Schroder's collection was an equally extensive display from the gardens of Sir Trevor Lawrence, Bart., M.P., the President of the Society, which contained a large number of very fine specimens, and also a goodly number of rare and curious plants of great botanical interest. Some fine specimens of Scarlet Anthurium aided greatly in showing up the Orchids, and a large plant of the spotted A. Scherzerianum well displayed its beauties. Some very fine Cattleyas, Lælias, and large masses of rare Cypripediums (one of C. Swanianum had 13 flowers) characterised the arrangement, and among the more rare or beautiful were Maxillaria Sanderiana with large white and crimson flowers; Cattleya Reineckiana, a very delicately tinted C. Mossiæ var.; a grand mass of scarlet Masdevallia Harryana with over forty flowers, M. Gelengiana×; the brilliant M. H. regalis, the very handsome Disa racemti with four spikes of clear rose flowers; Spathoglothe aurea, a grand mass of Cattleya gigas Sanderiana with two spikes of four large flowers each, the neat and fragrant Epidendrum raniferum, large pans of Cypripedium Godefroyæ and C. niveum; the pale blue Acacallis cyanea, Anguloa Ruckeriana, Stelis muscifera, Lycaste Lawrenciana and the curious insect-like Bolbophyllum barbigerum with its fringed labellums continually in motion. Among other plants other than Orchids a large basket of the pale lilac Utricularia Endresii was very elegant, and the bright blue Exacum macranthum very effective. A Veitch Memorial Medal was also awarded to this fine collection. From the gardens of F. Wigan, Esq., Clare Lawn, East Sheen, came a smaller but very meritorious group, in the composition of which many fine Phalænopsis were used, including P. grandiflora and a fine specimen of P. speciosa; Vanda suavis and V. tricolor, some good Miltonia vexillaria, Oncidium ampliatum majus, and one of the most brilliant scarlet Masdevallias (named M. Harryana Meteor) we have seen were in Mr. Wigan's group. Fred. G. Tautz, Esq., Goldhawk Road, Shepherd's Bush (gr. Mr. Cowley) also staged a very rich group, remarkable being Lælia purpurata atropurpurea, Cattleya Aclandiæ, Cypripedium selligerum majus; a fine plant of Cattleya Warneri, Epidendrum macrochilum and the neat little white Angræcum falcatum.

In the classes for competition both H. M. Pollett, Esq., of Fernside, Bickley, and A. H. Smee, Esq., of the Grange, Hackbridge, arranged very fine groups of handsome and rare plants; the Odontoglossums in Mr. Pollett's group being the leading feature, while the Cattleyas were more prominent in that of Mr. Smee. Both gentlemen in their respective exhibits had many plants which are not often seen so fine, the spotted O. crispum and purple spotted O. pescatorei of Mr. Pollett, and the superb forms of C. Mossiæ of Mr. Smee especially. In the matter of arrangement, however, Mr. Pollett's were the better, on account probably of the graceful sprays of Odontoglossum, lending themselves more readily to work. A group of Masdevallias also was sent by C. J. Partington, Esq., Heaton House, Cheshunt, many of them being large in size and all brilliant in colour; and the Duke of Marlborough's gardener, Mr. Whillans, staged nine very fine specimens, the Cypripedium caudatum having over fifty blooms, Lælia purpurata Cattleya Mossiæ were fine, Cattleya Lawrenceanum had about fifty flowers; Dendrobium Jamesianum and Epidendum were covered with numerous spikes of flowers, and Cypripedium lævigatum and C. barbatum superbum were noble specimens—in fact, the whole of the nine were what show plants should be.

The Nurserymen's exhibits were, in quality at least, not a whit behind the Amateurs, indeed the space occupied by the fine collection of Messrs. F. Sander and Co., of St. Albans, occupied the whole of one side of the centre stage from end to end, and occupied it well too. The plants, which were of excellent merit, were arranged in groups according to their genera, the whole being linked together by Odontoglossum crispum and Maidenhair Fern. In one portion was a splendid block of different varieties of Lælia purpurata, then came a large display of the St. Albans strain of Odontoglossum crispum; then some fine masses of Cattleya Skinneri, and scores of good Miltonia vexillaria, beyond being a group of Cypripediums and another of the pure white and orange Dendrobium Jamesianum. A fine mass of Catttleya citrina, too, was a striking object in Messrs. Sander's group, and at one end were arranged some rare Odontoglossums and other Orchids, noteworthy being the handsome Cattleya Brymeriana, which seems intermediate between C. eldorado and C. superba and the pretty Oncidium hæmatochilum.

Mr. James Cypher, of Cheltenham, also sent a very large collection, which were well staged in their usual manner, the space extending some 35 feet, being well occupied with worthy exhibits. In this group the very fine Dendrobes were a distinguishing feature. Among others D. Jamesianum having sixteen heads of bloom; D. devonianum literally covered with flowers, and D. Bensoniæ, D. densiflorum, D. thyrsiflorum, and others being equally fine. Mr. Cypher's Cattleyas and Lælias, too, were very richly flowered, among the Lælias being a very fine light coloured form which was named by Professor Reichenbach, L. Wyattiana. Suspended above were Masdevallia Roezlii, M. bella, and others, the whole forming a most important and pleasing display.

From Messrs. Hugh Low & Co. came a good group, in which their fine Cypripedium bellatulum were prominent, one named C. b. excellens being heavily and richly spotted; the Phalænopsis in Messrs. Low's collection were what their fine stock of these plants should yield; and their Cattleyas, especially Mossiæs, exhibited great excellence; good panfuls of the pretty white Cypripedium niveum, pans of C. Lawrencianum, and plants of Vanda cœrulescens Boxallii, were here displayed.

Grouped on the green-sward, at the further end of the Orchid tent, Mr. B. S. Williams had a very interesting display of Orchids, arranged with fine pans of Sarracenias, Ferns, Palms, &c., most effective being the numerous tall spikes of white Calanthe veratrifolia and mauve C. masuca, with which the arrangement was studded. A good representative lot of Orchids, worthy of this old firm, was brought out, among the more prominent being a magnificent specimen of Cymbidium Lowianum, a good one of a very dark Anguloa Ruckerii, fine Oncidium Marshallianum, Ada aurantiaca, Vanda teres, nine spikes; the blush-white V. teres aurora, the pretty scarlet Epidendrum Paytinse, and some neat plants of Miltonia vexillaria in several varieties.

Mr. G. T. White, of Winchmore Hill, staged a group composed largely of very fine forms of Cattleyas, some of which were of extraordinary merit; one named C. Mossiæ Arnoldiana is a great beauty, and C. Mendelii albo-lineata, and C. Mendelii "Painted Lady," pretty and distinct; Lælia purpurata Brysiana also was in this group, and some superb Odontoglossums, one of the O. Pescatorei magnifica having flowers as large as a fine O. crispum, and of perfect form. Mr. White also had the elegant Amaryllis solandræflora in his group, which was well set up.

⋈ Also in Messrs. J. Laing & Son's (of Forest Hill) group of plants arranged for effect, exhibited in class 1, were some very good examples of Orchids, which of late have formed quite a feature at that great Begonia establishment.

Plants and Cut Flowers. — From the nurseries of Messrs. J. Laing & Son, there was a group of Caladiums of large size, and of first-rate quality. About a score of plants were shown, and included specimens of the most valuable show varieties; there were also a good number of smaller plants, the whole making a capital display. The varieties have often been referred to in these columns, and only the most conspicuous can now be noticed. Triomphe de l'Exposition was in a fine piece, and others were the popular Candidum, Bosphore, Clio, Duchesse de Montemart, Mithridate, Charlemagne, Madame Fitz-Kœchlin, and Raymond Lemoinier, the leaves of which are greenish-yellow, with a bright red centre, it is very showy. The same firm contributed an extensive collection of tuberous Begonias in single and double varieties, with a background of Crotons and Palms. The colours of the flowers were bright, and the flowers of good size—not too large. Of the named varieties, selection may be made of Jubilee, a full double flower, red; Duchess of Teck, double, chrome coloured and globular; Mr. J. Chamberlain, single, almost circular, white, flushed with pink; gigantea, single, rich rosy carmine; Stanstead Gem, double, deep scarlet; and Lucius, double, few petals of a salmon-red colour.

Roses were largely contributed by Messrs. Paul & Son, the Old Nurseries, Cheshunt, who were the only exhibitors of Roses in the competing classes, and they also had a number of plants in the miscellaneous class. In all about fifty plants were exhibited in various sizes, and of uniformly fine quality. A magnificent specimen of Charles Lawson being very conspicuous, it bore about 100 fully expanded flowers. Another specimen of the same variety, a trifle smaller, was also conspicuous, Celine Forestier, Centifolia rosea, La France, Sir G. Wolsley, Comte de Serenye, were all in large specimens; and of smaller but well-grown and flowered plants were—Francisca Kruger, Souvenir de Gabriel Drevet, Mignonette, Ella Gordon, Innocente Pirola, Comtesse de Choiseuil, and Mad. Lacharme.

Messrs. W. Paul & Son, Waltham Cross, made a very fine display with cut blooms of Roses in about one dozen boxes. There were specimens of the new varieties, Danmark, Corinna, and White Perle, to which reference has been made in recent issues; and Merville de Lyon, Alfred Colomb, and Queen of Queens were largely represented, and others were Madame V. Verdier, Star of Waltham, Magna Charta, La France, Her Majesty, Lady Sheffield, Paul Neron, Captain Christy, Ulrich Brunner, François Michelon, Catherine Mermet, Niphetos, Souvenir d'Elise Vardon, Madame de Watteville, and other favourites. This firm also had cut specimens of Rhododendrons, which had been grown on a loamy soil. These were

all shown in good trusses of fairly large size and rich colour. The most noteworthy being here enumerated: Papilionaceum, Mrs. Fitzgerald, Chas. Bagley, Lord Palmerston, Old Port, The Queen, Everestianum, Schiller, Lord Clyde, Fastuosum, John Waterer, Nelsoni, Titian and others; Azalea mollis was also shown in variety.

Messrs. H. Lane & Son, the Nurseries, Berkhamsted, showed a group of bush Rhododendrons, about twenty-five plants of average dimensions and freely flowered, the finest specimens being seen in the varieties, Michael Waterer, Snowflake, Salvini, and Cynthia, the last-named having the finest trusses.

A group of well-grown moderately-sized specimen Caladiums was sent by W. Melles, Esq., Sewardstone Lodge, Chingford. The varieties were such general favourites, as Prince Albert Edward, M. A. Hardy, Clio, Lymington, candidum, Artemise, and Siren; the background was formed of various Palms.

An attractive and showy exhibit was that of Messrs. R. Smith & Co., Worcester, who contributed a group of about five-and-twenty balloon-trained Clematis, bearing a profusion of flowers. The individual flowers were of large dimensions, and the colours bright. The most conspicuous varieties were seen in Grand Duchess, very pale mauve, with broad petals; Madame van Houtte, white; Gloire de St. Julien, pale mauve; Imperatrice Eugénie, white broad petals; Venus Victrix, double, pale mauve; Sensation, mauve-blue; Fairy Queen, white, with a pink nerve; and Lord Nevile rich blue, medium size.

A bank of varieties of Anthurium Scherzerianum, with a profusion of well developed spathes and also a specimen of A. Rothschildeanum, was sent by Messrs. J. Peed & Sons, Roupell Park Nurseries, Norwood Road, S.E.

Tuberous Begonias from Messrs. H. Cannell & Sons, Swanley, Kent, were a fine show, the plants being vigorous and well flowered. Double and single varieties were shown, the former predominating. Lady M. Marshall, rich pink, double, was noteworthy; and also Lady Kinnaird, double, pale pink, suffused on white; Rosebud, pale rose-pink, and rose-like in form; Mr. Carberry Evans, rich scarlet-salmon, double; and Mrs. Knowles, cream-yellow, and double.

Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, contributed an elegant and tastefully arranged group of the ornamental-leaved Japanese Maples, which it is needless to particularise.

The only general exhibitors of stove and greenhouse Ferns were Messrs. W. and J. Birkenhead, of Sale, Manchester, whose extensive collection comprised a remarkable number of varieties, many of them choice, though none were large. Todeas were in great variety, so also were Adiantums, of which Mariesii, Lawsonianum, ciliatum, Regina, gracillimum, and the crumpled Luddemannianum were some of the most striking. Of Trichomanes there were crispatum, radicans, Andrewsii, radicans dissectum, &c. The collection in addition to Ferns included numerous Selaginellas in variety; indeed, to lovers of the Fern tribe, this group was full of interest.

The Messrs. Birkenhead also held the field in the case of hardy Ferns, presenting a large and varied group, the fronds showing rich freshness of hue of a very delightful kind. Athyriums were lovely, especially such charming forms as elegans, plumosum, multifidum, princeps, and todioides; A. capitatum is a very pretty crested form. Asplениums, Blechnums, Scolopendriums, &c., were remarkably varied and pleasing. A special group was made of American Ferns, amongst which Osmunda gracilis, a pretty form of the Royal Fern, in partial bloom; Adiantum pedatum, a very handsome variety, erect, and having fronds of a standard-like character, which should make it a good table plant; and others were good specimens, but the collection lacked the wondrous variety found amongst native forms.

A brilliant and most interesting group of Hardy Azaleas came from Mr. Anthony Waterer, of Knap Hill, Woking; good-sized plants in large pots, profusely flowered. There were some fifty plants, and the colours of the flowers ranged from almost pure white through flesh-cream, pink, yellow, orange, buff, rich browns, orange-scarlet, red, crimson. Anthony Waterer, bright yellow, was the only named variety, the bulk being unnamed seedlings of a beautiful strain. Such a collection of Hardy Azaleas in pots has rarely been seen at a London show.

For hardy herbaceous plants, three popular growers, Messrs. Collins & Gabriel, Waterloo Nursery, Hampton, Mr. T. S. Ware, Tottenham, and Messrs. Paul & Sons, Cheshunt, entered the lists in the class set apart for them, the former firm having a very effective group of tall, freshly flowered plants arranged on the ground in the centre of the tent—a special advantage. They exhibited Pœonies, Pyrethrums, Funkias, Irises, Spiræas, especially aruncus and palmata, Saxifragas, Lupins, and Aquilegias, with pans of Pansies, Primula Sieboldi, in variety for edging.

Mr. T. S. Ware had a large group arranged on a large narrow table rather disadvantageously, but the variety of plants was remarkable, and these generally were dwarf. Here again Lupins, Liliums, Pyrethrums, Irises, Pœonies, Spireas, Poppies, Solomon's Seal, the curious Sarracenia purpurea, Primula japonica, numerous Aquilegias, Cyclobothra pulchella, Saxifraga pyramidalis, and many other hardy plants were abundant.

Messrs. Paul & Sons occupied a corner space on the ground, small in area, but the collection included many interesting plants. Thalictrum rubellum, and T. aquilegifolium album, Dielytra eximium, Centaurea montana, and Ranunculus platanifolia, were some of the more novel elements in the collection. The same exhibitors appeared in the competing classes, and were respectively 1st and 2nd.

Cut Flowers.—Mr. T. S. Ware had a striking collection, filling nearly fifty feet in length of table, and it comprised herbaceous Pæonies, Papaver Orientale Brilliant, Blush Queen, and Prince of Orange, single Pyrethrums, Lupinus polyphyllus albus, Trollius Europæus, &c. Messrs. Paul had hardy Rhododendrons, varieties of Azalea mollis, such as Comte de Gomer, Ernest Becko, Alphonse. Lavallee, &c.

Hardy alpine plants were only shown by Messrs. Paul & Sons, and they had a very interesting collection; the mauve-flowered Bouvardia pyrenaica, Saxifragas ajugifolia and lantoxana, the pretty white-flowered Anemone montana, Thymus serpyllum, Iberis gibraltarica, Erigeron aurantiacum were some of the prettiest features of the group.

There was but one collection of Irises, which was that from Mr. T. S. Ware. It occupied about 15 feet run of table, and included representatives of I. florentina, I. germanica, I. pallida, I. gracchus, &c.

Of Violas there was but one collection of twelve sprays, which came from Mr. T. Parker, Kynaston Lodge, Harrow Weald. They were set up with their own foliage, and not being shown in water but simply laid upon the table, their freshness was soon lost. The award made in this class did not transpire.

In competition for the special prizes offered for Tulips by the Trustees of the Turner Memorial Fund, there were three collections, and Mr. Samuel Barlow, J.P., Stakehill House, Castleton, Manchester, was placed 1st, with about eighty blooms, having some of a highly refined character. Of feathered bizaares:—Commander, Demosthenes, Masterpiece, all very fine; Sir J. Paxton, a little inferior, and General Grant, very bright. Flamed bizarres:—Sir J. Paxton, very fine indeed; Dr. Hardy, and a very fine seedling from Dr. Hardy of great promise. feathered roses:—Modesty and Herpine, the only two in really good form; Annie McGregor and Charmer. Flamed roses: Mrs. Lomax, Madame St. Arnaud, Aglaia, Mabel and Lady Sefton; feathered Byblœmens; Mrs. Cooper, violet, Annable, and Hepworths, William Parkinson; flamed Byblœmens:—Bob Morley, new, and expected to prove one of the very finest,—it is in the way of Brown's Salvator Rosa but better; Talisman, Duchess of Sutherland (Walker), Nimbus and Adonis; some very fine breeders were also included. Messrs. Stuart Mien and Allan, nurserymen, Kelso, were 2nd with a collection of 60 rectified flowers, of good blood but generally lacking in refinement; 3rd Mr. James Thurstan, Richmond Road, Cardiff, with 24 broken and 24 breeder blooms, which had suffered very much on the journey. Mr. Barlow had the three premier tulips, the best feathered being Mrs. Cooper a Byblomen; the pretty flamed Bizarre Sir J. Paxton, and the best breeder, Glory of Stakehill, Byblœmen.

Messrs. Barr & Son, King Street, Covent Garden, W.C. had a large collection of cut flowers, including Pæonies, Anemones, Aquilegias, Pyrethrums, Dielytra spectabilis, etc., filling a good length of table. Messrs. George Smith & Co., Commercial Road, Pimlico, exhibited examples of their dome-shaped terra-cotta flower holder for table decoration, filled with flowers and foliage.

Mrs. Hodgkins, Withington, Manchester, had examples of bouquets, wreaths, sprays, &c., admirably done in skeleton leaves and pods.

Messrs. J. Cheal & Sons, nurserymen, Crawley, had examples of their patent flower holders showing their adaptability for table and other decoration.

Messrs. H. Cannell & Sons, nurserymen, Swanley, had a number of bunches of bedding Violas, consisting of Eynsford Sweep, black; Spring Beauty, purple; Blue Chelsea Belle, Chieftain, and Holyrood; Duchess of Albany, mauve and white; Magpie and Countess of Kintore; Cloth of Gold, yellow; Skylark, white and purple; also very fine bunches of such decorative Pelargoniums as Hamlet et Ophelia, Rose Queen, Gloire de Tours, Sultana, Jubilee, Volante nationale, President Harrison, Princess Teck, Black Diamond, and a stand of twelve bunches of Pearl, a pure white variety of great excellence.

Messrs. Kelway & Son, nurserymen, Langport, had 23 boxes of cut flowers of Pæonies, Delphiniums, Pyrethrums, double and single; Iris, and cut flowers of hardy plants; a very fine lot indeed, and a most valuable contribution to the exhibition.

Messrs. H. Lerot & Co., Bush Hill Nursery, Enfield, had Pelargoniums, Bush Hill Beauty, a sport from Madame Thibaut, the trusses of bloom bold and striking.

Mr. J. H. Virgo, market gardener, Clevedon, had cut specimens of Myosotis dissitiflora Perfection, with large blue blossoms.

Messrs. Ryder & Son, nurserymen. Sale, Manchester, had a collection of plants of show, fancy, and bedding Pansies, nicely arranged in a bed of moss, and backed with flowers of pretty Aquilegias.

Mr. Charles Turner, Royal Nursery, Slough, had some new large-flowering Pelargoniums raised by Mr. E. Foster, consisting of Ermine, very bright, and of good form; Curtius, in the same way, but slightly darker; Conspirator, salmon-pink, and dark top petals; Exquisite, warm rosy-pink; and Indian Yellow, the nearest approach to a yellow Pelargonium, very distinct and novel in colour.

From Mr. J. Morrison, Auchmill, Aberdeen, came Myosotis Gem, a seedling from M. rupicola.

Mr. George Thomson exhibited sprays of Veronica Fairfieldi, from Mr. William Martin, Fairfield, Dunedin, Otago, a hardy shrub from the open ground and raised from seed. It bears erect racemes of double, blush-white flowers.

In the open class for twenty-five Calceolarias Messrs. James Carter & Co., seed merchants, Holborn, and Messrs. H. Cannell & Sons put up very fine collections, the plants admirably grown and bloomed, and the flowers of fine quality. Mr. Long, gr. to H. Barker, Esq., Leigham Holme, Streatham, had a group also.

Mr. C. Turner, Royal Nurseries, Slough, had a group of very fine show and fancy Pelargoniums, very well grown and flowered. Kingston Beauty, Gold Mine, Marie Malet, Sister of Mercy, Lady of the Lake, and Comtesse de Choisieul, were the best Roses, and a few finely-flowered specimen Azaleas formed a good relief.

Fruit.—Collections of Apples were the chief features here. Messrs. G. Bunyard & Co., Maidstone, staged about fifty dishes of well-kept clean fruits:—Belle Pontoise, Paul's Winter Hawthornden, Tippett's Incomparable, Cellini, Annie Elizabeth, Bismarck, Lord Derby, Lane's Prince Albert, Wellington, Calville Rouge, and Smart's Prince Arthur, were in the finest condition.

A somewhat similiar lot of about thirty dishes was sent by Messrs. J. Cheal & Sons, Lowfield Nurseries, Crawley, Sussex, the best-conditioned samples being seen in Ottershaw Pippin, Annie Elizabeth, Hanwell Souring, Prince Albert, Sturmer Pippin, and Shepherd's Pearmain.

Mr. G. W. Cummins, gr. to A. H. Smee, Esq., the Grange, Wallington, Surrey, also had a collection of Apples, which were in a remarkably fine state; Wellington, Lane's Prince Albert, Ribston Pippin, Winter Colmar, and Bismarck may be named. In all about twenty dishes were in this collection.

Mr. F. W. Hume Dick, Esq., Thames Ditton House, Thames Ditton (gr. Mr. W. Palmer), had a melon named Thames Ditton Hero, a red-fleshed variety with thick skin; and half a dozen good-looking examples of Whillan's Seedling Melon were exhibited by Mr. Whillans, gr. to the Duke of Marlborough, Woodstock. It is a large fruit, yellow-netted and white-fleshed. Mr. C. Turner, Royal nurseries, Slough, sent fruit of Lockie's Perfection Cucumber.

Market Classes.—These were not at all well taken up, there being no entries in the majority of the classes.

Mr. W. Iceton, Granard Gardens. Roehampton, had a capital group of large-sized Palms, consisting of Kentia Fosteriana, K. Belmoreana, Cocos flexuosa, and C. plumosa, in fine condition, fronted

with Dracæna Lindeni and Ophiopogon Jaburan (variegated), both of which were in remarkably fine condition.

The only exhibitor of a group for effect was Mr. H. B. May, of Edmonton, as the general body of the market men were this year conspicuously absent. Still the tent space was fully covered with miscellaneous exhibits, and their absent collections were not missed. Mr. May's group included an edging and base of dwarf Ferns, from out of which arose numerous medium-sized, but handsome and richly coloured Crotons and Dracænas, variegated Yuccas and Pandanus, also small Palms, Japanese Acers, Aralias, and other highly decorative plants.

Mr. May was also the sole exhibitor of Ferns in this section, having a huge and most artistically arranged collection, which comprised many of varieties, as, indeed, it included several hundreds of plants. Being staged on the ground, the effect was much more pleasing than when the Ferns were stood on the stages. The following comprise some of the most striking forms, and all were of high merit:—Adiantum fragrantissimum A. elegans, A. curvatum, A. Mariesii; Asplenium laxum pumilum, A. flaccidum, A. biforme; Gymnogramma Parsonsi, G. Wetteuhalliana, G. Alstonii, G. Peruviana argyrophylla; Nephrolepis tuberosa, N. exaltata, N. davallioides furcans; Pteris tricolor, P. aspericaulis, P. major, P. cristata compacta; Davallia Mariesii; Leucostefia immersa, and Actionopteris radiata, the miniature fan-shaped Fern.

In the class for 50 show, and decorative Pelargoniums, Mr. G. Braid, Winchmore Hill, N., had a group of finely grown and bloomed market stuff in 48 sized pots; bright and effective. Bouquets and wreaths were very pretty. Messrs. Perkins & Son, of Coventry, had a large and attractive exhibit of bouquets, wreaths, crosses, sprays, button holes, baskets, &c., not only showing the best workmanship, but set up in a way to set them off to the best advantage. Mr. Garcia, Florist, Centre Row, Covent Garden, had a very fine wreath, cross, bouquet, and a cushion of roses, made up in excellent style. Mr. G. Newman, Florist, Bromley, Kent, had two bouquets, a wreath and sprays.

A collection of market fruit and vegetables was shown by Mr. G. Munro, Covent Garden Market, in baskets as used for transit. These consisted of four lots of Guernsey grown Melons, and of English produce there were Tomatos, new Potatos, black and white Grapes, Cucumbers, Peas, and Beans.

Mr. J. R. Featherby, The Vineries, Gillingham, Kent, sent Cucumbers and Tomatos, both in fine samples.

AWARDS.

The Committees recommended the following:—

BY THE FLORAL COMMITTEE.

First-class Certificates.

Veronica Fairfieldi, from Mr. G. Thomson.

Begonia Rose Bud (double), from Messrs. Messrs H. Cannell & Son.

Pæonia lobata, from Mr. T. S. Ware.

Exacum macranthum, from Sir Trevor Lawrence.

Struthiopteris pensylvannica recurva, from Messrs. W. & J. Birkenhead.

Awards of Merit.

Begonia Sir W. C. Brooks, from Messrs. H. Cannell & Sons.

Begonia Lady Harriet Cavendish, from Messrs. H. Cannell & Sons.

Pelargonium (decorative) Souvenir de Mirande, from Messrs. H. Cannell & Sons.

Pyrethrum Albert Victor, from Messrs. Kelway & Son.

Pyrethrum Leonard Kelway, from Messrs. Kelway & Son.

Pæonia arborea agenoria, from Messrs. Kelway & Son.

Caladium Raymond Lemoinier, from Messers. J. Laing & Son.

Athyrium f.-f. regale (Barnes' variety), from Messrs. W. & J. Birkenhead.

Pelargonium (show) Indian Yellow, from Mr. Charles Turner.

Botanical Certificate.

Aciphylla squarrosa, from Messrs. James Veitch & Sons.

BY THE FRUIT COMMITTEE.

Cucumber Lockie's Perfection, from Mr. C. Turner.

BY THE ORCHID COMMITTEE.

First-class Certificates.

Cattleya Brymeriana, from Messrs. F. Sander & Co.

Lælia Dellense×, from Baron Schroder.

Cattleya Mendelii Rothschildeanum, from Baron Schroder.

Botanical Certificate.

Oncidium hæmatochilum, from F. Sander & Co.

Other awards made were:—

Silver Cups.

To Messrs. Paul & Son, for a group of Roses.

To Messrs. R. Smith & Co., for group of Clematis.

To Messrs. F. Sander & Co., for group of Orchids.

To Mr. J. Cypher, for group of Orchids.

To Mr. B. S. Williams, for group of Orchids.

To Mr. G. T. White, for group of Orchids.

To F. G. Tautz, Esq., for group of Orchids.

To Mr. Wigan, for group of Orchids.

To Messrs. W. & J. Birkenhead, for collection of Ferns.

To Mr. C. Turner, for collection of Pelargoniums.

To Mr. A. Waterer, for group of Rhododendrons and Azaleas.

To Mr. Iceton, for group of decorative plants.

Medals.

To Baron Schroder, for group of Orchids (Veitch Memorial).

To Sir T. Lawrence, for group of Orchids (Veitch Memorial).

*** These medals were awarded in consequence of these gentlemen declining the ordinary awards to which they were entitled.

To Messrs. J. Laing & Son, for group of Caladiums (Silver Flora).

To Messrs. Perkins, for Bouquets, &c. (Silver-gilt).

To Mr. T. S. Ware, for hardy Herbaceous Plants (Silver Flora).

To the Duke of Marlborough, for group of Orchids (Silver-gilt Flora).

To H. M. Pollett, Esq., for group of Orchids (Silver-gilt Flora).

To A. H. Smee, Esq., for group of Orchids (Silver Flora).

To C. J. Partington, Esq., for group of Orchids (Silver Banksian).

To Messrs. J. Veitch & Son, for group of plants (Silver-gilt Flora).

To Messrs. W. Paul & Son, for cut flowers (Silver-gilt Flora).

To Messrs. Kelway & Son, for cut flowers (Silver-gilt Flora).

To Messrs. Barr & Son, for cut flowers (Silver-gilt Flora).

To Mr. G. Munro, for collection of fruit, &c. (Silver-gilt Flora).

To Mrs. Hodgkins, for skeletonised leaves (Silver Flora).

To Messrs. J. Laing & Son, for group of Begonias (Silver Flora).

To Messrs. H. Cannell & Sons, for Begonias (Silver Flora).

To Mr. Hollingworth (Silver Flora).

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending May 28, is furnished from the Meteorological Office:—

"The *weather* has varied considerably in different parts of the kingdom. In the greater part of Ireland and Scotland fair or fine conditions prevailed (with a few dull and showery intervals) throughout the period. Over England, however, where it was very fine and dry during the earlier days of the week, it subsequently became very rainy and unsettled, with frequent thunderstorms. In the south and south-east the rainfall was extremely heavy.

"The *temperature* has continued above the mean, the excess having ranged from 2° to 5° in the 'grazing districts,' and from 4° to 6° in the 'Wheat-producing districts.' The average values over the kingdom generally have not been so high during any week in May since the period ending May 30, 1881. The highest of the maxima, which were registered either on the 21st or 22nd in Scotland, the 23rd or 24th in England, and towards the close of the week in Ireland, varied from 72° in the 'Channel Islands' to between 78° and 82° over the greater part of England. The lowest of the minima, which were recorded on somewhat irregular dates, ranged from 35° in 'Scotland, N.,' to 46° in 'England, E.' and 'England, S.,' and to 47° in the 'Channel Islands.' On most occasions the minima were again very high for the time of year; in London the lowest reading during the night of the 24th—25th was 59°.

"*Rainfall* has been less than the mean in Scotland, the West of England, and the 'Channel Islands,' and has differed very slightly from the normal in Ireland. Over central, southern, and eastern England, however, the fall has greatly exceeded the mean. The heaviest falls were experienced at the southern and south-eastern stations, and occurred on the 25th and 26th.

"*Bright sunshine* shows a general and decided increase, the percentage of the possible duration having ranged from 25 to 54 in Scotland, from 40 to 50 in Ireland, and from 36 to 51 in England."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

	Districts.	Temperature. Above (+) or below (—) the Mean for the week ending May 28.	Temperature. Accumulated. Above 42°, for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1889.	Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1889.	Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1889.
			Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1		5 +	80	0	+ 87	+ 6	0 av.	107	17.6	25	22
2		6 +	95	0	+ 39	+ 5	2 —	82	9.2	53	26
3		4 +	94	0	+ 2	+ 6	7 +	76	9.2	37	24
4		5 +	116	0	— 19	+ 112	9 +	82	9.0	51	25
5		4 +	108	0	— 19	+ 60	10 +	75	12.6	36	23
6		6 +	124	0	— 15	+ 75	10 +	79	9.8	39	24
7		5 +	92	0	+ 53	— 25	4 —	89	16.5	54	27
8		3 +	96	0	+ 15	— 1	3 —	82	11.2	51	26
9		2 +	97	0	— 49	+ 88	1 —	77	14.0	46	31
10		3 +	88	0	+ 24	— 53	1 +	99	14.7	40	22
11		2 +	89	0	— 2	— 14	0 av.	88	14.5	50	29
12		2 +	103	0	+ 6	— 16	2 —	86	9.7	45	36

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, May 30.

BUSINESS steady; prices firm. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve...	2 0–	4 0	Lemons, per case ...	12 0–	21 0
— Canada and Nova Scotia, per barrel	10 0–	17 0	Peaches, per doz. ...	6 0–	24 0
Gooseberries, ½-sieve	4 6–	5 6	Pine-apples, Eng., lb.	1 6–	2 0
Grapes, per lb. ...	2 6–	4 6	— St. Michael, each	2 0–	8 0
			Strawberries, per lb.	2 0–	5 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	6 0	...	Lettuce, per dozen	1 6	...
— French, bundle	2 0	8 0	Mushrooms, punnet	1 6	...
Beans, Jersey French, per lb.	3 6	...	Mustard and Cress, punnet	0 4	...
Beet, red, per dozen	1 0	2 0	Onions, per bunch	0 5	...
Carrots, per bunch	0 6	...	Parsley, per lb.	0 6	...
Cauliflowers, each	0 6	...	Peas, French, per qt.	3 0	...
Celery, per bundle	1 6	2 0	Potatos, new Fr., lb.	0 3	...
Cucumbers, each	0 6	0 9	Rhubarb, bundle	0 6	...
Endive, per dozen	2 6	...	Shallots, per lb.	0 6	...
Green Mint, bunch	0 4	...	Spinach, per bushel	2 6	...
Herbs, per bunch	0 4	...	Tomatos, per lb.	2 0	...
Leeks, per bunch	0 3	...	Turnips, per bunch, new	1 0	...

POTATOS.—Beauty of Hebron, 70*s.* to 80*s.*; Imperators, 60*s.* to 65*s.*; Dunbar Magnums, 130*s.*; and Lincoln, do., 70*s.* Large supplies of new Potatos from Malta, St. Michael's, and the Canaries.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Ficus elastica, each	1 6	7 0
Arum Lilies, p. doz.	6 0	12 0	Fuchsias, dozen	6 0	12 0
Begonias, dozen	4 0	12 0	Genista, dozen	8 0	12 0
Calceolarias, dozen	6 0	9 0	Lobelias, dozen	4 0	6 0
Cineraria, per dozen	6 0	12 0	Marguerites, doz.	6 0	12 0
Cyperus, per dozen	4 0	12 0	Mignonette, doz.	4 0	9 0
Dracæna terminalis, per dozen	30 0	60 0	Musk, dozen	2 0	4 0
— viridis, per doz.	12 0	24 0	Nasturtiums, doz.	3 0	5 0
Erica, various, doz.	12 0	30 0	Palms in var., each	2 6	21 0
Euonymus, in var., per dozen	6 0	18 0	Pelargoniums, dozen	9 0	15 0
Evergreens, in var., per dozen	6 0	24 0	— Ivy-Leafed, doz.	4 0	9 0
Ferns, in var., doz.	4 0	18 0	— scarlet, doz.	4 0	6 0
Foliage plants, various, each	2 0	10 0	Roses, H.P., doz.	12 0	24 0
			— Fairy, doz.	8 0	10 0
			Spiræa, doz.	9 0	15 0
			Stocks, dozen	4 0	6 0

BEDDING PLANTS in variety from 1*s.* per doz.; per box, 1*s.* 6*d.* to 2*s.* 6*d.*

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0	Narcis., white, 12 bun.	2 0	6 0
Anemone, 12 bun.	1 0	3 0	— double, 12 bun.	4 0	6 0
Arum Lilies, 12 blooms	2 0	4 0	Pansies, 12 bun.	1 0	3 0
Azaleas, 12 sprays	0 6	1 0	Pæonies, bun.	0 4	0 8
Blue Bells, 12 bun.	0 9	1 6	Pelargoniums, 12 spr.	0 6	1 0
Bouvardias, per bun.	0 6	0 9	— scarlet, 12 spr.	0 4	0 6
Camellias, white, 12 blooms	2 0	4 0	Polyanthus, 12 bun.	2 0	4 0
Carnations, 12 blms.	1 0	2 0	Primulas, dbl., 12 sp.	1 0	1 6
Eucharis, per dozen	3 0	6 0	Ranunculus, 12 bun.	1 6	3 0
Gardenias, 12 blooms	1 0	4 0	Roses, Tea, per doz.	1 0	3 0
Heliotropes, 12 spr.	0 6	1 0	— coloured, dozen	2 0	4 0
Lilac, white Fr., bun.	3 0	5 0	— red, per dozen	2 0	6 0
Lily-of-Val., 12 spr.	0 6	1 0	— Safrano, dozen	1 0	2 0
— French, bunch	0 9	1 6	Spiræa, 12 bun.	6 0	8 0
Maiden Hair Fern, 12 bun.	4 0	9 0	Stephanotis, 12 spr.	2 0	4 0
Marguerites, 12 bun.	3 0	6 0	Tuberoses, 12 blms.	1 0	2 0
Mignonette, 12 bun.	3 0	6 0	Tulips, 12 bun.	3 0	4 0
			Wallflowers, 12 bun.	2 0	4 0

SEEDS.

LONDON: *May* 29.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that the seed market to-day, as usual at this season, was very thinly attended, with an almost complete absence of business. Clover seeds, of course, just now meet with no attention whatever. For Mustard and Rape seed there is an improved inquiry; stocks of both kinds are in moderate compass. The demand for bird seeds is small. Of fine blue Peas there are not many now left. Some choice wrinkled Peas harvested last January have just arrived from New Zealand, which, being both good and cheap, meet with attention.

FRUITS AND VEGETABLES.

STRATFORD: *May* 28.—Both trade and supply have been good during the past week:—Cabbages, 4*s.* to 4*s.* 6*d.* per tally; Cauliflowers, 1*s.* 3*d.* to 1*s.* 6*d.* per dozen; Turnips, 8*s.* per dozen bunches; Carrots, household, 26*s.* to 31*s.* per ton; do., cattle feeding, 16*s.* to 19*s.* do.; Mangels, 13*s.* to 15*s.* do.; Swedes, 15*s.* to 20*s.* do.; Onions, Dutch, 4*s.* to 4*s.* 6*d.* per bag; Mint, 3*s.* per dozen bunches; Cress, 1*s.* 6*d.* per dozen baskets; Carrots, 3*s.* per dozen bunches; Onions, 2*s.* 6*d.* to 3*s.* 6*d.* do.; Cucumbers, 3*s.* to 5*s.* per dozen; Radishes, 9*d.* to 1*s.* per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: *May* 28.—Middling samples very dull of sale, and prices in favour of buyers. Good samples about steady. Scotch Regents, 80*s.* to 125*s.*; English, 60*s.* to 105*s.*; Magnum Bonums, 65*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.*; other varieties, 60*s.* to 80*s.* per ton.

SPITALFIELDS: *May* 29.—Quotations:—New: Jersey, 15*s.* per cwt.; Lisbon, rounds, 9*s.* to 10*s.* do. Old: Early Rose, 50*s.* to 60*s.*; Hebrons, 50*s.* to 60*s.*; Imperators, 70*s.* to 90*s.*; Champions, 65*s.* to 70*s.*; Regents, 99*s.* to 140*s.*; Magnums, 60*s.* to 70*s.* per ton.

STRATFORD: *May* 28.—Quotations:—Scotch Regents, 80*s.* to 100*s.*; do. Magnums, 70*s.* to 103*s.*; light English Magnums, 60*s.* to 90*s.*; dark do., 50*s.* to 60*s.* per ton. New: Lisbons, 7*s.* 6*d.*; do. Maltese, 5*s.* to 9*s.*; do. Jersey, 16*s.* to 20*s.* per cwt.

NOTICES TO CORRESPONDENTS.

INTELLIGENT READERS, *do* PLEASE NOTE *that letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the* PUBLISHER, and not to the Editor. All communications intended for publication, as well as specimens and plants for naming, should be addressed to the EDITOR. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

ANTS IN HOUSE AND LAWN: *A Constant Reader.* Put petroleum or carbolic acid into their haunts. In some positions the ants may be drowned out of their nest with water, hot or cold. In the cupboard a soup-plate half-full of treacle will catch many of them.

CONCRETE WALK: *Constant Reader.* After the ground on which the walk is intended to be made is levelled, let it be covered to the depth of 4 inches with stones broken small and well rammed, and above this let there be run 1½ inch of one part, by measure, of Portland cement and two of coarse sand and fine gravel mixed to a thin consistency with water. Before this coating has become dry, cover it with a layer of ½ an inch of Portland cement mixed with an equal quantity of fine clean sand.

DIPLADENIAS: *F. M.* It is not usual for these plants to form seeds unless artificially fertilised. If different species are grown by you, or in your immediate neighbourhood, hybridisation may have taken place, and variety of colour in the flower may be looked for in the seedlings.

DISEASED NARCISSUS BULBS: *C. W. D.* The bulbs (common double Daffodil) are attacked by a parasitic fungus new to Britain, viz., Puccinia Schroeteri, a close ally of the fungus of Hollyhocks. A fuller account will be given next week. *W. G. S.*

ELM: *J. C.* We think it is merely a form of the common English Elm, U. campestris.

"GARDENERS' CHRONICLE:" *G. B.* The price was reduced to 3*d.* on January 1, 1887.

GLOXINIA: *Ernst Benary.* The Gloxinia Defiance sent by you is, as you say, deep velvety-scarlet. The habit appears to be good, as it is not of the heavy type which cause the flowers to fall so soon. The almost white ribs of the leaves give a pleasing effect to the foliage. It is satisfactory to learn that it comes true from seed.

GREEN-FLY ON CARNATIONS IN POTS: *Nemo.* Make a solution of tobacco-water and a little soft-soap, putting 1 part tobacco-water to 16 parts soft-water, and soft-soap at the rate of 2 oz. to the gallon of the mixture. Dip or syringe the plants several days in succession.

INSECT ON RASPBERRIES: *S. C.* The clay-coloured weevil, Otiorhynchus picipes. It is partial to the Raspberry, Strawberry, Gooseberry, vegetables, &c. To catch them is difficult, as they are very alert. One way is to spread a white cloth alongside the row of Raspberry canes, doing this late in the afternoon, and by going at night and suddenly turning on the light of a lantern, the creatures are alarmed and drop on to the cloth, when they must be at once collected. Boards or trays smeared with tar may be used instead of cloth.

LAWN-MOWING, AND LEAVING THE GRASS ON THE LAWN: *X.* In our climate there is not much gained by leaving the cut Grass on the sward. In America, whence we got the idea, the summer is intensely warm, and if the Grass is cut short, and the clippings cleared away, no regular watering of the lawn being practised, the grasses die out, the roots getting killed by the hot sunshine. It is not a cleanly mode of keeping a lawn in order, and is unnecessary here, if a winter dressing of finely-sifted loam, wood-ashes, and burnt earth, or, failing that, leaf-mould, or stable dung, be strewn over the lawn in winter.

MUSHROOMS: *D. B.* These inverted Mushrooms are not uncommon. Yours did not exhibit any unusual feature.

MUSHROOM TWIN: *J. S.* (*Staffs.*). Such cases are not uncommon, and are caused by the coherence of two Mushrooms in a young state.

MUSHROOMS: *Mycelium.* The manufactured spawn bricks could be got from this country and France, and would travel well in all temperate climates—at least during the winter season; and provided a temperature not higher than 60° could be obtained, Mushrooms could be grown.

NAMES OF PLANTS: *W. E. G.* Cratægus melano carpa.—*J. M. G.* 1, Viburnum Lantana; 2, Polemonium cœruleum; 3, Colutea arborescens; 4, Sedum latifolium.—*C. W. K.* The Odontoglossum is a poor form of triumphans; the Oncid was past identification. Send better flowers and bulb with leaf.—*W. Hopkins.* 1, Eugenia Ugni; 2, Helianthemum or Cistus, probably—send again when in flower; 3, Convallaria majalis var. prolificans. This plant did not come from the white single species, as you suppose, but it was too young to flower before this year.—*J. J. W.* 1, Caltha palustris flore-pleno; 2, Geranium sylvaticum.—*George Nottage.* Pholidota articulata.—*J. H. Ross.* Vanda parviflora.—*G. A., Ventnor.* 2, Euphorbia mammillaris; 3, Aloe, probably saponaria; 4, Cereus Mallisoni.—*J. C.* Prunus Padus and Cerasus Padus are synonymous. 1, Cratægus tanacetifolia; 2, C. crus galli; 3, Mespilus germanica.—*G. D. L.* 2, Cratægus coccinea; 3, Weigela rosea; 4, W. rosea var.; 5, Salix triandra; 7, Berberis; 8, Cornus sanguinea. Others next week.—*Nemo.* Lycium barbarum.—*R. P. C.* 1, Polygala vulgaris (blue form); 2, Salvia pratensis; 3, Ornithopus perpusillus; 4, Polygala vulgaris (red form); 5, Luzula campestris; 6, Aira præcox.—*E. M. P.* 1, Valeriana officinalis; 2, Trollius europæus; 3, Geranium sanguineum; 4, Spiræa Thunbergi.—*C. K.* The Banksia Rose.—*E. H. C.* Globularia alypum.—*B. L. A.* should address such questions to the editor. The plant is Colchicum autumnale, dangerous to stock.—*W. T.* Smilax aspera.—*W. X.* 1, Cactus Ackermannii; 2, Cereus flagelliformis; 3, Sedum (next week); 4, Crinum longifolium; 5, Saxifraga granulata flore-pleno.

NEW TRIPLEX WATER DISTRIBUTOR: *Jarvis & Co.* Until we can see this invention in motion we are incompetent to say anything about it. Where can it be seen?

ORCHARD-HOUSE FRUIT SHRIVELLING: *Amateur Gardener.* It was probably due to the fumigation being done when fruits were in a very tender state, as would be the case about one month ago.

ORNITHOGALUM ARABICUM: *Old Subscriber.* Greenhouse treatment, or even a cold frame. Keep dry in winter.

PEACH LEAVES: *J. M.* The work of some insect, probably a weevil. Watch at night.

PYRETHRUM: *H. F.* The creature, whatever it was, had escaped.

RUSTY GRAPES: *H. McD.* Rusting may be due to excess of sulphur on the hot-water pipes, but commonly to allowing an inrush of cold air whilst the berries are wet and of high temperature.

STRAWBERRIES: *J. H. J.* The Captain forces very well, and Laxton's Noble may also force as well. Much will depend on the kind of soil employed in the potting, and how the plants are managed. Give a few plants of each a trial before beginning to force in quantity. Strawberries, like other plants, behave differently in different localities.

CATALOGUES RECEIVED.

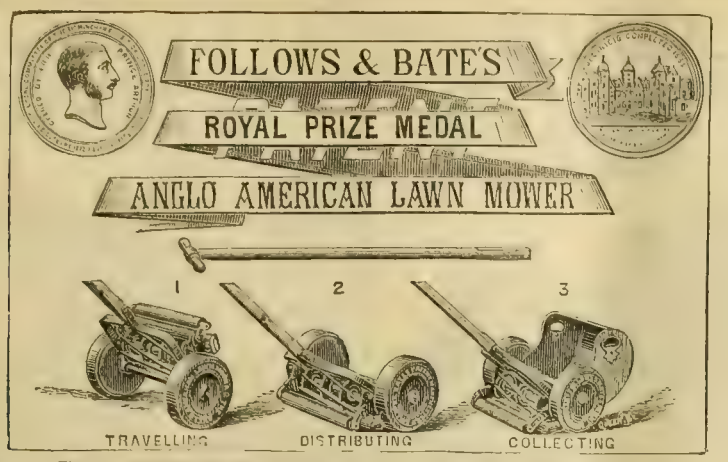
E. H. KRELAGE & SON, Kleinen Houtweg, Haarlem, Holland—Darwin Tulips.

W. LOVEL & SON, Driffield, Yorkshire—Strawberry Plants.

JOHN PEED & SONS, Roupell Park Nurseries, Norwood Road, S.E.—Sundries.

COMMUNICATIONS RECEIVED.—A. H. K.—A. C. B.—W. T. (next week).—"Liverpool for Ever," and plenty of Board Schools. [ED.].—E. R. C.—W. T. T. D.—W. Braunschweig.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquiries in the current week.*



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They have been supplied to :—
Her Most Gracious Majesty the Queen, His Royal Highness the Prince of Wales, K.G., H.I.M. the Emperor of Austria, the Imperial Russian Government, and numbers of the Nobility and Gentry of Great Britain and the Continent.

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10 inches, **56s.**; 12 inches, **75s.**; 14 inches, **90s.**; 16 inches, **105s.**, and larger sizes.

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COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for **25s.**; truck (loose, about 2 tons), **40s.**; 4-bushel bags, **4d.** each.
LIGHT BROWN FIBROUS PEAT, **5s. 6d.** per sack; 5 sacks, **25s.**; sacks, **4d.** each.
BLACK FIBROUS PEAT, **5s.** per sack, 5 sacks, **22s.**; sacks, **4d.** each.
COARSE SILVER SAND, **1s. 9d.** per bushel; **15s.** per half ton; **26s.** per ton, in 2-bushel bags, **4d.** each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, **1s.** per bushel.
SPHAGNUM MOSS, **8s. 6d.** per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Price LIST.—**H. G. SMYTH**, F.R.H.S., 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

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EPPS & CO., Ringwood, Hants.

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1 lb. Tin, **9d.** By Parcel Post, **1s.**
2 lb. Tin, **1s. 6d.** Do. **1s. 10d.**
28 lb., **5s.**; 56 lb., **10s.**, Free to Carriers.

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Liquid Non-Poisonous Paints for Inside of Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

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A highly-concentrated Fertiliser, consisting chiefly of human excrement and blood, which has the following recommendations :—
It is moderate in price.
It is safe to use.
It is not a chemical manure.
It is profitable to the user.
It is clean to handle.
It has high fertilising properties.
It contains no needless matter.

Price :—	7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
	2s.	3s. 6d.	5s. 6d.	9s.	14s.

And in **6d.** and **1s.** packets.

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SILVER SAND, coarse, **1s. 6d.** per bush., **14s.** half-ton, **24s.** ton.					
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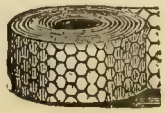
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1½	6 0	9 0	12 0	18 0
1	8 0	12 0	16 0	24 0



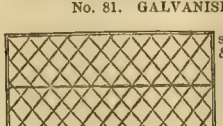
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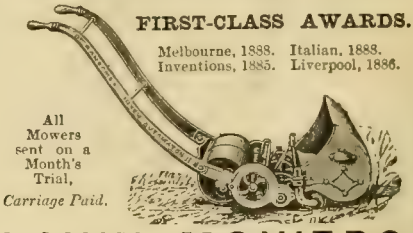
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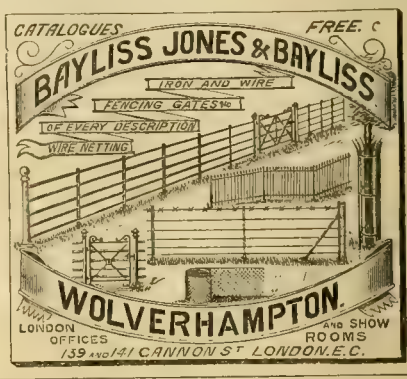
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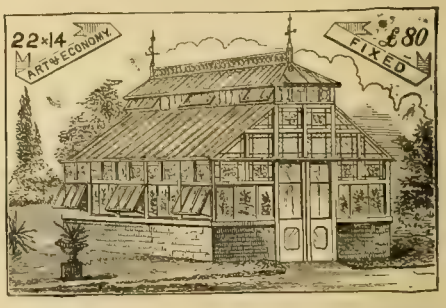
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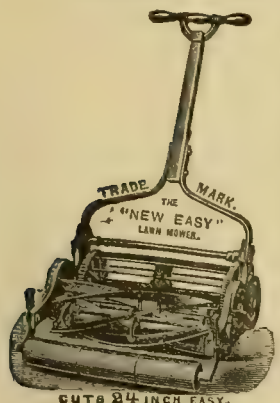
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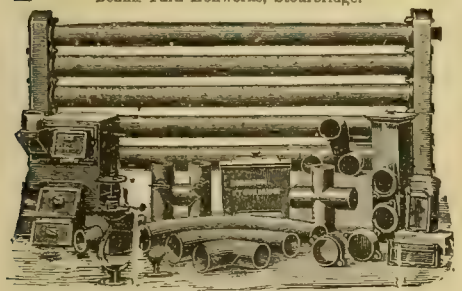
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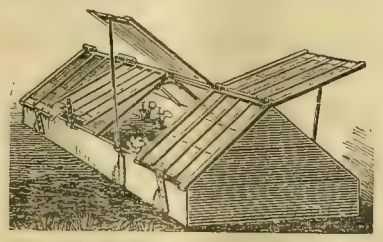


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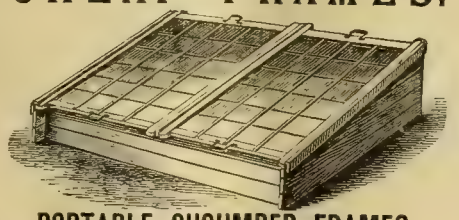
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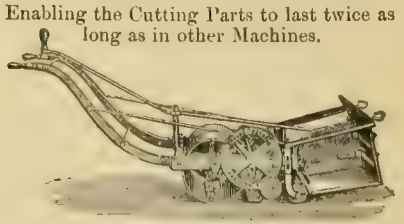
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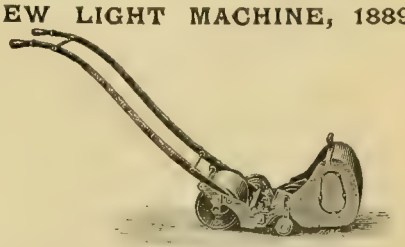
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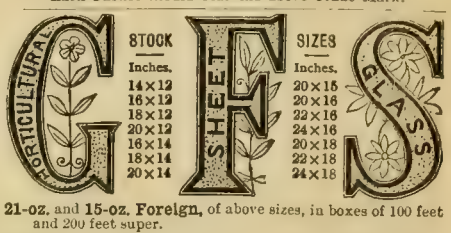
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To Nurserymen.

JOURNEYMAN, or IMPROVER, in the Houses.—Age 19; strong, active, willing; accustomed to the Propagation and Growth of Soft-wooded Plants, Watering, &c. Excellent character.—A. B., Park Nursery, Wartling, Hastings.

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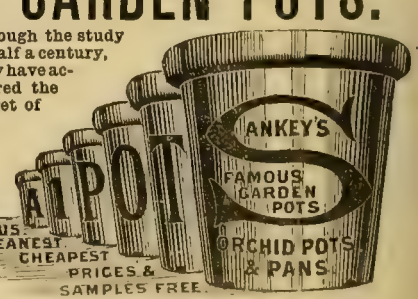


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MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 19, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS FOR THIS SALE will please SEND LISTS NOT LATER THAN THURSDAY NEXT.

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Tuesday, June 25.
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MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be GLAD TO RECEIVE NOTICE OF ENTRIES as SOON AS POSSIBLE.

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SEED CATALOGUE of the finest new and the most reliable old varieties of Vegetables or Flowers, free for 1 stamp.
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NEW TEA ROSE "Souvenir de S. A. Prince."—A pure white sport from Souvenir d'un Ami. This is undoubtedly the finest white Tea Rose that has been offered to the public of late years. It has all the good qualities of Souvenir d'un Ami, in addition to which it is of more robust habit, the foliage being of a dark glossy green. As an exhibition variety Souvenir de S. A. Prince will supersede Niphetos, it always being of good shape, and not having the latter's bad tendency of opening quartered and green centred. Splendid grafted plants now ready. Price 10*s.* 6*d.* each. Usual discount to the Trade. Three First-class Certificates.
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ROSES IN POTS. The finest Hybrid, Perpetual, Tea-scented, and other varieties, from 15*s.* to 42*s.* per dozen.
Catalogue of new varieties on application.
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"GEMS"—"GEMS"—"GEMS"
of Choice Stove Plants.
OCHNA MULTIFLORA—a plant covering itself with fruit and flowers, the latter bright yellow and fragrant; when they fall the calyx grows to a strawberry red, fleshy receptacle, on which form green seeds; when they are mature, they colour to a rich, dark plum, and make a lovely contrast with the bright red receptacle. 2*s.* 6*d.* and 3*s.* 6*d.* each.
OXERA PULCHELLA — produces dense clusters, 8 to 10 inches across, of pure white, funnel-shaped flowers, each about 2 inches long and 1 inch across. Flowers in mid-winter, and lasts a long time in perfection, very graceful and beautiful. 5*s.*
SCHUBERTIA GRANDIFLORA—flowers white with delightful, almond-like fragrance, produced in large trusses, similar to Stephanotis. Excellent for cutting. 2*s.* 6*d.* and 3*s.* 6*d.*
STEPHANOTIS FLORIBUNDA—the finest variety in cultivation, blooming freely and well both winter and summer, and it blooms in a lower temperature than any other variety we know. We have plants of moderate size with hundred of trusses on. Plants at 1*s.*, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.*, and fine specimens, 21*s.*, 31*s.* 6*d.*, and 42*s.* each.
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CATALOGUES of these and all you want for a Garden, free by post from
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Seed Catalogue, full of useful information.
Plant Catalogue of hardy, free-flowering, beautiful perennials for flower borders, and as cut flowers.
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ROSES—CLEMATIS—ROSES—all in pots, can be sent and planted any time; the finest named sorts. See Catalogue, with colours, descriptions, prices of these, and all you want for a Garden, free for 3 stamps. 12 fine TEA and NOISETTE ROSES, 15*s.*; 12 Hybrid Perpetual ROSES, 12*s.*; 12 Extra-sized Tea and Noisettes to force now, 30*s.*; for Arbours, Pillars, Walls, &c.
3 CLEMATIS, in 3 distinct colours, 3*s.* 6*d.*; 6 CLEMATIS, in 3 distinct colours, 6*s.*; 12 CLEMATIS, in 3 distinct colours, 10*s.* 6*d.*
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PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey, and Flower Market, Covent Garden, W.C.

16 VARIETIES of STRAWBERRIES, which R. Gilbert considers the cream. They include all the modern varieties, but the good old Standards are not forgotten. In pots for forcing, and ordinary hand layers.
Send for R. G.'s STRAWBERRY LIST, where all are described and priced, with Hints upon Culture. Warranted true to name.
R. GILBERT, High Park, Stamford.

AN ACRE of PYRETHRUMS, POTENTILLAS, PÆONIES, PHLOXES, PENTSTEMONS, PANSIES, VIOLAS, propagated from cuttings or divisions from the finest-named sorts gathered from all raisers, not inferior seedlings. See CATALOGUE of these and all you want for a garden, out or inside, free for 3 stamps.
Undernamed, all in 12 sorts:
12 Pyrethrums, 4*s.*; 12 Potentillas, 5*s.*; 12 Phloxes, 3*s.* 6*d.*; 12 Pentstemons, 3*s.* 6*d.*; 12 Pansies, either Show or Fancy, 3*s.*; 12 Violas, 2*s.* 6*d.*; 12 Pæonies, 9*s.*; 12 Hollyhocks, seedlings, from five named sorts, 4*s.*; Delphiniums, seedlings, from fine named sorts, 4*s.*
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CUT FLOWERS, BULBS, PLANTS, &c.—Best class of customers in district for good flowers.
Sales, WEDNESDAY and FRIDAY Night all the year round. Daily, when required. Largest and most centrally situated Horticultural Sale Rooms in Birmingham.—POPE AND SONS, 6, Phillip's Street (close to Market Hall), Birmingham.

ALTERNANTHERA PARYONCHOIDES and AMŒNA MAGNIFICA, fine stuff, 5*s.* per 100. Cash only.—G. PHIPPEN, F.R.H.S., Reading.

A WELL-STOCKED GREENHOUSE.—ABUTILONS, all the best and newest; 12 fine sorts, 3*s.* 6*d.*
BEGONIAS (evergreen class), fine for summer or winter; 6 fine sorts, 1*s.* 9*d.*
HELIOTROPES (Cherry Pie), fragrant and free bloomers, best new and old sorts; 12 for 2*s.* 6*d.*
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PRIMULAS—PRIMULAS—PRIMULAS.—Twentieth year of distribution. Williams' Superb Strain, 1*s.* 6*d.* per dozen, 10*s.* per 100. CINERARIAS, same price; also double white PRIMULAS, 6*d.* each. Carriage free for cash with order.—JOHN STEVENS, The Nurseries, Coventry.

RAILWAY RATES.—The objections to the classifications and rates issued by the London Trunk Lines have been lodged with the Board of Trade, and the contest with the various companies has commenced. A Guarantee Fund to meet the expenses of the contest has been opened, and the list of Guarantors appears below. As the question affects every Seedsman, Nurseryman, and Florist in the Kingdom, it is hoped that each one will join the Fund, not necessarily because a large amount of money is required to carry on the contest, but *in order that the amount to be paid by each shall be as small as possible*. The Secretary will be glad to receive names at once, which will be duly announced in these columns from time to time.

F. C. GOODCHILD, Secretary.

The Nursery and Seed Trade Association (Limited),
25, Old Jewry, London, E.C.

HURST AND SON, London	£50	0	0
H. J. VEITCH AND SONS, London	50	0	0
RICHARD SMITH AND CO., Worcester	10	10	0
J. R. PEARSON AND SONS, Chilwell...	10	10	0
GEO. BUNYARD AND CO., Maidstone	5	5	0
J. CHEAL AND SON, Crawley	5	5	0
W. PAUL AND SONS, Waltham Cross	5	5	0
J. LAING AND SONS, Forest Hill	5	5	0
THOS. RIVERS AND SON, Sawbridgeworth ...	5	5	0
J. JEFFRIES AND SON, Cirencester	5	5	0
KEYNES, WILLIAMS AND CO , Salisbury	5	5	0
THOS. PERKINS AND SONS, Northampton... ...	5	5	0
ROBT. SYDENHAM, Birmingham	5	0	0
W. J. MYATT, Swanley	3	3	0
J. GOUGH, Harefield Grove Gardens, Uxbridge ...	2	2	0
W. B. SMALE, Torquay	1	1	0
CLIBRAN AND SON, Manchester	1	1	0
MARSHALL BROS. AND CO., Barnham, Sussex ...	1	0	0

TESTIMONIAL TO MR. ARTHUR BLICK,

OF THE LATE

ROYAL HORTICULTURAL GARDENS,

SOUTH KENSINGTON.

It has been proposed by several Gentlemen that the present time is a fitting opportunity for the large body of Nurserymen, Gardeners, and others, who have been in the habit of exhibiting at the Royal Horticultural Society's Shows for many years past, to make some little recognition of the services of Mr. Blick, who for the past 28 years has been employed at the Royal Horticultural Gardens, South Kensington, and who has now, owing to the collapse of the Gardens at South Kensington, been thrown out of a situation on the shady side of his life. The following Gentlemen have kindly consented to form a Committee to carry out the above proposal, viz. :—

Mr. W. BULL	...	King's Road, Chelsea.
Messrs. CARTER & Co.	...	High Holborn.
Messrs. W. PAUL & SON	...	Waltham Cross.
Mr. H. TURNER		Slough.
Mr. JOHN WILLS		South Kensington.
Mr. F. SANDER		St. Albans.
Mr. F. Q. LANE		Great Berkhampstead.
Mr. H. HERBST		Richmond.
Mr. H. HAWKINS		Twickenham.

The Smallest Subscription will be thankfully received by Mr. J. ALDOUS, Florist, Gloucester Road, S.W. *(Hon. Treasurer)*; or Mr. S. M. SEGAR, Royal Exotic Nursery, South Kensington *(Hon. Secretary)*.

N.B. Subscriptions limited to One Guinea.

List of Subscriptions received :—

Mr. F. SANDER, St. Albans	£1	1	0
Mr. W. ICETON, Putney	1	1	0
Mr. SCHNEIDER, King's Road, Chelsea	0	5	0
Mr. A. F. BARRON, Chiswick	1	1	0
Mr. B. S. WILLIAMS, Holloway	0	10	0
Messrs. PULHAM AND SONS, Broxbourne	1	1	0
Mr. BANNISTER, Brompton Road	0	2	6
Messrs. SUTTON AND SONS, Reading	1	1	0
Mr. G. DEAL, Chelsea	1	1	0
Messrs. HAWKINS AND BENNETT, Twickenham...	1	1	0
Mr. H. HERBST, Kew	1	1	0
Messrs. W. PAUL AND SONS, Waltham Cross ...	1	1	0
Messrs. J. VEITCH AND SONS, Chelsea	1	1	0
Mr. JOHN UNITE, Edgware Road	0	10	6
Messrs. THOMAS AND SON, Edgware Road... ...	0	10	6
Messrs. CARTER AND CO., Holborn	1	1	0
Mr. ALDOUS, Gloucester Road	1	1	0
Mr. JOHN WILLS, South Kensington	1	1	0
Mr. W. BULL, Chelsea	1	1	0
Mr. S. M. SEGAR, South Kensington	1	1	0
Mr. HOGG	0	10	6
Mr. ALLOWAY	1	1	0
Mr. HANKIN	0	10	6
Mr. HUMBY..	1	1	0
Mr. HOWARD, Southgate	0	10	6
A FRIEND	1	0	0
Mr. HONEY	0	10	6
Mr. SPIKINGS	0	10	6
Mr. BARBE	0	10	6
Mr. A. WATERER, Woking	1	1	0
Messrs. KELWAY AND SON, Langport	1	1	0
Mr. W. RICHARDS, 41, Wellington Street, Strand	0	10	6
Mr. C. ROSS	0	5	0
Mr. BLISSETT	0	10	6

☞ Intending Subscribers are requested to kindly send in their Names at once, as it is proposed to shortly close the list.

CHOICE SUCCULENTS, FOR CARPET BEDDING.

ECHEVERIA METALLICA, ECHEVERIA AGAVOIDES, 9*s*. to 12*s*. per dozen. ECHEVERIA CUSPIDATA, 4*s*. per dozen.

PACHYPHYTUM BRACTEOSUM, 5*s*. per dozen.

SEMPERVIVUM TABULÆFORME, 6*s*. and 9*s*. per dozen.

KLEINIA REPENS, 3*s*. per dozen.

CATALOGUE of these and other varieties, and all you want for a garden, free by post, from

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham, 10 and 12, Market Street, Manchester.

20,000 CARNATIONS, PICOTEES, PINKS.—All true from layers; grand double well-marked flowers (not seedlings), splendidly rooted, named, for exhibition or borders. All the good varieties of the most noted raisers.

12 fine sorts, CARNATIONS, 6*s*.; 12 PICOTEES, 6*s*.; 12 PINKS, 3*s*. 6*d*.; 6 of each, 8*s*. 3*d*. Fine Border Carnations, 4*s*. per dozen. See new CATALOGUE of these and all wanted for a garden, free for 3 stamps.

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SAMUEL SHEPPERSON, FLORIST, Prospect House, Belper, Derbyshire, begs to offer the following, of which he has made a specialty for the last 25 years :—

PRIMULAS—PRIMULAS.—Grand premier prize and Covent Garden strains of the finest new colours, as pure white, carmine, rose-salmon, crimson, spotted, purple, &c. Fine large trusses, and beautifully fringed flowers. Strong Plants to bloom well, 1*s*. 6*d*. per doz.; 4 doz., 5*s*.; 100, 9*s*.; very extra strong, 2*s*. per doz.; 4 doz., 7*s*.; 8 doz., 12*s*. All carriage free.

CYCLAMENS — CYCLAMENS (GIGANTEUM). — Same grand strain that I have sent out for the last 25 years, but with all the latest improvements in colour, size, form, and habit. Five-year-old Plants for potting on, 2*s*. per doz.; 4 doz., 7*s*.; 100, 12*s*. All carriage free.

S. SHEPPERSON, Florist, Belper.

BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Tubers, Named Singles, from 12*s*. to 42*s*. per doz.; Unnamed Seedlings, 12*s*. to 21*s*. per doz.; Bedding, choicest, 6*s*. and 9*s*. per doz.; choicest Named Doubles, from 42*s*. per doz.; Unnamed, very choice, 24*s*. and 30*s*. per doz.; choicest Mixed, 18*s*. per doz. Order direct from us, to procure our splendid strain. CATALOGUES gratis.

JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

GERANIUMS — PELARGONIUMS — GERANIUMS.—All the finest sorts, from English and Continental raisers, for Pot Culture for Summer or Winter, bought in every spring, tried and inferior kinds discarded. 12 fine Single Zonals, 4*s*.; 12 fine Doubles, 4*s*.; 12 beautiful Ivy-leaf varieties, 4*s*.

PELARGONIUMS, the finest flowers, best habits, most robust growers, 12 fine varieties, 6*s*.; 12 large Plants, 9*s*. or 12*s*. All you want for a Garden may be selected from our new CATALOGUE, free for 3 stamps.

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W. GORDON, Importer of ORCHIDS.

AN IMMENSE STOCK of recently imported plants compels a SALE of the ESTABLISHED PLANTS to make room. They have not yet flowered, but are all flowering plants, and must be sold at a GREAT SACRIFICE. Very valuable varieties are certainly to be obtained, and great bargains. See Public Journals for high prices recently obtained. The SPECIAL OFFER affords a PAYING INVESTMENT to anyone with glass at command, which should not be overlooked. Such plants may never again be offered to the Public and Trade. GOOD ESTABLISHED PLANTS :—

25 in 25 species and varieties	£3	3	0
50 in 50 ,, ,, ...	5	5	0
100 in 100 ,, ,, ...	10	10	0

CATALOGUE of the above large stock held on application to W. GORDON.

The Nurseries, Amyand Park Road, Twickenham, Middlesex.

DAFFODILS.—HARTLAND'S famous Bulbs, grown within 10 miles of the sea, soil limestone, 3 feet in depth, resting on gravel.

Prices very moderate, Bulbs magnificent, and being lifted now. Delivery, July and early August, a good month in advance of the Dutch deliveries. Write for quotation.

WM. BAYLOR HARTLAND, Old Established Seed Warehouse, 24, Patrick Street, Cork.

STOVE PLANTS, GREENHOUSE PLANTS, such as ALLAMANDAS, STEPHANOTIS, BOUGAINVILLEAS, CLERODENDRONS, and other fine CLIMBERS.

CROTONS, DRACÆNAS, and other fine foliage varieties; IXORAS, HIBISCUS, POINSETTIAS, and other flowering bush-habited plants, in finest varieties, clean, healthy, all named; 12 distinct kinds, 12*s*., 18*s*., 30*s*. per dozen.

Attention is specially asked to the very fine and rare OCHNA MULTIFLORA, OXERA PULCHELLA, SCHUBERTIA GRANDIFLORA. For Prices and Descriptions see new CATALOGUE.

GREENHOUSE PLANTS, equally well selected, good and healthy; 12 sorts, 9*s*., 12*s*., 18*s*., half at half-price. New CATALOGUE of these and all you want for a garden free for 3 stamps.

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80,000 CLEMATIS, in Pots, of all the finest Double and Single Varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12*s*. to 24*s*. per dozen, strong plants; extra strong plants, repotted into 5½-inch pots, 2*s* 6*d*. each; Beauty of Worcester, a magnificent purple, excellent for bedding, recently sent out by us, reduced price 2*s*. 6*d*. each. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

LILY OF THE VALLEY.
First-class German flowering Crowns.
Any quantity.
H. DAMMANN, Jun.,
Breslau.

FUCHSIAS, TUBEROUS BEGONIAS.—10,000 FUCHSIAS, just the cream of all the Fuchsia family in flower, habit, and freedom; 12 lovely sorts, 3*s*. 6*d*.; 25 sorts, 6*s*. 6*d*.; 50 sorts, 12*s*. 6*d*.

TUBEROUS BEGONIAS.—We have so improved the quality of our seedlings that we discarded last season all the named singles, the seedlings being much finer; 12, all different shades, large flowers, dwarf habit, 4*s*.; 12 finer, 6*s*.; 12 lovely double varieties—all these are named sorts, 21*s*.

New CATALOGUE of these and all other plants for 3 stamps.

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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUBILEE YEAR.

To celebrate the 50th year of this Institution the Committee will place on the Pension List the whole of the Unsuccessful Candidates at the late Election, Seventeen in number, upon the express understanding that the sum of

£3000

be realised, in order to provide for the great Extra Annual Expense thus entailed, without trenching on the Reserved Funds.

JUBILEE FESTIVAL

AT

The "ALBION," Aldersgate Street,

JUNE 13, 1889,

LEOPOLD DE ROTHSCHILD, Esq., in the Chair.

Received since last week :—

ALBERT LEVY, Esq., Sackville Street	£2	2	0
Mr. W. GREEN, Harold's Court, Romford	1	1	0
R. G. BENNETT, Esq., Woking	1	1	0
Mr. ARMSTRONG, Gardener, Harlesden	0	5	0
Mr. ROSS, Welford Gardens, Newbury	0	11	0
Mr. HARRIS, Langton Gardens, Blandford	0	4	0
Mr. PYPER, Somerton Erleigh Gardens	0	10	6
Mr. HUGHES, Edenhurst Gardens, Sevenoaks ...	0	10	0
Mr. CLARK, Stone Hall Gardens, Winchmore Hill .	0	5	0
Mr. WILSON, Uffington Gardens, Stamford ...	2	2	0
Mr. SUMMERS, Sandbeck Gardens, Rotherham ...	1	12	0
Mr. ANDERSON, Streatham Grove Gardens ...	1	1	0
The Hon. R. MELVILLE, Roehampton	10	10	0
Mr. LITTLE, Gardener, Spring Lane, Clapton ...	1	1	0
Mr. JOLLIFFE, Portesham Gardens, Dorchester ...	0	5	0
Mr. DALLIMORE, Foxe Hill Gardens, Frodsham ...	1	1	0
Mr. CRANMER, Kelvedon	0	10	0
Mr. DANIELLS, Slindon, Arundel	0	10	0
Mr. KENT, Tyttenhanger Gardens, St. Albans ...	9	17	0
Mr. PERKINS, Thornham Gardens, Eye	5	16	0
Lord CREWE	2	2	0
J. C. GEISELBRECHT, Esq., Leadenhall Street ...	10	0	0
LEVI COHEN, Esq., 54, Queen's Gate	5	0	0
A. WERTHEIMER, Esq., 8, Connaught Place ...	3	3	0
THOS. WOODWARD, Esq., Wandsworth Road ...	5	5	0
G. W. WILLIAMS, Esq., Piggott's Manor, Elstree .	10	10	0
Mr. MORRIS, Glen Avon Gardens, Taibach ...	0	10	0
Mr. WORTHINGTON, Ashdown Gardens, near Leeds	0	5	0
Mr. RABBITT, The Hazell's Gardens, Sandy ...	0	13	0
F. D. PAWLE, Esq., Canfield Gardens, South Hampstead	1	1	0
Lady ANTHONY ROTHSCHILD, 19, Grosvenor Place	10	0	0
J. SMITHERS, Esq., Royal Exchange	10	10	0
L. B. COHEN, Esq., 44, Sussex Gardens	5	5	0
Offertory at Stoke Edith Church, Hereford, Sunday, June 2	1	5	4
CYRIL FLOWER, Esq., M.P., 7, Hyde Park Place .	10	10	0
Mr. MOORE, Blendon Hall Gardens, Bexley ...	5	5	0
Mr. LOCKYER, Shipbourne Gardens, Tunbridge Wells	0	18	0
Mr. FOX, Holker Gardens, Cark-in-Cartmell ...	1	1	0
Mr. GRAY, Normanton Gardens, Stamford	1	1	0
Mr. WARD, Longford Gardens, Salisbury	0	10	0
Mr. STILL, Mouse Hill Manor Gardens	0	5	0
Mr. CHURCHYARD, Melford Hall Gardens, Suffolk	10	10	0
Mr. ADAM, Bank Hall Gardens, Burnley	1	10	0
Mr. BURKE, Gardener, Chester	0	2	0
Mr. WEBBER, Dunster Castle Gardens, Somerset...	1	1	0
Do. do. (annual)	1	1	0
F. DAVIS, Esq., Park Crescent, N.W.	3	3	0
Mr. F. VAN VELSON, Overveen, Holland	2	2	0
H. HAMMOND SPENCER, Esq., Teignmouth ...	3	3	0
Mr. WALL, Birdingbury Gardens, Rugby	0	10	0
Mr. WHITE, Redlees Gardens, Isleworth	6	6	0
Mr. SANDERS, Halton Gardens, Tring	1	1	0
Mr. POTTER, Efford Gardens, Budehaven	10	10	0
Mr. PEARCEY, Twyford Gardens, Winchester ...	0	6	0
Mr. FENN, Bylaugh Gardens, East Dereham ...	1	0	0
Mr. SMITH, Papworth Gardens, St. Ives	1	12	6
Mr. WILMETT, Glenart Gardens, Arklow	5	17	6
Mr. BEDFORD, Straffard Gardens, Kildare	2	0	0
Mr. OWEN THOMAS, Chatsworth Gardens	1	1	0
Mr. EMERY, The Gardens, Shenstone, Lichfield (annual)	1	1	0

ORCHIDS.—Clean, well-grown plants, at low prices. Specimen Orchids a specialty. Price List free, JAMES CYPHER, Exotic Nurseries, Cheltenham.

FERNS—FERNS—SUCCULENT PLANTS.—Twelve lovely Greenhouse FERNS, good growers, fine habit for rooms or Greenhouses, 6s. or 9s.; small Ferns for planting in Rockeries, &c., indoors, for fancy pots for table, 4s. per dozen; 12 distinct Stove Ferns, the best sorts for general collection, 9s. and 12s.

SUCCULENT PLANTS.—Handsome, singular, fine for pot plants in carpet beds or for contrast with other Greenhouse Plants, 12 varieties, all named, 6s., 9s., 12s., 18s. CATALOGUE of sorts of these and all other plants free for 3 stamps.

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ORCHIDS!

Selection of the above, from Borneo, Manilla (Philipines), Bangkok, Java, Rangoon (Burmah), &c., to the extent of £5 and upwards, packed and shipped (at consignee's risk) on receipt of order with remittance. Address,

THE ORCHID NURSERY,

UPPER WILKIE ROAD, SINGAPORE.

Special care given in packing.

NEW VARIETIES ALWAYS ON HAND.

8 ACRES HERBACEOUS and HARDY PLANTS, true to name, not seedlings (which are generally inferior to the type). Send for a Catalogue of all you want for a garden, free for 3 stamps. It includes over 1000 varieties, selected during 15 years' careful study of this class of plant, and an annual buying in of all that seems good, and a weeding out of the poor kinds, with height, time of blooming, and other useful particulars.

12 Hardy HERBACEOUS PLANTS...	...	£0	4	0
50 ,, ,, ,, ...	...	0	14	0
100 ,, ,, ,, ...	...	1	5	0
500 ,, ,, ,, ...	...	5	5	0

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.



PRIZE MEDAL

LAWN GRASS SEED.

SPECIAL MIXTURES

For Lawns, Croquet and Tennis Greens, Cricket Grounds, Ornamental Parks, Cemeteries, &c.

We have pleasure in stating that we were awarded, at the Newcastle Exhibition, 1887, **THE ONLY SILVER MEDAL,** for the superior and genuine qualities of our Lawn Grass.

Our Special Mixture...	per lb., **1s.**;	per bush., **20s.**
Extra fine, suitable for Tennis Courts and Bowling Greens	,, **1s. 4d.**	,, **25s.**

WILLIAM FELL & CO.,

ROYAL SEED and NURSERY ESTABLISHMENT,

HEXHAM, NORTHUMBERLAND.

CALADIUMS, GLOXINIAS. — Lovely CALADIUMS of the finest sorts, splendid varieties, handsome foliage, clean, easily grown; 12 sorts, 6s., 9s., 12s. Gorgeous GLOXINIAS, rich colours, pretty foliage, lovely flowers; 12 for 6s., 9s., 12s. New CATALOGUE of these and all other plants, 130 large pages, free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

ROSES IN POTS;

all the best New and Old English and Foreign sorts, from **18s.** to **36s.** per dozen.

Descriptive List free on application.

RICHARD SMITH & CO.,

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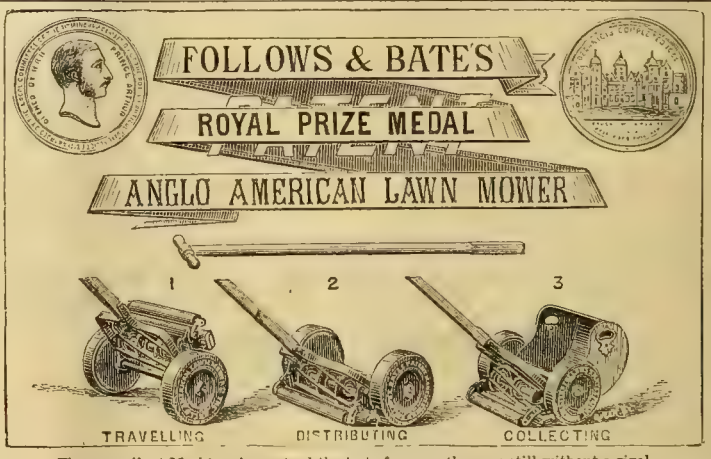
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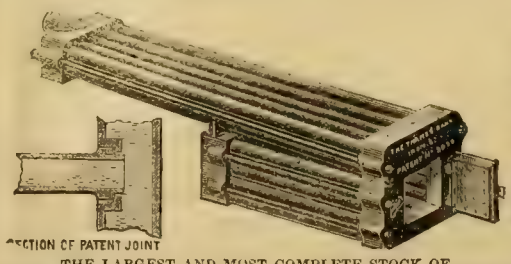
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VEGETATION ON THE LIME SOILS OF THE MEDITERRANEAN.

I BELIEVE that it is an acknowledged fact that a lime soil contains in abundance the mineral constituents required by most plants, and that with sunshine and water it may be considered a naturally fertile soil, even in the partial or total absence of manure, natural or artificial. Such is, undoubtedly, the case in the Mediterranean area, where most of the mountains and rocks—indeed, nearly all the principal geological formations—are formed by secondary limestones.

Throughout this region—the Genoese Riviera—on the islands, and on the shores of the Mediterranean, manure is very little used except in the vicinity of towns, for a very good reason: it is both rare and very expensive. Compared with the northern parts of Europe, there are very few cattle or domestic animals in the sparsely populated regions, and artificial manures may be said to be all but practically unknown. The peasantry live all but exclusively on corn or Maize flour, Beans, Chestnuts, farinaceous Dates, Olive oil, fruit and wine, consuming very little animal food, often none at all. In this all but vegetable diet they find all the elements of nutrition required both to produce heat and force, and to repair the wear and tear of the organic machinery, the body; carbon, nitrates, its mineral constituents, &c. These food habits, producing vigorous, strong, healthy organisations, prove that the theory that attributes the generation of heat and force in man wholly to nitrogenous food in the shape of animal substances is a mistake. Heat and force are principally generated from the carbon of the food, as in a railway engine; animal food does little else but repair the wear and tear of the machinery in

the body, and should not be taken in excess, as it generally is with the well-to-do.

In these southern regions, exposure to the atmosphere, and to the intense heat and light of the sun, seem to renovate the soil, to renew its vitality and fertility to a considerable extent, and to enable it (provided the supply of water be abundant) to reproduce the plants specially suited to lime soils. The requirements of such plants, however, are not very great, as evidenced by the history of the Ivy, which grows with vigour everywhere on old mortar of walls without soil; on these lime soils it is most luxuriant, and has repeatedly continued to grow with me on walls and rocks when the earth-roots had been completely severed. The large leaved African variety which I brought from Algeria, where I found it flourishing in the ravines in the sunshine, grows with marvellous vigour; in about eight years it entirely covered two sides of my old tower, 60 feet high, and I was obliged at last to destroy it, lest it should actually eat up the tower, the old mortar of which supplied it with sufficient nourishment to make it all but independent of its roots. I began by cutting it away up to the first story; but this sharp practice did not seem to make much difference, it went on living and flourishing as a parasite; so I ruthlessly, but to my very great regret, destroyed it entirely.

I do not mean to convey the idea that the value of manure is not fully recognised in the Mediterranean areas as a means of renovating exhausted soils, and of securing and increasing cereal or other crops; indeed, manure is preserved, both animal and human, as preciously as in China. Except in large towns, frequented by strangers, there are no wasteful water-closets, and all that comes from the soil is conscientiously returned to it. In that respect, with all our vaunted civilisation, we are really behind the Mediterranean and Chinese peasantry, although it must be acknowledged that their mode of dealing with this source of agricultural riches is objectionable to our fastidious tastes. The disinfection by earth as taught by Moses, and by Mr. Moule—a Chinese missionary, I believe—is still all but unknown with us, although generally practised in the Mediterranean area, in a way. The practical fact is, that I am growing a number of plants in my lime-soil on the Riviera with marvellous success without any manure at all, and that they seem to get on without it as well as the Ivy. This fact may throw some light on the traditional Mediterranean agriculture, showing, as it does, that heat, sunshine, and water do more there than they do in the north to prevent and repair soil exhaustion.

My garden consists of about 7 acres of rocks, precipices, terraces, all but overhanging the Mediterranean, fully exposed to the southern sun, and protected by high mountains from the north-east and north-west. There is very little vegetable soil of any kind, and what there is, is principally composed of the break-up of the limestone rocks, under the influence of the sun, of the spring and autumn tropical rains, and of atmospheric influences generally. Although heavy rains fall in the spring and autumn—some 25 inches, on an average, which is more than the average rainfall of Middlesex or Surrey, as it falls tropically—that is rapidly, in sheets, mostly for a few hours only at a time; and as it seldom rains at all from April until October, the climate, like that of Mexico, Australia, and the Cape, is a dry one. Water in such a locality is deficient, often absent. To remedy this deficiency, following the custom of the country, I have built for storage fourteen tanks or reservoirs. Moreover, I have bought for five hours a week, in summer, the privilege of using a permanent spring, which comes out of the rocks in a neighbouring ravine, and gives life to the village and territory of Grimaldi, in which I am located.

This spring belongs, during nine months of the year, by mediæval prescription, to the owners of some olive mills, where the peasant proprietors have their olives crushed and the oil extracted. During the three summer months, July, August, and September, the spring is divided in hours, every week, among the landowners, and is held by them as a property. Land being valueless for sale unless water goes with it, my neighbours took advantage of my ignorance of this fact to sell me land without the water, so I have had to purchase the water separately from others. The quantity which this spring gives me every week—about 50 cubic metres or yards—in the summer, during the five hours each week, is quite insufficient for my wants; but the fact of my being a co-proprietor gives me a hold on the spring during the winter months, if not wanted for the olive mills. I am the only one who waters after heavy rain—in order to water the rocks, as I tell my neighbours; so I manage to repeatedly deluge the place and the terraces and rocks during the winter, and to fill all my tanks, containing some 700 cubic metres, before the summer season begins. Thus, on my system of deep watering, I am radically changing and fertilising the entire property, making an oasis of it. I may add, that I have had a luminous irrigation idea. There is a high road between me and the sea, a steep ascent, which becomes a torrent-bed in heavy rains. I have obtained permission from the authorities to place a small dam on the gutter, which is on my side of the road, and carries the rain-water to the sea; as also to make a culvert under the boundary wall. By this means, when it rains heavily, I get a regular rivulet of water from the road into the lower part of the property, an abandoned quarry, which I am rapidly changing into a garden or forest of Cypresses. The lime-loving Cypresses which I have planted there, in a mere rubble of loose stones, are growing like Asparagus: Cupressus excelsa, C. elegans, C. argentea, C. Lambertiana, C. macrocarpa, C. pendula, and last, but not least, the lovely Pinus C. canariensis. I am very proud of having thus introduced "a Nile," with its cataracts, and soil-loaded water into my quarry of stone rubble. Without this irrigation it would never have grown anything but Aloes and Agaves, and now it is fast becoming a small tropical forest, bidding fair to rivalise the old quarry of Latomia at Syracuse in Sicily: *parva componere magnis!* I expect to grow many plants there which do not succeed on the rock soil, and to enlarge the area of Rose culture, and that *without* manure.

The Roses I named (May 4) as succeeding well were the Banksias, the Bengals, some Teas, such as Safrano, Madame Falcot, Gloire de Dijon, Chromatel, Maréchal Niel, Fortune's Yellow, do perfectly without manure. Indeed, I never give them any at all, and they bloom luxuriantly every year, producing flowers fit for a flower show. I have several Gloire de Dijon plants, ten or more years old, at the bottom of a half sheltered moist rock, and also of a sun-exposed wall, which are covered every year with splendid blossoms in autumn and in spring, flowering indeed, but sparsely, all winter. These are grown in the lime soil without manure, never having had an ounce since they were planted. We merely renew the old wood occasionally by pruning out old woody stems, and letting new grow, which they do to a height of 10 or 12 feet. The flowers grow on the new shoots 3, 4, or 5 feet long, like garlands, a very beautiful sight. Really the originator of the Gloire de Dijon ought to be made a baronet and have a pension for life. I believe that it is the most vigorously constitutioned Rose growing. It seems to succeed everywhere in all climates, and apparently in all weathers. I have seen it flourishing everywhere out-of-doors from the North of England to the Mediterranean.

I have, I may mention, a large bed of Safrano, Falcot, Nabonnaud, and Bengals, some twelve years old; about 30 feet long by 14 broad. The plants are all old plants, which have never had a handful of manure since they were planted. The soil is merely roughly dug up and left loose twice a year, in spring after they have flowered, and in autumn after their rest from heat before the rains. They flower magnificently twice a year in autumn and in spring. Just now the bed is a mass of bloom, all but concealing the foliage. In September, after their rest, my gardener prunes them down to about two or three feet from the ground, cutting into the one, two, or three years' wood, according to size and direction. The Banksias, single and double; the Fortune, yellow; the General Lamarque, which all give in spring a perfect river of branches and bloom, never receive an ounce of manure from year's end to year's end. The latter two are scarcely pruned. Under such circumstances it would really be a waste to manure, where manure is so costly and so difficult to obtain.

I tried an experiment last autumn with a bed of three year Boubrinski, a very sweet red Tea, which flowers all winter with us, and is much esteemed. One third were left alone, the second third had their roots pruned all round, and manure added in the circular trench made for that purpose. The other third were lifted bodily, root pruned, as advised by some Rosarians, and replanted in a mixture of manure and leaf mould after eight months' growth. I find the Roses left alone, without trenching or manure, by far the most vigorous; those trenched and manured, the next best; and those taken up and replanted in rich soil the worst as regards both growth and flower. The month of May has been unusually rainy and moist, and our Roses have been flowering luxuriantly. For the last few days heat has appeared, max. 74°, min. 60°, sky hard blue, sun burning. Most of the Roses are withering. Usually the withering of the Roses from heat occurs by the 10th of May, when we feel it time to depart for pastures new.

We have an economical but very useful plan of using manure; a handful or more is placed at the bottom of the hole where the plant is to be placed, and the roots of the latter spread on it. I recollect, on one occasion, Dr. Hogg paying me a visit, and being surprised with the luxuriance of a plant in flower. He asked me to allow my gardener to dig it up, and we found the roots clinging to and all round the manure thus placed, forming, indeed, a ball with it. Thus was its luxuriance accounted for in an apparently poor soil. I recollect Dr. Hogg being also much struck with the extreme vividness of the colour of the flowers, which he attributed to the intensity of the sunlight—no doubt the true explication. Photographers say that the light is four times as intense at Nice, at midday, as it is in Paris.

Under these local conditions, the difficulty of obtaining vegetable mould and manure, and the unmitigated lime character of the soil, I am gradually limiting outdoor cultivation to lime-

loving plants, eliminating such as do not do well in it without any alien element. My notion of a garden is for everything to succeed, to be vigorous, healthy, happy. I have been too much saddened throughout my professional career by invalidism and bad constitutions to stand them in the garden. All that does not thrive with me is rooted up, and made away with. On another occasion I shall have something to say about some plants, such as the Linum trygynum, the Russelia juncea, &c., which must be lime plants from the marvellous way in which they flourish with me.

In conclusion, I would add that gardening on these sunny lime rocks overhanging the Mediterranean is intensely interesting. I have a small staff of local helpmates, into whom I have instilled an interest into all we do; so I and my men, we ramble about the rocks, make tanks, build walls (no longer in mortar, but in loose stones), dig and delve round the old tower, looking for the treasures no doubt buried somewhere, hundreds of years ago, by some mediæval Italian freebooting Captain Kidd, pirate by sea, robber by land, who made the tower his stronghold. We have not yet found the treasure, but, like the husbandman in Æsop's Fables, we fertilise the land. At the time of the earthquake, a great facing of rock on a mountain 1000 feet above me fell off with a great crash, tumbling into the ravine below, and revealing a cavern as large as a chapel, in the bowels of the mountain. There are many such caverns up and down in the rocks. So now we are blasting away, in likely directions, hoping to find Sinbad the Sailor's cavern, if not full of diamonds, at least of stalactites, and perhaps of Capillus veneris, our commonest Fern, should light penetrate. *Henry Bennet, M.D., Torre di Grimaldi, Ventimiglia, Italy, June* 1.

BRANCHING BROCCOLI.

Some time since a facetious advertiser, indulging in a little quiet sarcasm at the expense of some of his fellows, displayed in his advertisements a huge Mangel, beneath the shelter of whose ample foliage sheep were peacefully browsing. We were reminded of this fancy picture the other day on receiving from Messrs. Sutton a Broccoli, which in its way went far to realise the conception of the giant Mangel to which we have alluded.

Lest we should be thought to exaggerate, we set down the measurements of this Broccoli:—2 feet in height, 3 feet across, 9 feet in circumference; in each case the dimensions were more than we have stated, but we have omitted the fractions. The main stem produced nine branches, each with its "head." Cabbages are, as every one knows who has seen a Brussels Sprout growing, liable to branch laterally, and Messrs. Sutton have availed themselves of this tendency. Observing a Broccoli disposed to branch, they selected seeds from it, and at length have arrived at the result we have mentioned, for this is no solitary specimen that we have figured, but one of a "race." What the practical advantages of growing ten Broccolis on one stem as compared with the usual practice of growing distinct plants, remains to be seen. Space would be gained, and protection more easily accorded. (See fig. 115.)



Fig. 115.—Portion of a branched Broccoli plant, 9 feet in circumference.

THE BOG GARDEN AT HIGH BEECH.

Messrs. Paul & Sons have found in their experience that some plants will do well at High Beech, but are not so successful in their hardy plant nursery at Broxbourne. All cultivators who grow a general collection of hardy plants are finding this out, and a plant which may grow admirably in one part of a garden, will be a comparative failure in another portion of the same. As an instance of this, I can give my own experience with Iris reticulata. Some five or six years ago I planted several clumps of this one in the rock garden in a position well exposed to the west, and another in a similar position in another rock garden. One clump has multiplied exceedingly, and the other has dwindled away; until this year one plant only appeared, and that was too weak to produce its flowers. The Primulas are more fastidious in this respect than any other genus known to me. At High Beech, the natural conditions of the ground were very favourable, and Mr. Paul was not slow to take advantage of them. In a bog garden it is necessary that the water should run in at one end, and have a free outlet at the other.

The double-flowered Marsh Marigold (Caltha palustris plena) was in full beauty on May 1; and later the varieties nana and pallida might have been seen flowering. Orchis foliosa seems to be quite a swamp plant, and was in robust health, side by side, with the Buck Bean (Menyanthes trifoliata). On the margin of the bog where these were growing so freely were great masses of the pretty little Arctic Bramble (Rubus arcticus). Saxifraga hirsuta was flowering in various positions, and what is rather remarkable Iris cristata grows freely, and flowers on the edge of the bog. Iris Kæmpferi is well known as a bog plant; but it may not be so well known that it grows and flowers freely when quite in the water. Thalictrums, flavum, and purpureum, are good bog plants; and I was quite surprised to see masses of the graceful Spiræa astilboides firmly established, and when in flower they have a charming effect, indeed it is one of the prettiest species in the genus, and the spikes are excellent for cutting.

This also seems to be the right place for Senecio pulcher. I found it made good growth in a wet, shady part of our rock garden, and flowered freely in late autumn; here it is even more vigorous. Dodecatheon Jeffreyanum, a vigorous species, does

well in the wet bog, and the dried stems of last year, still attached to the plants, were 2 feet in length. The zebra-striped Rush (Juncus zebrinus) had established itself in great masses, and when the young growth is first produced, it must be very pretty. Claytonia sibirica, a dwarf species of this genus, has pretty pink flowers, and does well in the wet peaty soil. Amongst Lilies doing well in suitable positions—that is, where the water does not stand over the bulbs—are L. canadense, a beautiful old species; L. californicum—the true form of this species is the richest coloured and best of the L. pardalinum group; L. pardalinum also does well, and the variety Robinsonianum.

Amongst the genus Primula, I have no doubt that many of the Himalayan species will succeed well in boggy soil. Our own pretty little Bird's-eye Primrose, P. farinosa, does well in boggy soil; so also does P. cilista purpurea of the Alps. The stately Japanese P. japonica does well; so also does the Himalayan P. rosea. *J. D.*

MELONS: TWO OR MORE CROPS FROM THE SAME PLANTS.

It is nearly twelve years since I first wrote in the *Gardeners' Chronicle* under the heading of "Five Crops of Melons from the same Plants in one Year." I then pointed out the great advantage accruing to any system of culture by which an almost continuous supply of fruit could be obtained from the same plants, beginning in the first week in May, and ending in November or the middle of December. The system has special advantages, when the gardener is expected to maintain a good and regular supply of Melons during the summer and autumn months with inadequate means. The five crops of Melons referred to above were got by me from plants grown on mounds on a dung bed in a hot-water pit; and it was not a case of necessity, but of experiment, as I had numerous successional plants in various stages of growth in other pits at the time. The plants in question were trained over the surface of the bed in the usual way, the fruit when about the size of a bantam's egg being elevated on inverted small flowerpots. The plants were kept in a clean, healthy growing condition, the shoots being kept thinned out and stopped in due time; each plant was allowed to ripen four or five fruit each crop. By the time the fruits forming the first crop had nearly done swelling, a good and regular set for a second crop was secured without in any way detracting from the size or quality of the first, and so on with each succeeding crop, all that was required being to keep the plants in a healthy growing state, with sufficient artificial heat from hot-water pipes at command to maintain a temperature by day of 75° without sun-heat, and 70° at night, with careful sprinkling of the foliage with tepid water when closing the frames in the afternoon of bright days, at which time the temperature would be run up to 90° at the period the fruits are swelling off. The Melons were planted on mounds, so as to prevent the lodgment of water about the stem, which would probably cause canker. In carrying out this mode of treatment, a free, but not a crowded, growth was encouraged; old shoots and leaves were removed whenever it was feasible, so as to make space for the extension of young ones.

Weak manure-water in a warmed state was applied to the roots, but not close to the stems, for the season above-mentioned. I have at the present time three span-houses planted with Sutton's Hero of Lockinge, and I have been cutting from the plants in the early house for some time past, whilst the fruits in the second house will soon begin to colour. In the first house the second crop of fruits from the same plants are all about the size of a small hen's egg. The plants are grown on the single stem system, *i.e.*, like a young Vine, but the fruit-bearing shoots are arranged, in the case of the second and succeeding crops, irrespective of what part of the main stem they proceed from, so as to cover the trellis at regular intervals with fruit. I find that occasional surface dressing of the soil of the bed with Beeson's manure before watering is of much help in swelling off the fruit, and its use imparts, in my opinion, a richer colour to the rind. Perhaps those readers of the *Gardeners' Chronicle* who may feel disposed to adopt my method of Melon growing will in due time communicate their experience to the Editor. *H. W. Ward, Longford Castle.*

NEW OR NOTEWORTHY PLANTS.

MASDEVALLIA CAUDATA × ESTRADÆ, *n. hyb.*

This is a most interesting novelty, as well as a very charming little plant. It is a hybrid, as its name indicates, between M. Estradæ, Rchb. f., and M. caudata, Lindl.—or rather the variety of the same known as M. Shuttleworthii, Rchb. f.—the latter being the seed-parent. Like so many others, it was raised in the establishment of Messrs. James Veitch & Sons, of Chelsea, by Mr. Seden. It is a very free grower, as the seed was sown in 1885, and now, four years later, one of the plants is showing no less than eleven flower-buds—a fact which speaks much for its robust constitution. It is thoroughly intermediate between the two parents, so much so that I correctly guessed its hybrid origin, and also its parentage, before either of the two facts were mentioned to me. In size and shape of flowers it closely resembles M. caudata, though the sepals are not quite so deeply connate, a character in which it shows a slight approach to M. Estradæ. The colour is very beautiful: the upper sepal a nearly uniform rose-purple, the lateral sepals rosy-purple at base, shading off into bright lilac-purple above; tails deep dull yellow; petals white, lip and face of column white, with numerous minute lilac spots; apex of column maroon-purple, also a minute spot of same colour at apex of lip; shape of organs much like those of M. caudata. Among hybrids its nearest ally is M. Geleniana ×, Rchb. f., whose parentage only differs in one particular, namely that M. xanthina, Rchb. f., replaces the nearly allied M. Estradæ as one of the parents. The colours of the two, however, are very different, and Mr. Seden's present novelty is by far the most brilliant in this respect, and a plant of much promise from a horticultural point of view.

In conclusion, let me say that I am anxious to obtain a leaf and flower of M. Geleniana ×, and should be much obliged if someone would note the fact, to be made use of when the plant flowers again. I once saw it, when exhibited at the Temple show, last year. *R. A. Rolfe, Herbarium, Kew.*

ORCHID NOTES AND GLEANINGS.

A YELLOW DENDROBIUM WARDIANUM.

From Mr. A. Bradshaw, gardener to Mrs. Perrins, Davenham, Malvern, comes a pseudobulb and flowers of a variety of Dendrobium Wardianum, which differs from the type only in having yellow sepals and petals of the same hue as those of D. aureum. It is very handsome, but it may be an accidental variation. I shall be glad to hear if it proves the same when next it flowers. Lælias, Cattleyas, and Phalænopsis are grandly grown by Mr. Bradshaw, and a spike of a fine variety of L. purpurata, cut from a plant bearing twenty-five flowers, is sufficient to indicate what a fine object the specimen must be. *J. O'B.*

Phaius Mannii.

This is nearly related to P. Wallichii, and by some botanists is considered to be no more than a variety of that species. Whether this be true or not, it is infinitely superior to the typical P. Wallichii, and, in fact, may be said to be the finest, both in size and colour, of the section of Phaius to which it belongs. At present it is very rare, but a plant at Kew is now displaying its strikingly handsome flowers. These are borne towards the top of a stout, erect spike, between 2 and 3 feet high, and are nearly 6 inches across, with the lance-shaped, acuminate sepals and petals of a rich, reddish brown. The sides of the lip curl up, and enclose the column in a tube whose lower half is yellow, the upper part being deep red; the apical lobe is white, flushed and veined with rose, and marked on the centre with yellow lines running lengthwise.

Like the whole of the allied species, this is of easy culture. As with P. grandifolius, &c., the essential points are to get a strong growth, and then to thoroughly ripen it. During the active season the plants should be given warm treatment, with abundance of water. As winter approaches, the supply should be gradually lessened, and finally almost entirely withheld, the plants being at that time subjected to a cooler temperature. Its easy propagation, by division, would ensure it a permanent position if a good importation arrived. It is a native of Assam. *W. B.*

Orchids at Shipley Hall, Derby.

The fine estate of E. M. Mundy, Esq., is a pleasant spot in the heart of a busy district, but by its position on the crest of a hill, whose base is surrounded to a great extent by lake-like stretches of water, the existence of the mining and other active business operations in its neighbourhood is neither seen nor heard from the gardens and pleasure grounds, which extend over some 75 acres between them. From a distance the most striking objects are the fine old Beech trees rearing their lofty heads around the squarely built mansion. A nearer approach along the winding walks of this naturally beautiful garden, whose every feature has been so carefully studied and developed by Mr. Wm. Elphinstone, who rules over the gardens and grounds here, shows the magnificent collection of large specimens of all the varieties of Retinospora grouped about, some of them being the largest of their kind in cultivation; and also the very fine Hollies, which, from their position, must make a grand feature in the scenery, especially in winter when the leaves are off the deciduous trees and shrubs. They also render their part as an undergrowth with the gigantic Beeches and other trees, in forming a necessary protection against the strong winds which sweep over this elevated spot at some seasons of the year. Rhododendrons, Japanese Maples, and other rare trees and shrubs, and showy flowering herbaceous perennials are much cared for in the Shipley Hall gardens; but bedding-out, as it is generally understood, is not practised, only sufficient being done to give bright colour in summer, and thereby assist in marking the season of the year.

The Glasshouses have just received a very valuable addition in a range of Orchid-houses in three divisions, built and stocked by Messrs. F. Sander & Co., who may be congratulated on having accomplished one of the best things of the kind ever carried out, both as regards the comfort of the visitors, and the well-doing of the plants. The houses are of a sharp pitch, the foundations slightly sunk, bottom ventilation being provided just above the ground-line by a 4½-inch aperture every 9 inches, the opening covered with perforated zinc, which prevents draught, and excludes insects. The plants are arranged on open wood-work staging, arranged over close staging for holding and giving off moisture, and the broad walk which runs up the middle of the range is rendered comfortable to walk upon by being fitted with diagonal wood-work trellis, which also admits of the necessary moisture arising from beneath it. The whole of the wood used in the building, staging and flooring, is Pitch-Pine, planed and varnished, and not a speck of paint appears on it anywhere. It is contended, and with justice, too, that the periodical paintings, during which plants are liable to suffer from it directly or indirectly, will thus be avoided. The first division is a cool-house filled for the greater part with a grand strain of Odontoglossum crispum, giving a magnificent display of flowers all perfect in

shape and true to the best type, but varying in colouring and marking, a few of them approaching the pure white O. c. virginale, while others are beautifully spotted and tinged with rose; one grand variety is very near to the priceless O. c. apiatum, but in addition to the heavy blotches on the sepals has some crimson spots on the petals. O. Pescatorei with scarlet Sophronitis and other cool Orchids are also in bloom in this house, the staging of which is edged with green Tradescantia. The staging in the next or intermediate house is edged with Tradescantia and variegated Panicum, the main feature among the plants in bloom being some large masses of Odontoglossum citrosmum suspended overhead, each giving several massive, drooping spikes of flowers, some white, some pink, and all variously marked in the centre with yellow. A batch of good Miltonia vexillaria too is here in bloom, and another of the handsome and durable Dendrobium Jamesianum, as well as good plants of Oncidium sarcodes, O. varicosum, Odontoglossum Harryanum, Cypripedium calurum, &c., the elegant sprays of Oncidium hastatum arching each way and meeting overhead.

The stages in the warm house are edged with different variegated Tradescantias; and at present its occupants are chiefly Cattleyas, among which noticeable are some very fine C. Lawrenceana. Among the Mendeliis in bloom, the best is one with eight flowers, which is very near to that named and certificated as "Duke of Marlborough." Other fine Mendeliis are in bloom, and also that fragrant and beautiful C. Schroderæ, and some fine large forms of Sander's early flowering strain of C. Mossiæ. A large batch of Cœlogyne cristata also occupies this house; it gives good flowers for cutting, which is one of the great objects here, but the plants are not suffered to bear the spikes long enough to injure them. In keeping them in the houses cut from the plants until they are required for removal, Outram's flower-holders are found of great service, as by their use the plants are saved the drain on them consequent on bearing the spikes too long, and yet the sprays are kept to give a show in the houses until they are wanted elsewhere. In these houses, and with Mr. Elphinstone's skilful care, the plants thrive marvellously. This is certainly taking up Orchid culture in a proper manner, by providing good houses for the plants instead of battling with old tumble-down structures which give no chance to the plants, and causes the grower who has invested in them to think they are difficult to grow, and give them up in disgust, as too many do. If we may be allowed to digress on this point, let us ask why it is that fine properties near London—take, for example, the neighbourhood of Regent's Park—where plant growing is attempted, and where good structures would give 90 per cent. of the elements of success, should be afflicted with old hutches which seem to have been handed down as plant-houses from the dark ages? Is it not a mockery to engage gardeners to tend such, and would not a clearing out and rebuilding be a good investment? for in good sanitary glass structures, plants, especially Orchids, can be grown in town well enough; but in the sheds which have to do duty for greenhouses and hothouses in quite half the gardens, they stand no chance at all.

The old Orchid-houses at Shipley Hall have a fine lot of growing Dendrobes, Calanthes, &c., and in the other plant-houses Bouvardias, Eucharis, Gardenias, &c., are specially grown for cut flowers. At present a house of the best varieties of Anthurium Scherzerianum is very showy; in another, containing a large lot of scented white Pancratiums, the Elvaston Stephanotis floribunda is literally covered with buds. In another cold-house containing scarlet Nerines, the white and red Lapagerias cover the back wall; beyond a large batch of Laing's best tuberous Begonias are commencing their show; and the large stove contains a fine collection of Palms and foliage plants, adapted for decoration and table work. Here the large Cyathea medullaris in the centre is a grand object, and the back wall and arches are covered with Bamboos—graceful embellishments.

The Rockery-houses form a fine feature here, their cool atmosphere and the graceful frondage of the Ferns grouping themselves round about being particularly grateful. The principal one has a fine Cyathea Smithii, and two Lomaria gibba, with 5 feet stems in the centre, while around on every hand are seen the fronds of the different varieties of Maidenhair. The varieties of Nephrolepis, too, and the more massive frondage of Davallia platyphylla contrast well, and the whole has that natural beauty which can only be attained in rockeries when properly planted and given time to enable each subject to arrange itself. The rockeries are continued by a covered way arranged as a rockery, extending to and forming a pleasant communication with the mansion, at the entrance to which the flowers of the season are grouped.

The Fruit and Forcing Houses.—These are even more extensive than the plant-houses, and in all of them the neatness, order, and good culture which marks the whole of these gardens prevail. In the extensive ranges of vineries good evidence of heavy crops exists, one large division with alternate Black Hamburgh and Madresfield Court being specially fine; the Vines are young, the wood made very strong, and the crop all that could be desired. Negro Largo is the favourite Fig, and the stock backs the selection. Royal George and Noblesse Peach are favourites in the Peach and Nectarine houses, which are a credit to their superintendent. Melons are well represented by a grand house of the luscious Lockinge Hero, and Strawberries and other fruits are in fine order, the crops on the espaliers and walls of the large walled-in kitchen garden promising well to give their quota to the supply; the trees of Lord Suffield Apple on one hand of the centre walk, and Warner's King on the other, are perfection. The whole place, indeed, is highly creditable. Later we hope to give our readers some views in the gardens.

The Rock Garden.

ACIPHYLLA SQUARROSA.

This wonderful Umbelliferous plant is now in flower on the Rockery at Kew. A native of New Zealand, it is known to the settlers as Wild Spaniard, or Spear-grass, the latter name being very appropriate. Though more curious than beautiful, we rather like it as a rock-plant, as even when not in flower it makes a nice effective tuft amongst the stones. It seems perfectly hardy at Kew, and is now forming large tufts in a somewhat shady spot near the Fern end of the Rock Garden. There is also every prospect of seed in abundance. A figure of it was given in our columns in 1884, p. 329, Sept. 13. *D.*

Achillea rupestris.

This plant, now in flower on the Rockery at Kew, is amongst the finest of the alpine Compositæ, suitable for ledges and such-like positions. It is a quick grower, forming dense tufts of bright green leaves; the flowers in large bunches, pure white, and exceedingly attractive. Its near ally, A. umbellata, with its hoary white leaves, and umbels of pearly flowers, is also a most useful rock-plant. It has a creeping or trailing habit, and we find it most useful in covering ledges or shelves, especially as it flourishes with very little soil, and stands drought wonderfully. Both are natives of S. Europe, and easily increased by cuttings in the ordinary way.

Cistus monspeliensis.

This is a charming plant for dry sunny banks, or exposed spots on the Rockery. It is one of the hardiest of the many Cistus in cultivation, forming large bushes in the course of a year or two, and which are just now a perfect picture. This is the plant known in many gardens as C. Clusii; the latter species, however, resembles Helianthemum Libanotis much more than the above species. It has narrow dark glossy leaves, with the margins rolled back. Inflorescence more or less capitate at first, lengthening afterwards. The flowers medium-sized, white, with yellow blotch at base. C. monspeliensis begins to flower now, and continues until August. It seems to be variable, some of the forms flowering early, others late. It is one of the easiest to increase; cuttings placed in sand in a cool frame root freely, and make nice flowering plants for the following year. Native of Crete, &c. *D.*

Primula Stuartii.

This is a noble plant of vigorous habit, and although not new, it is rare in cultivation at the present time. The plant, which is a native of the mountains of N. India, is, in my opinion, one of the most beautiful garden species of Primula grown. The leaves are about 1 foot long, lance-shaped, serrated at the edges, and slightly mealy. The flowers, which are large, are of a beautiful soft yellow colour, deliciously fragrant, and stand on long stalks (about 2 feet high), well above the foliage; the umbels are many-flowered. Plants of this species form striking objects in the rock garden here, being good companion plants to P. japonica and P. Sikkimensis. Another rare and beautiful species, P. denticulata alba, was in bloom a short time ago, the plants thriving under the same conditions as the others above mentioned—that is, a deep, moist, well-drained soil, and a sunny position. *F. Newman, Corkridge Tower, Horsforth.*

THE HAVANA TOBACCO TRADE.

The importance of the Tobacco cultivation as a profitable industry of Cuba is a well-known fact, but the extent of the trade, and the great money value of the produce in that single country are not so generally known. "The Tobacco Industries of Cuba" has recently been the subject of a carefully drawn-up report to the Foreign Office, of which the following is a summary of the most interesting points:—

Cuban Tobacco has, it is stated, no rival in the world, and it is curious to note that this supremacy is confined to the western portion of the island, the Tobacco grown to the east of Havana having a distinctly different character. The leaf there is good—better than most foreign kinds—but is wanting in aroma and delicacy of flavour, when compared with the former. That of the eastern district goes under the general name of "Vuelta Arriba," in contradistinction to that from the west, which is called "Vuelta Abajo," and this, again, is divided into "Medio Vuelta abajo," and "Partido," the latter name being applied to the Tobacco grown in the districts near and about Havana. It will thus be seen that as regards Tobacco, Nature has placed Cuba above competition. It is this which has made her Tobacco trade a certainty—a natural monopoly, which only a universal abstention from smoking or extraordinary climatic changes can break up. This valuable natural privilege has been a mainstay for the Cubans in their commercial disaster, for large fortunes have been made already in this trade, and want of capital is the only drawback to the attainment of greater successes. Very large profits have in good years been realised, averaging from 10 to 35 per cent. on invested capital. In spite of these encouraging facts, foreigners, with the exception of a few Germans, have not hitherto invested in this branch of Cuban trade, probably owing to an impression that the handling of tobacco in all its stages was a specialty which only the natives could successfully manipulate, and this, to a great extent, is the case. The Spaniards have almost exclusively established and managed the factories, while the Creoles have supplied the skilled labour. The successful factory owners are nearly all from Asturias, Galicia, and Catalonia, and it is an exception to find other provincials engaged in this trade. This year, however, it is stated, will see a revolution in this direction, for these manufactories with world-known brands have for the first time passed into English hands and are already working for English account.

The Partagas Company (Limited), has been

formed in London with a share capital of £295,000, and has purchased the cigar and cigarette manufactories working under the brand of the "Flor de Tobacco," with 18,000 acres of Tobacco land in the best part of the Vuelta Abajo for £200,000. This factory, which has a well merited reputation for high class aromatic goods, turns out between 30,000 and 35,000 cigars, and 2,000,000 cigarettes daily. Of this new experiment, it is said:—"If our countrymen do not hastily and imprudently replace tried native labour and management by foreign and inexperienced hands, there is no apparent reason why this undertaking should not give a good return on capital."

A second company has also been formed in London with a large capital, and now that the attention of Englishmen has been called to this branch of culture, it is expected that similar companies will soon follow. Companies have also been formed in Melbourne, Australia, for the purpose of securing a steady and direct supply of the best brands of cigars to our Australian colonies. It will thus be seen that not only is the British public becoming materially interested in this industry, but that our kinsmen in Australia are also alive to the chance of sharing in the profits and pleasure of the choice Havana leaf, the demand for which, as smokers' tastes become developed, ever increases.

Besides the cigar and cigarette trade, a large and lucrative business is now done in leaf Tobacco, of which thousands of bales are shipped to the United States and to Germany, some to be rolled there so as to avoid import duties, but the greater part to be mixed with, and so render saleable, the native and inferior product.

To reach and maintain the level of an eager and constant demand, it is necessary to know both how to select the leaf in the field, and how to cure and manipulate it in the factory. All the rest is simple enough for an intelligent man, but for these operations experience and instinct, developed by long practice, are indispensable conditions of success, the want of them and insufficient capital have been the ruin of numerous factories. It is by these qualities that the plodding and industrious Asturians have shown their strength and made their fortunes from small beginnings. It is stated that "the sudden irruption of nearly one million sterling of British capital into the Tobacco field has caused some alarm both in and out of the island on the ground that we are about to obtain command of the whole Havana trade."

ROSES.

ROSE JOTTINGS.

"A. D." (p. 693) raises the cry for a white Maréchal Niel, or one as good. This would indeed prove a valuable acquisition alike in form and fragrance. He also gives prominence to an old suggestion, and an older fallacy, concerning the cause of warting in the Maréchal Niel, viz., the Dog-rose stock not keeping pace with the free growth of the Maréchal scion. This may be one cause of the strangulation through warts; but, unfortunately, the latter are constitutional, and may be found all over the branches of Maréchal Niel in large specimens [a slime-fungus is sometimes present in these swellings. Ed.] However the idea of inserting a link or disc of stronger-growing wood in the form of Lamarque to mediate in a liberal sense between the restricted growing Brier and the free-growing Maréchal is plausible, and might prove highly advantageous were the intermediary disc of sufficient length, and furnished with enough of independent growth to affect the result. But the influence of a mere disc of wood and bark a few inches or feet in length, and unfurnished with branches on their own account, must of necessity be almost *nil*, so far as adding to the luxuriance of the ultimate head is concerned. For restrictive purposes the merest disc of wood might and probably would prove useful.

I am glad to see "Wild Rose's" note of Mr. Cant's experience, that his standard Teas have passed through the winter much better than the dwarf. This has long been my experience, and I have even gone further and stated that heights between 3 and 6 feet have seemed the most safe. This is one of those minutiæ of climate and of culture that requires much more careful scrutiny and investigation than it has yet received.

We are all familiar with the fact that thermometers on the grass register several degrees lower than others at various heights above it, and yet we have been slow to turn such facts to practical account in the deliverance of our Roses and fruit trees from the killing or crippling severities of our climate. *Rosa.*

ÆSCULUS SINENSIS.*

WE are indebted to the kindness of Mr. Van Volxem for the opportunity of figuring this species (fig. 116). It is a native of the mountains near Pekin, and is consequently quite hardy. Judging from the specimen sent to us, it is not so striking as the common Horse Chestnut, but it flowers a fortnight later, and may thus escape the spring frosts, which are sometimes injurious to the commoner species. The petioles and peduncles are finely ciliate. Whether or no it differs from *Æ. turbinata*, the fruits of which were figured in the *Revue Horticole* for November 1, 1888, is open to doubt.

DROSERAS.

THESE wonderful gems of the vegetable kingdom are far from being devoid of attraction as regards beauty, especially when well grown. At the present time there is a remarkably fine set to be seen in one of the pits in the Cambridge Botanic Gardens. Perhaps few plants can boast of the attention that has been paid them by the most able of scientific observers of the past and present age. The members of the genus are not generally cultivated on account of their flowers, but for their well-known insectivorous habits; though now by the gardening periodicals of late it may be seen that we are likely to become the possessors of a species (D. cistiflora) from the Cape with floral merits. Their cultivation is not particularly difficult, but for the benefit of those who are about to embark upon their cultivation, I append the following.

Those Droseras which lose their leaves towards winter, such as D. binata and D. dichotoma, generally show signs of going to rest some time during the autumn; the strongest will have a crown or winter bud, others will not; the former make the best plants for the ensuing year. They should be wintered in a temperature of about 50°, and care even at their resting period should be taken to see that they do not become dry; sufficient water should be given to keep the roots in a plump condition.

During the early part of the year they will commence to grow, when they should be turned out of their pots, removing all the old compost from them. Those with the crowns should be potted into pots large enough to accommodate them, and if it is desired to increase the stock, pieces of the roots should be cut off; already on many of the roots small buds will be found, especially on those plants minus a crown, and on D. binata, which is much freer to propagation than D. dichotoma. These roots should be cut into pieces 2 or 3 inches in length, and placed in a pan half filled with sand; lay the prepared pieces on the surface, covering them over with a layer of sphagnum moss. Keep the pans well watered, and place them where they will receive a slight amount of bottom-heat. They should be examined occasionally; the most forward picked out—that is, when they have shoots upon them about an inch or so in length—and potted in pots 2 inches in diameter. In due time nearly every piece will be found to have one or more buds upon them.

In potting, use peat in a fibrous condition, with a good portion of the loose material knocked out, working in a little picked and washed sphagnum about the surface. The pots should be nearly half filled with crocks, standing them in a light position where they can be conveniently damped between. A temperature of 60° to 65° should now be given them.

Always water them with rain-water; the hard or pump-water of some localities is very unfavourable towards growing good plants. The water that does not injure the growth of sphagnum I am inclined to think would not injure Droseras, though where possible there is nothing like keeping up a small supply for these plants.

Liquid manure in a very weak state may be given them occasionally with beneficial results; also use it in a stronger state for damping in between them once or twice a week when in a good growing condition. Drosera dichotoma is the most handsome growing kind with which I am acquainted as regards its leaves. This, when full grown, has four linear lobes, a pair of forkings on each side of the leaf-stalk; the leaves are more than a foot in length, measuring from the base of the petiole to the apex of the leaf. In some books this is spoken of as the same as D. binata, but this is incorrect. If it has not sufficient distinguishing characters to rank as a species, it has certainly enough to distinguish it as a variety; and varieties are oftentimes of primary importance from an horticulturist's point of view. Mr. B. S. Williams, in his *Choice Stove and Greenhouse Plants* has fallen into this error, also Mr. Nicholson, in his *Dictionary of Gardening* (a book every gardener should have in his library). When the two are placed side by side, they may be distinguished by the faintest glance, by its more vigorous habit and leaf arrangement. It attains also twice the height of D. binata. They can be easily separated from each other by their roots, which are much thicker than in the last-mentioned kind. I have it also from very reliable authority that the cells are much larger, and that it is much the best for physiological purposes.

Some of the plants of D. dichotoma have greenish hairs, others have them slightly tinged with red, while the hairs of D. binata are of a reddish crimson.

There are no flowers open upon either just now, by which to compare them to see if any difference can be detected between them.

D. capensis is a well-marked species. Its leaves to some extent resemble a rosette. It never loses the whole of its leaves, and might be spoken of as evergreen. This may be propagated from offsets or roots.

D. rotundifolia is sure to introduce itself into the houses, with the sphagnum moss amongst the Orchids. D. spathulata, D. lunulata, D. filiformis, D. pauciflora, D. peltata, and others are amongst those that are not to be found in ordinary collections. The genus is a large one, and it would be interesting to have more of the distinct species introduced to us.

Several times Drosera seeds have been sent to us from abroad, but in no single instance have they germinated, and I am much afraid that they lose their vitality on the journey. Droseras are also said to be propagated from leaves, though I have never had the pleasure of seeing the operation successfully performed.

Drosophyllum lusitanicum.—This is another remarkable insectivorous plant; it behaves very strangely in the way it unfolds its leaves, unfolding them in just the reverse way to that of a fern. It is rather difficult to get established, though when once in that condition it will go on free enough until at last it flowers itself out. The method I have found most fortunate is to sow a few seeds in each pot (a 48's) in a compost of loam sand and finely broken crocks, placing the pot within another or pan, filling the space between the two pots with more broken crocks, placing a bell glass over them until the seedlings are advanced enough to stand without protection. When watering, give it in the outer pot; a greenhouse temperature is all that is required for this plant. *W. Harrow, Botanic Gardens, Cambridge, May* 11.

* Æ. sinensis, *Bunge Enum. Plant. in China Bor.* (1832), p. 10.

BORDER CARNATIONS AND PICOTEES.

The varieties that come under this heading are those possessing a free, vigorous habit and hardy constitution, with stiff, sturdy flower-stems, while the flowers are full and double, and of large size, with good stout petals to stand the weather, bright colours, and fragrant; any variety that combines these qualities is suitable for the border; whether selfs, flaked, or edged, they may be equally classed as border Carnations. Yet, useful and beautiful as they are, it is only within the last few years that the Carnation, as a border plant, has become popular. Many acres are now planted in nurseries every season to meet the demand, and in some places entirely ousting the show varieties, which are very beautiful in their way, but, with a few exceptions, they are not well adapted for the open border, not being robust enough; and the flowers, which present much sameness, are quickly soiled by exposure to the weather.



Fig. 116.—Æsculus sinensis, showing one leaflet of a palmate leaf and the inflorescence: flowers cream-coloured. (see p. 716.)

To be successful in their cultivation, they should be planted early in spring, as when kept too long in their winter quarters, they never make the same healthy growth as when planted early. When beds can be devoted entirely to them—and this is far the best way—the ground, if it has been manured for the previous crop, will be in the best condition to receive them, but if poor, dig in some well-rotted manure—that from a spent hot-bed is the best—and thoroughly incorporate this with the soil; an inch or two of burnt earth, or ash from the refuse-fire, spread over the surface, and lightly pricked in, is also highly beneficial to them, more especially where the ground is of a close texture; light loose ground will require well treading after planting, but this must be done when it is dry. One foot apart is a good distance to plant, and when once established they need but little care; and as growth advances, they should be supported, and where quality rather than quantity is the object in view, the buds must be thinned. In dry weather a good soaking of water must be afforded the soil about once a week, and where any special sort appears to require assistance, a light sprinkling of some artificial fertiliser may be pricked in before giving water. When planting in a mixed border a good display is made by putting them in clumps of three plants of one variety 9 inches apart. Where the soil in the border is exhausted, a spadeful or two should be taken out and replaced with some good free compost; place out in this, and plant as carefully and firm as if they were being potted.

The select list given below will be found to possess in almost all cases most of the qualities which constitute a really all-round border Carnation:—Alice Ayres, pure shell-white, beautifully pencilled with carmine, of fine globular form, of vigorous and branching habit, is one of the finest varieties; Amber is clear self coloured amber, not large, but of good form: it is a tall grower; Anna Benary has very pretty flowers, barred with carmine and white; stiff, short foliage; in habit a model plant, the flower-stems not being more than 1 foot in height, standing without supports, and very free to flower. Beauty of Foxhall is a deep, bright plum-purple, the best of this colour; Cara Roma has a shade of maroon, velvety in texture, and is the nearest approach to a black that we have among Carnations; Charles I. is a deep rosy-fawn, suffused with yellow; a flower liable to split; otherwise it is very pretty, with foliage stiff and wiry, and quite distinct in habit, which is much branched; Elsie is yellow, barred with white, and beautifully flaked with rosy-pink; few of the yellows are very sweet-scented, but this is an exception, it being very fragrant; Florence is of a pretty shade of nankeen-yellow, a distinct colour, which has of late been in great demand for making up sprays, &c.; Gloire de Nancy is an exact counterpart of the old crimson Clove, except in colour, which is of the purest white. The first flowers of this variety which open are very liable to burst, but by the grower pinching out the first and abnormally large buds, those that follow will be found of good form. Lady Armstrong is a clear rose-edged flower with a ground of deep yellow, and a sportive character, when it is even more handsome than when true. Louis Pattay is salmon-tinted buff, barred with blood-red, this was originally distributed as a Tree Carnation, and is still grown as such. It is one of our sturdiest border varieties. L. H. Pomeroy, a heavy crimson self, an exceptionally large flower, is a strong and robust grower; Mrs. Crombie, bright coral on a rich buff ground—is a very handsome flower, and a general favourite; Mrs. Reynolds Hole is a lovely salmon-apricot colour, a shade distinct from all others; flowers large and finely formed, many of which are produced late in the season from the laterals after the main crop is quite past. It is one of the finest varieties; it is sometimes known as Gravetye Gem and Apricot. It is a matter of regret that it was not allowed to retain one of these names, considering there is a well-known Picotee that has long borne the name of Mrs. Reynolds Hole. Napoleon III. is, perhaps, the brightest of all the scarlets, and being of fine quality and correct form, is much appreciated; Nurse Finns, the purest white self, in many respects resembling W. P. Milner, but

is much fuller and finer in every way—this has a great future as a choice white flower for cutting purposes. Paul Engleheart is rich glowing crimson, a fine formed flower, as powerfully scented as the old Clove, of dwarf sturdy growth requiring no supports. Pride of Penshurst is scentless, otherwise it is the best yellow self for out-door work, rather fastidious as to locality, but where it does thrive it proves itself a treasure; Germania and Will Trelfall promise to supplant it, but as yet they are very scarce. Raby, a clear soft shade of salmon-pink, a free and sturdy grower is one of the best to stand rough weather. Redbraes, a deep purple edged Picotee, not defined enough for a show flower, is well known as one of the hardiest for border display. Sir B. Seymour, a rich carmine, shaded with orange-buff, is a full formed and very handsome flower; the Coroner is a beautiful clear light scarlet, of good form and free habit, a strong vigorous grower, and very hardy. *F. G.*

LIST OF GARDEN ORCHIDS.

(Continued from p. 649).

Cattleya Labiata var. Mossiæ, Lindl., *Bot. Reg.* xxvi., t. 58; C. Mossiæ, Hook., *Bot. Mag.*, t. 3998; Id. *Cent Orch Pl.* t. 29; *Revue Hort.*, 1857, p. 322 fig. 113; Warn. and Will., *Orch. Alb.*, t. 246; *Orchidophile*, 1887, p. 255, with fig.; Veitch, *Man. Orch. Pl.*, pt. 2, p. 22, with fig., also p. 23, with fig; Knowles and Westc., *Flor. Cab.*, ii., p. 53, with plate; *Gard. Chron.*, n.s., xx., p. 530, 533, fig. 89.—Venezuela. Introduced by Mr. George Green, of Liverpool, in 1836.

The following names represent colour variations or polymorphisms of the same. *C. Carrièrei*, Houllet, in *Revue Hort.*, 1876, p. 350, with plate. *C. labiata atropurpurea*, Paxt., *Mag. Bot.*, vii., p. 73, with plate; *C. l. candula*, Lindl., in Paxt., *Fl. Gard.*, i., t. 24; *Flore des Serres*, t. 661. *C l. Mossiæ Nadeirina*, Rchb. f., in *Gard. Chron.*, n.s., xxiii., p. 756. *C. l. M. Peetersii*, Rchb. f., in *Gard. Chron.*, ser. 3, iv., p. 6. *C. Peetersii*, André in *Revue Hort.*, 1885, p. 271. *C. labiata picta*, Lindl., in Paxt. *Fl. Gard.*, i., t. 24; *Flore des Serres*, t. 660. *C. Mossiæ alba*, O'Brien, in *Gard. Chron.*, n.s., xx., p. 372. *C. M. Arnoldiana*, Sander, *Gard. Chron.*, n.s., xxii., p. 7. *C. M. aurea*, T. Moore, in *Gard. Chron.*, 1864, p. 554. *C. M. aureo-grandiflora*, T. Moore, *l.c.*, p. 554; Warn. and Will., *Orch. Alb.*, t. 289. *C. M. aureo-maculata*, T. Moore, *Fl. Mag.*, i., t. 27. *C. M. aureo-marginata*, T. Moore, in *Gard. Chron.*, 1864, p. 554. *C. M. Blakei*, T. Moore, *l.c.*, p. 554. *C. M. complanata*, T. Moore, *l.c.*, p. 554. *C M. conspicua*, T. Moore, *l.c.*, p. 554. *C. M. elegans*, T. Moore, *l.c.*, p. 554. *C. M. fimbriata*, T. Moore, *l.c.*, p. 554. *C. M. flamea*, T. Moore, *l.c.*, p. 554. *C. M. grandiflora*, T. Moore, *l.c.*, p. 554; Warn., *Sel. Orch.*, ser. 3, t. 16, fig. 1. *C. M. grandis*, T. Moore, in *Gard. Chron.*, 1864, p. 554. *C. M. Hardyana*, Williams and T. Moore in *Orch. Alb.*, t. 125. *C. M. Helenæ*, T. Moore in *Gard. Chron.*, 1864, p. 554. *C. M. Lawrenceana*, T. Moore, *l.c.*, p. 554. *C. M. majestica*, *Gard. Chron.*, n.s., i., p. 385. *C. M. Marianæ*, T. Moore, in *Gard. Chron.*, 1864, p. 554; Warn., *Sel. Orch.*, ser. 3, t. 24. *C. M. marmorata*, T. Moore, in *Gard Chron.*, 1864, p. 554. *C. M. McMorlandi*, Williams, *Orch. Gr. Man.*, ed. 4, p. 118; Warn., *Sel. Orch.*, ser. 3, t. 16, fig. 2. *C. M. Mooreana*, T. Moore, in *Gard. Chron.*, 1864, p. 554. *C. M. Napoleonis*, T. Moore, *l.c.*, p. 554. *C. M. purpurata*, T. Moore, *l.c.*, p. 554. *C. M. Reineckiana*, O'Brien, in *Gard. Chron.*, n.s., xx., p. 372; *C. Reineckiana*, Rchb. f., in *Bonplandia*, iv., p. 327; Wittm., *Gart. Zeit.*, 1882, p. 159, with plate; *Gard. Chron.*, n.s., xx., p. 172, fig. 33. *C. M. reticulata*, *Gard Chron.*, n.s., xxi., p. 641. *C. M. Rothschildiana*, T. Moore, in *Gard. Chron.*, 1864, p. 554; Warn., *Sel. Orch.*, ser. 3, t. 16, fig. 3. *C. M. speciosissima*, P. N. Don, in *Florists' Journal*, 1844, p. 101, with plate. *C. M splendens*, T. Moore, in *Gard. Chron.*, 1864, p 554. *C. M. striata*, T. Moore, *l.c.*, p. 554. *C. M. superba*, T. Moore, *l.c.*, p. 554. *C. M. venosa*, T. Moore, *l.c.*, p. 554. *C. M. Victoriæ*, T. Moore, *l.c.*, p. 554. *C.* × *M. Wageneri*, O'Brien, in *Gard. Chron.*, n.s., xx., p. 372. *C. Wageneri*, Rchb. f., in *Bonplandia*, ii., p. 21; *Id.*, *Xen. Orch.*, i., t. 13; Warn. and Will., *Orch. Alb.*, t. 295. *C. M. Williamsii*, T. Moore in *Gard. Chron.*, 1864, p. 554. *C. pallida*, Lindl., in Paxt. *Fl. Gard.*, ii., t. 48; Lem., *Jard. Fleur.*, t. 161. *C. Reineckiana bella*, Rchb. f., in *Gard. Chron.*, n.s., xxv., p. 554. *C. Reineckiana superbissima*, *Gard. Chron.*, n.s., xxi., p. 609.

Var. Percivaliana, Rchb. f., in *Gard. Chron.*, n.s., xvii., p. 796; Warn. and Will., *Orch. Alb.*, t. 144; Sander's *Reichenbachia*, i., t. 2. *C. Percivaliana*, O'Brien, in *Gard. Chron.*, n.s., xx., p. 404; *id.*, xxi., pp. 178, 181, fig. 35. Venezuela. Introduced by Messrs. Sander & Co., of St. Albans, about the year 1882. A valuable winter-flowering form. The following name represents a form with somewhat different coloration:—*C. Percivaliana Reichenbachii*, Linden, in *Lindenia*, i., p. 83, t. 39.

Var. Trianæ, Duchartre, ex *Journ. Soc. d'Hort. Paris*, 1860, p. 369 (in note), t. 13; Veitch, *Man. Orch. Pl.*, pt. 2, p. 26, with fig. *C. Trianæ*, Linden and Rchb. f., in *Bot. Zeit.*, 1860, p. 74; Warn. and Will., *Orch. Alb.*, t. 45; *The Garden*, xxii., t. 346; *Deutsch. Gart. Zeit*, 1886, p. 195, figs. 47, 48; *Revue Hort.*, 1860, p. 406, 407, figs. 85, 86. *C. quadricolor*, Lindl., in *Gard. Chron.*, 1864, p. 269; *Bot. Mag.*, t. 5504; *Ill. Hort.*, t. 514; *C. boyotensis*, Linden, ex Morren, *Belg. Hort.*, xv., p. 102.—New Grenada. Introduced to British Gardens by Mr. Rucker, of Wandsworth.

The following names represent colour variations, or polymorphisms of the same:—*C. chocoensis*, André, in *Ill. Hort.*, 1870 p 37; Id. n.s., t. 120. *C. Kimballiana*, L. Linden and E. Rod., in *Lindenia*, t. 89. *? C. labiata* var. *magnifica*, Regel, in *Gartenflora*, 1888, p. 497, t. 1281. *C Trianæ alba*, *Gard. Chron.*, n.s., xvii., p. 222; *Lindenia*, t. 29. *C. T. Annæ*, *Lindenia*, t. 31. *C. T. Atalanta*, *Gard. Chron.*, 1870, p. 111. *C. T. Backhousiana*, *Gard. Chron.*, n.s., xxiii., p. 309. *C. T. Colemanni*, *Fl. Mag.*, n.s., t. 176. *C. T. Corningii*, *Gard. Chron.*, ser. 3, i., p. 428. *C. T. delicata*, *Gard. Chron.*, n.s., xxiii., p. 309. *C. Warscewiczii delicata*, T. Moore, in *Proc. Roy. Hort. Soc.*, ii., p. 121; Warn., *Sel. Orch.*, ser. 1, t. 4. *C. Rollissonii* T. Moore, *Fl. Mag.*, i., t. 8; *C. Mossiæ Rollissonii*, T. Moore, *l.c.*, in note. *C. Trianæ Dodgsoni*, Williams, in *Gard. Chron.*, n.s., xi., p. 406; *Fl. Mag.*, n.s., t. 64; Warn. and Will., *Orch. Alb.*, t. 249. *C. T. Emiliæ*, *Gard. Chron.*, n.s., xxi., p. 342. *C. T. Emperor*, *Gard. Chron.*, n.s., xxiii., p. 309. *C. T. Ernesti*, Sander, *Reichenbachia*, t. 43. *C. T. formosa*, *Gard. Chron.*, n.s., xvii., p. 369; Warn. and Will., *Orch. Alb.*, t. 108. *C. T. Hardyana*, Rchb. f., in *Gard. Chron.*, n.s., xi., p. 366. *C. T. Hooleana*, Williams, in *Orch. Alb.*, t. 265. *C. T. Io*, *Gard. Chron.*, 1870, p. 111. *C. T. lacera*, Rchb. f., in *Gard. Chron.*, 1869, p. 738. *C. T. Lawrenceana*, *Flor. & Pomol*, 1870, p. 93. *C. T. Leeana*, *Gard. Chron.*, n.s., xxiii., p. 309. *C. Leeana*, Sander, *Gard. Chron.*, n.s., xix., p. 243. *C. Trianæ magnifica*, *Gard. Chron.*, n.s., xxiii., p. 309. *C. T. Massangeana*, Rchb. f., in *Gard. Chron.*, n.s. xix., p. 242. Warn. and Will., *Orch. Alb.*, t. 242. *C. Massangeana*, Rchb. f., in *Gard. Chron.*, xix., p. 242. *C. T. Normani*, *Gard. Chron.*, n.s., xxiii., p. 309. *C. T. Osmani*, *Fl. Mag.*, n.s., t. 361. *C. T. Penelope*, *Gard. Chron.*, 1870, p. 111. *C. T. Popayan*, Rchb. f., in *Gard. Chron.*, n.s., xxi., p. 377. *C. T. rosea*, *Gard. Chron.*, n.s., xix., p. 310. *C. T. Russelliana*, *Gard. Chron.*, n.s., xxiii., p. 309; Warn. and Will., *Orch. Alb.*, t. 219. *C. Trianæ Schroderæ*, Rchb. f., in *Gard. Chron.*, ser. 3, i., p. 512. *C. Schroderæ alba*, *Gard. Chron.*, ser. 3, iv., p. 94. *C. T. Schröderiana*, Rchb. f., in *Gard. Chron.*, n.s., xxv., p. 266; Sander's *Reichenbachia*, t. 46. *C. T. splendidissima*, T. Moore, in Warn. and Will., *Orch. Alb.*, t. 150. *C. T. Vanneriana*, *Gard. Chron.*, n.s., xxv., p. 331. *C. T. Venus*, *Gard. Chron.*, 1870, p. 111. *C. T. Victoriæ Reginæ*, *Gard. Chron.*, n.s., xxiii., p. 309.

Var. Warneri, O'Brien, in *Gard. Chron.*, n.s., xx., p. 372. *C. Warneri*, T. Moore, ex Warn., *Sel. Orch.*, ser. 1, t. 8; *Fl. Mag.*, t. 516; *Gard. Chron.*, n.s., xix., p. 369, 372, fig. 57. S. Brazil, flowered in the collection of Mr. Robert Warner, of Chelmsford, in 1860. Very near to the original C. labiata, but flowers in June and July, not in autumn. *R. A. Rolfe, Kew.*

(To be continued.)

PLANTS AND THEIR CULTURE.

The Treatment of Forced Plants.—A few notes on the above subject will be found of use at this date, for it often happens that numerous plants after doing good service early in the year are neglected through want of time and press of work; but if some amount of attention can be bestowed on them after blooming, it will be well repaid the following year. Azalea mollis and other hardy varieties of Azaleas should be placed in a vinery or Peach-house to assist them in making new growth, and be afterwards gradually hardened off—plunging them in the soil of a south border. Deutzia gracilis will not require much pruning back after blooming if the plants, where used for supplying cut blooms, had only a little regulating; but plants which were ready early for decorative purposes should be cut back moderately, and put into a warm moist pit to make their growth—syringing them heavily to keep down red-spider. In small houses where much space cannot be given them, the plants may be cut back to the last two or three eyes; and when the plants have commenced to grow, they should be shaken out and repotted in the same sized pots, giving them the treatment advised above, and gradually hardening them off, afterwards placing them is full exposure. These plants require a liberal supply of liquid manure when growing, and it is best to plunge them in coal ashes on a hard bottom. Hoteia (Spiræa) japonica should now be planted out in their summer quarters, as they are very accommodating plants, and need less attention after forcing than Deutzias; but they should always be placed under glass till they are ready to be planted out. The roots should be divided if required in quantity, and these soon make useful plants from quite small pieces. The soil in which they are to be planted should receive a good dressing of rotten manure; and the best position for them is a border of rather retentive soil. We mulch our plants with cow manure when new growth has commenced, and get well repaid by the great quantity and good quality of the flowers. The plants stay in their summer quarters until required for forcing, placing just a little bracken over the crowns to ward off frost. If possible the plants should have a season's rest after division, and they then force very easily.

Callas may now be planted out, if that plan is adopted—and it is the best—if the plants are not required early. Abundance of moisture must be supplied when they are in active growth, and a heavy soil suits them. For very early purposes the pots should be plunged over the rims and liquid manure given frequently. When making growth we prefer to have one large plant in a rather small-sized pot, 6 or 7-inch; and before plunging the pots the plants are shaken out, the suckers removed, and the plants repotted in the same size pots as those out of which they came. The later lot of plants is similarly treated and not potted, but planted out to be carefully lifted in the autumn. Dielytra spectabilis should be planted out, dividing it first, and giving it the same kind of treatment as that advised for Spiræas. Helleborus niger, which are useful plants when brought on in a cool-house, should be planted out as early as possible after flowering, so that the plants may have a long season in which to grow. Lilacs, Viburnum opulus, Prunus sinensis alba, fl.-pl. Andromedas, and similar subjects should be planted out, and given at the least one season's rest before again forcing them. Hardy Rhododendrons will be benefited by being planted out for a time. We keep our named plants in pots, repotting them occasionally, and placing them in the open air in May with full exposure to the sun, and when in active growth partially plunge the pots in coal ashes, and afford some good fertiliser occasionally to the roots. Lilies of the Valley that have been forced may be pulled apart, carefully spreading out the roots of the plants, and planting them in a good compost; the young buds which spring from the old plant will bloom in three years, and the young plants that have made leaves this season will flower in two years, and indeed some may flower in one year. The plants are partial to decayed leaf-mould and old cow-manure, and need a good supply of water during dry weather. Full sunshine is not good for them. *Geo. Wythes, Syon Gardens, Brentford.*

THE FLOWER GARDEN.

MANAGEMENT OF BEDDING PLANTS.—In the best of seasons the time that these continue in good condition is comparatively short, so that anything which tends to lengthen it, is worthy of consideration. To plant thickly is one way of securing early effectiveness, and another is to encourage the rapid growth of the plants by mulching—a process that keeps the soil in that medium state of moisture so essential to kindly growth.

Peg out all plants requiring that kind of attention, and if the flowers and flower-buds now showing are cut off, the growth of the shoots will be increased. Lobelias, Violas, Calceolarias, Petunias, Heliotropes—in fact, any plant that has a tendency to flower, rather than to make wood growth, when they are first put out—should have its flower-stems cut close back, in order that it may become bushy and branching, when it will in due time produce treble the number of flowers as would be the case if left to itself. Put stakes to Dahlias and Hollyhocks, reducing the number of the stems of the latter to two only the strongest plants should not possess more, to be enabled to produce the finest flowers. I have seen five and six stems left on a plant, but both spikes and flowers were very poor. Yellow and white Marguerites should also have slight supports put to their stems, to prevent lopsidedness. Any of the yellow-flowered varieties make effective beds when planted thinly over a groundwork of Agathea cœlestis, or so-called blue Marguerite—a plant that bears either pegging or pinching with impunity, and that consequently is specially suited for a groundwork plant. There are some tall-growing species of plants which may with advantage be made to develop a bushy habit of growth—an advantage, where stakes and time to do the work are not available. Of these, I may instance, Ricinus Gibsonii, with copper-coloured foliage, and which bears pinching in as well as any plant. This plant when kept pinched-in being planted thinly over the surface of a large bed having an under growth of Harrison's Musk, makes a perfect bed; the partial shade that the Ricinus affords the Musk being of advantage to the latter. Groundwork and dividing line plants, of the dwarfer kinds, as Sedums, Cerastiums, Antennarias, and Herniaria require, in order that they may be got to cover the ground quickly, to have their flowers constantly picked off, and the tufts to be occasionally pressed down with the fingers to induce a perfectly even appearance. The flowers of Sedums and Antennarias are removed in the readiest way by pulling them out; the flower of Cerastiums by clipping them off with a pair of sheep shears. Herniaria requires pressing down only, except when it spreads beyond its allotted space, then clipping becomes necessary.

Herbaceous Borders.—At the present time, these are exceptionally gay with Aquilegias, Pæonies, the German Iris, Lilies, Pyrethrums, Hemerocallis, Ranunculus, and Anemones, all of them with the exception of Pyrethrum roseum varieties, and Pæonies require no labour in regard to stakes and ties. Beside keeping the borders clean, and tying up such plants as require it, there is not much work in this department. Odds and ends of plants left over from the bedding out, may be planted in any vacant spots; Ricinus, Eucalyptus, Sunflowers, Wigandias, Solanums, single Dahlias, Tobaccos, and Cannas, are some of the plants that we have to plant in such places, and stakes will be placed to them at once as well as to other stationary plants in the borders that now need supports, amongst which are Œnotheras, Delphiniums, Helianthuses, Galegas, and Phloxes. *W. Wildsmith, Heckfield Place, Hants.*

FRUITS UNDER GLASS.

FIGS UNDER COURSE OF FORCING.—The trees in the Fig-house proper will now be in full bearing, therefore keep a drier air with abundant ventilation to give flavour. Thin out the fruits that will form the second crop, if these are too abundant. Water well, and mulch the border now that warm weather has come; keep the subsidiary shoots stopped, and the leaders tied in; gather the ripe fruits in the morning before they crack, if they have to travel any distance; if not, leave them on the tree till thoroughly ripe, and bursting takes place. A little fire-heat at night, and in the event of damp days occurring, will be necessary, in order to keep up the circulation of air in the house, and prevent the mildewing of the fruits. Trees in pots will generally be swelling their second crop, and will require generous treatment to cause them to perfect it, and to this end top-dressing, and watering with manure-water, will be necessary. Syringe them twice daily, and keep up a warm, moist atmosphere until ripening commences.

Vines.—The early Vines, whose fruit has been taken, should be freely ventilated on all favourable occasions, but yet not starved by too cool a treatment. The paths and borders should be damped down on bright days, and the foliage occasionally syringed, adding a little sulphur and soft-soap to the water used for this purpose if red-spider be prevalent. Keep the lateral growths shortened, and the leaves, especially the older ones, as healthy as possible, as these greatly aid in developing the fruit-buds of next season.

Grapes beginning to colour should have a lower temperature; and the house must be kept drier, with plenty of air admitted by day and night when the weather is dry and mild. The border should be examined at this stage, and if found to be dryish it must receive a thorough drenching with tepid water.

Succession Vineries.—Houses in which the Grapes are now swelling should be damped down several times a day whenever the weather seems to call for it, shutting them up in the afternoon with plenty of moisture about. Pinch in the points of the lateral shoots with regularity, and keep a sharp look-out for red-spider, sponging the foliage before the insects have gained strong foothold on it. The late Muscats will now be set, and will require thinning in bunch and berry. This operation should be carefully done, but always affording time for the berries to develop, so that the thinner can distinguish the seedless berries. Lady Downe's Seedling and Black Alicante should be seen to at once, tying down the bearing shoots, and stopping all laterals at the first leaf, the berries being thinned before there is any danger of bruising the tender skins of those left. Top-dress the outside border with old Mushroom dung, if this be not already done, and see that the inside one is in a proper condition as regards moisture; and if the borders are shallow and the house an airy one, watering will be necessary once a fortnight. Maintain a temperature of 70° to 75° for Muscats, and for others 65° to 70° at night, and when the nights are mild a small amount of air may be admitted the house by the top ventilators all night, increasing the amount in good time in the morning. Shut up in the afternoon with sun-heat, allowing the heat to rise to 90°.

Young Vines.—Those planted this season should be stopped when half way up the rafter, if it be a long one, and encouraged to make a considerable amount of lateral growth. Vines in pots may be stopped at from 7 to 10 feet, and the laterals kept shortened back to the first leaf or two. Syringe these young Vines freely, and pay close attention to the watering of them. *W. Bennett, Ranyemore, Burton-on-Trent.*

THE HARDY FRUIT GARDEN.

THE GRAFTS.—Attention must now be given to early grafted trees, and, should the grafts be growing freely, the clay may be removed, and the fastenings loosened, and, it may in some cases, be found necessary to rebind the grafts slightly. Where the union is found to be imperfect it will be well to re-clay the grafted part. In order to prevent the grafts from getting broken off by wind, after the ties are cut away, a small stick should be placed behind the graft, securing it to the stock, and the graft be neatly tied to it. All root-suckers, and shoots on the stem should be removed, so as to give the grafts the best chance of growing. Late grafts will be assisted by occasionally damping the clay, especially in dry districts.

Gooseberry and Currant Bushes.—Where large fruits are required for table or for showing, the fruit, where too thickly hanging, should be thinned early, and the bushes receive a mulching of stable manure, thereby assisting the growth of the fruit and preserving the fruit in a clean state. No trace of the Gooseberry caterpillar has as yet been noticed in these parts, but should the pest appear white hellebore powder should at once be applied to the bushes, but taking the precaution to clear the bushes of it by heavy syringing with clear water before making any use of the fruit. *H. Markham, Mereworth Castle, Kent.*

THE KITCHEN GARDEN.

CAULIFLOWERS.—The earliest sowings of Eclipse and Autumn Giant which were pricked out in May will be ready for planting out. The soil cannot be too rich; so when the soil is light, plenty of good rotted cow or pig manure should be dug into the ground. Under such circumstances they may be more successfully grown in trenches, like Celery, making the trenches 3 feet wide, and 3 feet beds. Should the season prove hot and dry, this will ensure them against drought, and will also facilitate watering.

Cabbage.—A good pinch of Little Pixie should be sown, for planting vacant spaces after Peas and Potatos. This is a wonderfully rapid grower, and of first-rate quality; it occupies but little space, and can be planted 12 to 14 inches apart each way. Under favourable conditions it is ready for cutting from six to eight weeks after planting, provided the plants have been pricked out, and are of good size and planted with good balls. Winningstadt is also a good hardy variety, and stands the winter well, but from the solidity of the head it is very liable to split when there is much rain in the autumn. A sowing of the various kinds of other favourite Cabbages can also be made—one about the middle of June, the beginning and middle of July, and another in August.

Celery.—The earliest will now be all in the trenches, every attention must be given to watering when necessary, or the slightest check at this stage will prove disastrous. A little clear soot-water and dung-water may be given with advantage, but guano should not be used, as it does not develop crisp Celery. Where the soil is heavy and the subsoil cold, the shallower the trenches the better will the Celery keep during the winter; where the subsoil is gravelly or porous and the soil light, the trenches should be 1 foot to 15 inches in depth. Do not allow the plants in the nursery beds to get drawn before they are planted out, as it takes the plants some considerable time to get over the check. The bulk of the crop, as a rule, should be in its place by the end of the present or middle of the next month.

Turnips.—A larger breadth may be sown, but it will be early enough for the main crop if got in by the end of the present month. Thin out previous sowings before they get spoiled by overcrowding. Keep a sharp outlook for the Turnip-fly; it seldom does much harm after the plants get out of the seed-leaf, although during the dry season of 1887 it was almost impossible to grow Turnips or Savoys on our heavy clay soil.

Lettuce and Endive.—Plant out previous sowings on well prepared soil, choosing an eastern or northern aspect. A larger breadth may be sown about the middle of the month for autumn use; Broad-leaved Batavian and the French Escarole (which is a form of the same) are good varieties. *Wm. Baillie, Luton Hoo.*

CARTERS' PROVIDENT SICK FUND.—The fourth annual meeting of the above was held on Friday, May 31, in the warehouse of Messrs. J. Carter & Co., Seedsmen, High Holborn. The chair was occupied by the President and managing partner of the firm, Mr. E. J. Beale, who opened the proceedings with a few well chosen remarks, emphasising the advantages derived from co-operation, exemplified in the success which had attended the formation of the Fund. He had in the first instance suggested its formation, feeling sure that the benefit derived from similar institutions in other large industrial establishments would be appreciated by his *employés*. He looked upon the Society as a step in the right direction, and hoped some day our legislators would follow the lead of Prussia, and bring in a scheme of a national character. The premium in Prussia was (he said) about 2*s*. 11*d*. per head per annum for the whole population, and the benefits included a comfortable sustenance when old age or infirmity compelled retirement from active work. The statement of affairs was then presented, showing a substantial balance in hand, £100 of which was set aside as a reserve fund. A donation of £10 was then voted to the Hospital Saturday Fund as in previous years, and a bonus was announced to be distributed at Christmas next. The executive officers were re-elected with unanimity, and a hearty vote of thanks to the chairman brought the proceedings to a close.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

TUESDAY, JUNE 11 { Royal Horticultural Society: Fruit, Floral, Orchid, and Scientific Committees.

SALES.

WEDNESDAY, JUNE 12 { The Valuable Collection of Orchids formed by the late W. H. Crawford, Esq., of Lakelands, Co. Cork (two days), at Stevens' Rooms.

FRIDAY, JUNE 14 { Imported Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—60°.4.

Horticulture in the City.

WHEN the reforms of the Royal Horticultural Society, now happily in some measure accomplished, were attracting much attention, the idea of going into the City was laughed at by some people who did not give the matter sufficient consideration. City men, with their keen business habits, were and are far more likely to realise the fact that Horticulture is a practical art of great commercial and economic importance than West End *dilettante*, whose notions of horticulture are circumscribed by bands, flower shows, and millinery. These matters are not to be undervalued, of course, but to treat them as the main objects of horticulture is to be false to the principles on which a great Society was founded, and to court that degradation which is sure to be consequent on the neglect to rise to the level of duty. The success of the Temple Show may be taken in a measure as a justification of these remarks. But it is not to this that we desire now to allude; our point is better illustrated by some recent proceedings of the LORD MAYOR, which we find reported at length in the *City Press*.

"It will be remembered (says our contemporary), that shortly after his accession to the civic chair, the LORD MAYOR, whilst a guest at a banquet of the Fruiterers' Company, suggested that the court should take a more active part than they had hitherto done in the industry with which the guild was originally closely associated. The proposition fell on ready ears; the court, with a promptness for which they deserve high commendation, at once taking into consideration the ways and means by which it could be carried into practical effect. Not content with having made the mere abstract suggestion, the LORD MAYOR consented to assist the court in the enterprise to which they had set their hands. With the object of obtaining data likely to prove of service to the court, his Lordship, accompanied by Mr. MASON (the master of the Company), paid a visit on Saturday last to Swanley, the purpose being to inspect certain farms and orchards on which the cultivation of fruit is being carried on upon a large scale."

The civic party managed within a few hours to see something of various departments of horticulture as a manufacturing, a decorative, and a food-supplying industry, and did not neglect that which, under the existing condition of agriculture, is the most important of all—the educational department. First of all, because nearest to the station, Mr. WOOD'S jam factory came under notice:—

"The process of manufacture was witnessed, the whole of the works being carefully inspected. Mr. WOODS is one of the largest jam makers in England, an interesting point in connection with his factory being that, with the exception of Apricots and one or two other fruits that it is impossible to grow to good advantage in this country, all his jam is made from the produce of his own orchards and gardens. The extent of his business may be judged by the mention of the fact that he owns 2000 acres of Strawberries, the number of plants that are now productive being more than 3,000,000. Of the quantity derived from these plants it is impossible to speak with any exactness, though some idea may be formed from the statement that last year—an exceptionally bad season, by the way—Mr. WOODS, after he had made tens of thousands of pounds of jam for his own requirements, was able, with the surplus fruit, to send to one man in Liverpool no fewer than 300 tons of Strawberries. When the season is in full swing, the factory is able to utilise for making into jam no fewer than 60 tons of Strawberries every week. The sugar used in the manufacture is mostly Beet, and, relative to the bounty question, Mr. WOODS mentioned to his visitors, that in the event of the agreement being passed into law, the sugar that he now gets for a little under 1½*d*. per pound will cost him more than 5*d*. per pound. That being the case, one can easily understand why those who follow trades in which much sugar is used object so strongly to the confirmation of the agreement arrived at on behalf of the Government by Baron DE WORMS. Besides the jam manufacture, Mr. WOODS does a large business in bottled fruit, a means of preservation which of late years has been increasingly adopted in this country. The fruit, which is carefully selected, only the best being able to be used, is placed in the bottles, which are then filled up with water. A careful corking-down takes place, and then the bottles are placed in a tank, which is heated to 160°, at which temperature the fruit is cooked. The bottles are then taken out and cleaned, the only other process which has to be gone through being the labelling and packing ready for the market. The trade in bottled fruits is, so Mr. WOODS remarked, very much 'cut,' the prices ranging so low, that a dozen quart bottles may be purchased for from 6*s*. to 7*s*.—in other words, having regard to the quality of the fruit and the value of the bottle, &c., the bottled fruit can be obtained at a price not a whit in excess of that charged for the raw 'material.' In the manufacture of the jams, bottled fruits, sweets, &c., many girls are employed, the wages paid being very handsome, considering the low figure at which female labour can be obtained, especially in country districts."

It is but a stone's throw from the House of Jam to the "Home of Flowers," where, as we mentioned last week, the party were received by Mr. CANNELL, whose Calceolarias and Begonias might well have surprised the visitors, as those who saw the exhibit made by the firm at the Temple show will readily understand. A visit was then made to the Boy's Home, an excellent institution, to which we need do no more than refer.

This visit was succeeded by another made to the recently established Horticultural College, founded for the purpose of affording scientific and technical education to would-be horticulturists, and we heartily concur with his Lordship's remarks on the necessity of such education as the College is founded to give. This is indeed no new subject with us, for in season and out of season we have impressed upon our readers the necessity for improved technical education in horticulture and agriculture, and we are pleased to find our views confirmed by so practical an authority as the LORD MAYOR. Speaking at the Horticultural College, his Lordship remarked that:—

"He was so much interested in horticultural and agricultural matters that he was rather glad to have an opportunity of saying a few words. He was accompanied on the present occasion by Mr. MASON, Master of the Fruiterers' Company—a guild that at the present time was taking a very great interest in the question of fruit-growing in England. For a great number of years he had observed with regret that in all parts of England, save Kent, Hereford, and Worcestershire, the orchards which used to exist in connection with the homesteads were being abandoned. He could not help feeling that that was a great loss to the country at large. That being the case, he was glad to know that the Fruiterers' Company, the Royal Horticultural Society, and the provincial agricultural societies, were doing their best to carry out the views he had expressed. The object of the present visit was the obtaining of information likely to prove of service to them in the object they had in view. He was strongly of opinion that in this country we could grow fruit, flowers, and vegetables under glass quite as cheaply and as well as they were grown in the open air in the south of France, Malta, and Italy. He was further convinced that the cost of glass in the first instance, and the cost of maintaining it afterwards, would not in the long run amount to more than the present cost of the carriage of the goods from the countries he had mentioned. The chief market for these goods was London, and as they were within easy reach of the metropolis, it seemed to him it was worth their while to consider whether they would not make the attempt to grow the produce at home, thus keeping in the country the capital sent out of it at the present time. One point which he considered was all in favour of growth under glass, was that whatever was produced by that means was not subject to the influence of the weather or the influence of the seasons, to the same extent as the crops grown in the open air As it seemed to him, what was wanted in this country was more education in agriculture and horticulture. It was for the want of this education that we were not producing more than we did of many of the articles we imported at the present time. Every day, he was glad to say, we were becoming more and more alive to the necessity of further education on this important question. The Mercers' Company, he was led to believe, were just about to establish a horticultural college in the West of England. They would first spend about £40,000 in the establishment of the college, the purchase of the ground, and so forth. He had further heard it stated—and he hoped it was true—that they would endow it afterwards with the sum of £80,000. We were far behind foreign countries as regarded educational establishments connected with agriculture and horticulture. Where we had one such establishment Germany had forty; and Italy, which was only made a kingdom the other day, had nineteen. Therefore, it seemed to him that it behoved us to rouse ourselves in order that in

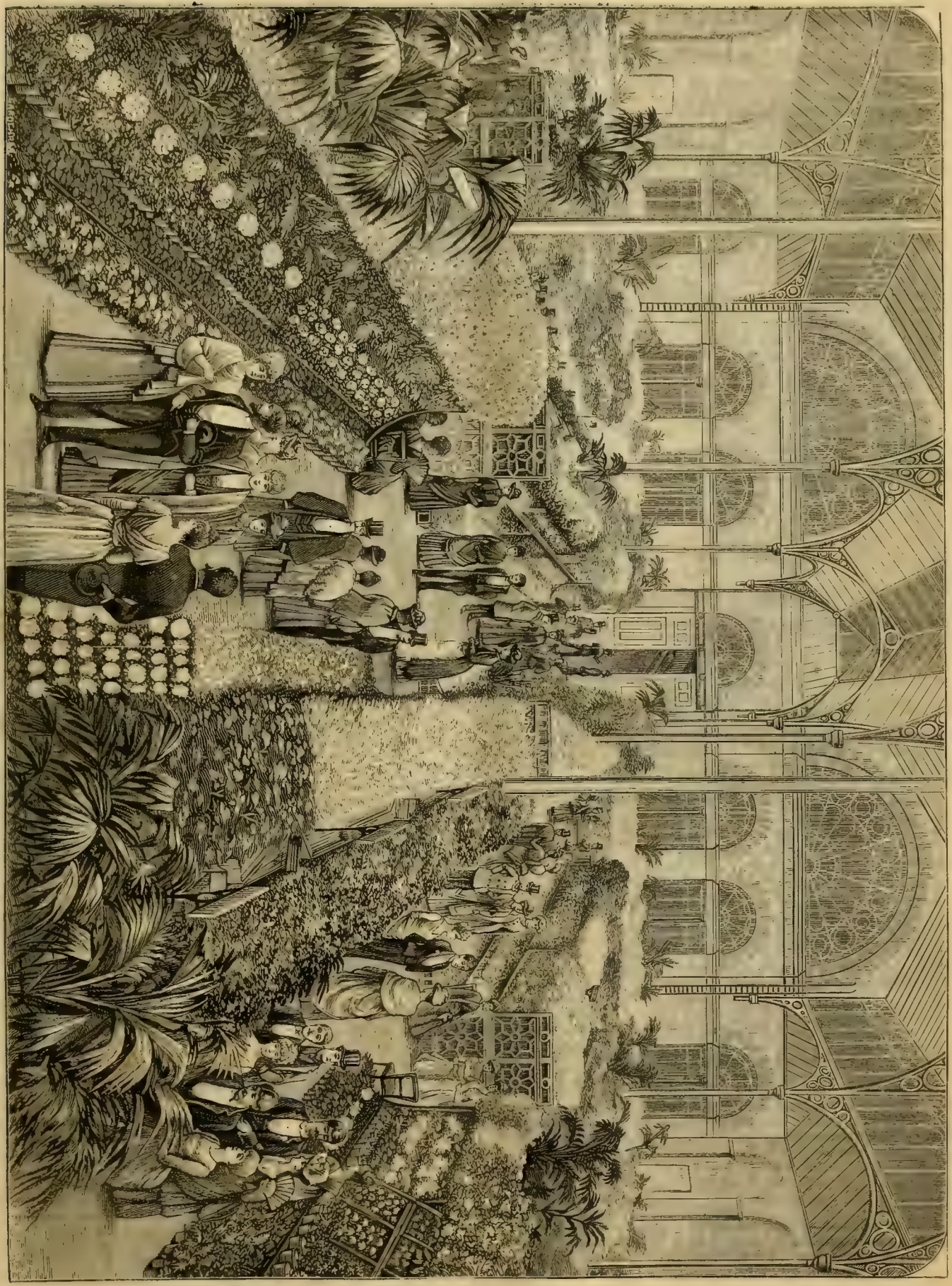


FIG. 117.—VIEW IN THE WHOLESALE FLOWER MARKET, COVENT GARDEN, ON THE OCCASION OF THE FLORAL FÊTE, MAY 22, 1889.

this particular we might not lag beyond our continental rivals. We wanted the elements of agricultural chemistry, agricultural science, and horticultural science taught in the schools situated in the districts where horticulture and agriculture could be carried on. Though he did not lay claim to the fact that his arguments had had any weight, he could not help feeling gratified at the circumstance that after he had waited on the Royal Agricultural Society on the subject, and after he had spoken to Lord SALISBURY concerning it, the views he had urged were included in the new education code, there being embraced in it a clause which permitted the teaching of these subjects in rural schools, for which the same grant as that obtainable in science and art from the Science and Art Department could be obtained. He hoped the time was not far distant when the subject would be looked upon in the light of a national necessity, and that something in the nature of compulsory education would be resorted to in regard to it. There had been of recent years a great change in the requirements of the country. We had found that we could import corn cheaper than we could grow it, and that in some cases we could import beef and mutton cheaper than we could breed the animals ourselves. But a great demand had sprung up for such things as could be grown in counties like Kent in the way of fruit and vegetables for the early market. He believed that if we took up the subject with the further light that education would give us, we could make it more profitable than the kind of farming that has been carried on in this country up to the present."

Railway Rates.

In pursuance of the line of action taken at a recent meeting, the Nursery and Seed Trade Association has prepared a report comprising the objections raised to the revised classification of rates for merchandise traffic on the Great Northern Railway. The same objections of course apply for the most part to the schedules of other railway companies. It is pointed out that the classification proposed by the companies is, as botanists would say, highly artificial and inconsistent; various amendments are therefore proposed, having for their object the attainment of a less arbitrary and more rational—or, to quote the botanist again, a more natural system of classification.

Objections to "maximum service terminals" are made, on the ground that every company is bound to take reasonable care in loading, unloading, covering, or uncovering merchandise entrusted to it for conveyance.

The Guarantee Fund established at the meeting has been considerably increased since, and it is to be hoped that the horticultural community—amateur as well as mercantile—has been aroused to the sense of the dangers that threaten them, and is prepared to defend its interests with all due energy and prudence.

THE GARDENERS' ORPHAN FETE.—The illustration which we give in the present number (fig. 117) will serve to convey some idea of the scene at the recent *fête* given in the Wholesale Flower Market on behalf of the Gardeners' Orphan Fund. About half the building is shown, filled, as it was, with market plants, the display being remarkable for the brilliancy of the flowers and the excellence of the cultivation. It is satisfactory to be able to add that the exertions of the "market men" resulted in the addition of a substantial sum to the funds of the charity.

ROYAL HORTICULTURAL SOCIETY. — The remaining arrangements of the Society for the year 1889 are as follows:—June 11: Floral meeting in the Drill Hall, James Street, Victoria Street, S.W. (close to the St. James's Park and Victoria Stations). Popular lecture at 3 P.M., on Orchids, by Mr. H. J. VEITCH, F.L.S.—June 25: Floral meeting in the Drill Hall. Lecture at 3 P.M., on Strawberries, by Mr. A. F. BARRON and Mr. GEO. BUNYARD.—July 2 and 3: Grand Rose Conference at Chiswick.—July 9: Meeting of committees, and general flower show, at Chiswick. Also show of Chiswick Horticultural Society.—July 23: Floral meeting in the Drill Hall, and National Carnation and Picotee Society's show. Lecture at 3 P.M., on the Florists' Carnation, by Mr. SHIRLEY HIBBERD.—August 13: Floral meeting in the Drill Hall. Lecture at 3 P.M., on Peaches and Nectarines, by Mr. T. FRANCIS RIVERS.—August 27: Floral meeting in the Drill Hall, and exhibition of flowers, fruits, and vegetables. — September 17: Floral meeting in the Drill Hall, and exhibition of flowers, fruits, and vegetables.—September 24, 25, and 26: Great vegetable Conference at Chiswick, and exhibition of all classes of vegetables then in season.—October 8: Floral meeting in the Drill Hall, and exhibition of flowers, fruits, and vegetables. Popular lecture at 3 P.M., on Conifers, by Mr. W. COLEMAN.—October 22: Floral meeting in the Drill Hall, and popular lecture at 3 P.M., on Pears.—November 5 and 6: Chrysanthemum Centenary Conference at Chiswick, and exhibition of all classes of Chrysanthemums under cultivation in this country.—December 10: Floral meeting in the Drill Hall, and exhibition of flowers, fruits, and vegetables.—Admission to all the above meetings and exhibitions is free to Fellows of the Society at 12 o'clock. The public is admitted on payment of one shilling, at 1 o'clock.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—On Thursday evening next, June 13, the Jubilee Festival will be celebrated by a dinner at the Albion Hotel, Aldersgate Street, E.C., when LEOPOLD DE ROTHSCHILD, Esq., will occupy the chair.

PROFESSOR REICHENBACH.—Some of our German friends write expressing their annoyance on the one hand at the ingratitude towards England manifested by the late Professor, and on the other at the want of patriotism shown by his testamentary dispositions. The late Professor was never very popular with his own countrymen, who speak of him, both in the public journals and in private correspondence, with no small degree of bitterness. Respect for services rendered in the past, and a desire to comply with the old adage—*de mortuis nil nisi bonum*—lead us to think it more dignified and more generous not to give publicity to the letters we have received.

INNSBRUCK. — Dr. EMIL HEINRICHER, of Graz, succeeds the late Dr. PEYRITSCH in the Directorate of the Botanic Garden of this city.

STORMS IN LANCASHIRE. — Terrific storms occurred on Sunday evening last over a great part of Lancashire, Cheshire, and Westmoreland. At Garstang pieces of ice from 3 to 5 inches in circumference are reported to have fallen. The damage to fruit and other crops, and to glass houses is very great. Similar storms occurred in North-eastern Scotland. But these catastrophes are as nothing compared with the appalling catastrophe in Pennsylvania.

MR. BULL'S ORCHID SHOW.—On looking in here recently we noticed many good things that had expanded since our previous notice amongst the Orchids arranged so artistically in the long show house. There were Cattleya Schroderi delicata, a sweet-scented pale variety with twenty blooms. It is an enduring flower; C. Warneri also appeared in several highly coloured fine forms. Of Lælia purpurata many great beauties were observed. L. p. Victoria, with a dead white ground and richest purple lip, was the best of all, although several approached it in the opacity of the white, but not in the colour of the lip. One L. p. had a yellow throat, a feature absent generally from the species. L. p. versicolor was seen in several examples, with sepals and petals more or less veined with purple. Amongst Cypripeds mention may be made of the still rare Druryii, remarkable for the lip of lemon-yellow. Some good pieces were observed of C. grande. Of Oncidiums there was one of O. curtum, a plant having a remarkably broad but compact spray of its rich brown and yellow flowers; and O. macranthum hastiferum was found in good examples. Fine Odontoglossums abounded, of which we may name O. nebulosum, O. maculatum triumphans, and O. cordatum, many fine pieces. The new Angræcum Scottianum, with spikes of sparsely set white flowers; and A. modestum, carrying one spike of pure white blossoms, each 1 inch across, were noted.

DROPMORE looks at its best just now. The Azaleas are brilliant, the Rhododendrons, perhaps, not quite up to average. The herbaceous Pæonies are a blaze of beauty. Mr. HERRIN, who has succeeded to the well-known veteran, FROST, in the management of these grounds, is showing himself a worthy successor to the famous old gardener. The spring garb of the Conifers is scarcely so beautiful as usual, but the interest attaching to them increases with each year. A fine Sugar Pine, P. Lambertiana, is throwing out its characteristic "feelers," some of the branches projecting far beyond the others, and giving the tree its characteristic habit. Some of the Pines have already passed their prime, and are assuming that scraggy appearance which so many of the Pines have when old. Such is not the case with the grand Araucaria, which is a model of symmetry, and is bearing numerous large pollen-cones. We regret to hear that some visitors are unappreciative enough and silly enough to break off the buds from the lateral branches within range. The Douglas Firs are magnificent, though some of them have suffered from wind and the weight of snow. The numerous varieties of Laricio, most of them with cones, are especially interesting. Among them is probably the Karamanian variety, though, as it has not produced its cones, it cannot be determined with certainty. A systematic enumeration of the Pines here (the date of planting of which has been in most cases recorded) with details of their present dimensions, would be of value not merely from the point of view of decorative planting, but also of forestry.

THE APPLE CULTURE AT ST. MALO.—The following note on the Apple crop in the consular district of St. Malo will have some interest to Apple growers in this country. The crop during the past year was only a very moderate one, having failed almost altogether in many places. This is serious to farmers, as all the fields are planted with Apple trees grafted on a stock of fair size, at distances between the rows of 50 yards. There is certainly a little loss under the trees, and the fields are a little more troublesome to plough, but it is certain that when the crop on the ground fails from disease or a bad season, the fruit on the trees will generally pay the rent, and more in some cases. The writer says:—"I would here draw the attention of farmers living in the cider districts of England to the fact that all these trees are in ploughed fields, and that it is a distinct clause in all leases, that in those fields that are to remain unploughed an excavation is to be made around the Apple trees by hand, in order that they may not be left uncultivated. This is exactly the contrary to English practice in general."

TWO REMARKABLE RHODODENDRONS. — In the brilliant display of flowers at the Temple Gardens last week, it is quite possible that the cut blooms of Rhododendron formosum and R. Roylei, sent for the inspection of the Committee by JAMES BATEMAN, Esq., Home House, Worthing, were overlooked. Mr. BATEMAN states that these plants are now flowering beautifully in his garden, where they have not had the slightest protection since 1884, when they were planted. R. formosum (Wallich), figured in the *Bot. Mag.*, t. 4457, comes from the

mountains bordering on Silhet, and first flowered at the Duke of Northumberland's Garden at Sion House, but is there spoken of as not sufficiently hardy to bear our winters without protection. R. Roylei (Hooker), is an extraordinary plant; the colour of flowers and habit of plant very remarkable. On May 27, it flowered for the first time with Mr. Bateman, having some thirty or forty heads of its singular flowers, of which there is likely to be a succession for two or three weeks. No one at a few yards' distance would suppose it to be a Rhododendron!

Strawberries in April, 1774.—Here is an amusing piece of intelligence, culled from the *London Magazine*, published at the end of April, 1774:—"Saturday last five Strawberries were sold in Covent Garden for 6s.; the buyer ate them as he took them out of the basket; many half-guineas were at the same time paid for nosegays. No mean proof surely of the hardness of the times, notwithstanding the pretended scarcity of money."

The Crystal Palace.—On Whit Monday, it will be thirty-five years since the Queen, speaking beneath the great arch of the centre transept, declared the Crystal Palace opened, and expressed the hope that the enterprise would elevate and instruct as well as delight and amuse her subjects. Since that memorable day, the Palace has been visited by nearly 70,000,000 of people. It has by royal command entertained emperors, sultans, kings, and princes. It has fêted illustrious men irrespective of country, rank, occupation, or religion; and it has been the favourite rendezvous for the periodical gatherings of great organisations; whilst its record of patriotic and popular fêtes, art celebrations, musical festivals, and horticultural exhibitions, stands unparalleled by any other place of public resort. And Whit Monday is the day fixed for a great anniversary fête, with a special list of free entertainments.

Hyde Park.—The Rhododendrons are now splendidly in bloom, shedding a radiance of colour all round. Standards in single specimens are conspicuous objects, and the clumps of bushes with a free mixture of colours are almost dazzling in effect. As in former years, the display is made with plants from the nurseries of Mr. A. Waterer, Knap Hill. In other parts of the park, especially in the region of Park Lane, bedding-out is being pushed on; Fuchsias form the strong feature, but other plants, such as Pelargoniums, Violas, &c., are freely used. One bed of Ficus elastica looks very fine.

Papaver orientale.—Mr. Ware sends us a flower of his new seedling variety, which ought to hit the popular taste of the day, being of an indescribable mixed hue, in which pink is subdued with brown, producing a shade of colour not uncommon in milliners' productions this season, but which, till the advent of Mr. Ware's variety, we had not seen in Nature. Clever Mr. Ware, to fall in with the taste of the day! Only, please do not lose sight of the gorgeous crimson and black of the old varieties.

Horticultural Club.—The subject for discussion at the meeting at the Hotel Windsor on June 11 will be "Floral Notes during a recent Visit to Mexico," by Mr. C. T. Drucry.

Flowers from the Oxford Botanic Garden.—From the Curator, Mr. W. G. Baker, who has succeeded the well-known W. H. Baxter, we have received flowers of the curious Dancing-girl Plant, Mantisia saltatoria, a plant we remember to have seen always well done in the old garden. Pentstemon Scouleri is a particularly handsome Campanula-like flower, with racemes of flowers, each measuring about 1½ inch in length, of a rich lilac colour. Cytisus Laburnum var. quercifolia, the Oak-leaved Laburnum, is remarkable not only for its divided foliage, but for flowering earlier than the species. Under the name Lathyrus Sibthorpii is sent a peculiarly beautiful form of L. rotundifolius, as we take it, with rich rosy-lilac flowers. Orobus aurantiacus has, as its name implies, close racemes of orange-yellow flowers. O. venetus is remarkable for its close heads of lilac flowers, which, when fading, assume a bluish tinge; while O. variegatus has similar flowers, but less densely crowded, and with more delicate foliage.

Mr. John Ralfs.—The first part of a sketch of the life of Mr. John Ralfs, the venerable botanist, whose famous work on the Desmids appeared about forty years ago, commences in the June issue of *Science Gossip*. Mr. Ralfs is in his eighty-second year, and has lived in retirement at Penzance for the past half-century.

The Hailstorm in the West.—The following letter was received by a correspondent from a relative living at Franche, Kidderminster, on June 2. "Just a line to say I sent you a hamper off this morning, per passenger train, with four Broccoli, a few Cabbages, and bit of Asparagus. Have had scarcely any 'grass' this week, it went up 6s. per thousand, so I expect other people are short as well as myself. The hailstorm did me quite £100 of damage—perhaps more, but I can hardly tell. It quite spoiled my splendid piece of Cabbages. You will see how it is ragged, and we cut you the best we could find. A lot of Asparagus cut clean off by the hail. Pots of Gooseberries are lying under the bushes; Parsnips and Carrots are swilled almost away, and many of them covered over with sand and smothered. Plums are gone; I don't think I shall have many pots. It is very disheartening." *Joe.*

Special Prizes at Reading Show.—A noteworthy feature in connection with the Reading Horticultural Society's Show of May 29 was the series of premiums which were presented by Messrs. Sutton & Sons in Classes 1, 2, 3, 4, 9, 11, 21, 33, 39, 44, 45, and 46. These sums of money were separate from, and additional to, the Society's prizes. Thus, in Class 1 the premium of £2 was accorded to the amateur or gentleman's gardener standing highest in that competition, and were he the winner of the 1st prize it would raise the value of it to him from £8 to £10; and so on. The same arrangement applied to the other classes above named. The donors offered these premiums believing they would induce larger competitions, and create increased interest in the show generally.

Irises at Chiswick.—Some twenty beds of various species of Iris are just now coming into flower at the Royal Horticultural Society's gardens, and when in full bloom will present a picture of much beauty. There are in these beds plants of pallida, neglecta, squalens, aphylla, and others in variety, which bear blossoms of almost every conceivable shade of colour.

Flowers from Haarlem.—To Mr. C. G. van Tubergen we are indebted for an interesting handful of flowers. We take them as they come:—Lilium Bolanderi: a species with whorls of lanceolate leaves, from the uppermost of which spring bell-shaped, stalked flowers, nearly 4 inches across, the lanceolate spreading segments being of a salmon colour thickly beset with purple spots. Lilium pulchellum: a variety of concolor with narrow lanceolate scattered leaves, from the axils of the upper four or five of which spring broadly funnel-shaped scarlet flowers, each 2½ inches across, and with narrow spreading recurved segments of a glowing scarlet colour faintly spotted towards the base, the anthers and styles are also scarlet. It is a charming variety which is sure to please growers of these plants. Brodiæa coccinea is an old favourite with an erect scape, bearing at its summit a drooping umbel of tubular flowers each about 1½ inch long, rich crimson, the small free tips of the segments of a pale green, forming a pretty contrast to the crimson of the tube. Brodiæa volubilis has a similar habit, but the flowers are much smaller and of a lilac colour. Iris Boissieri is a graceful form, with flowers 2½ inches across; the sepals or falls are rich violet with a central bearded stripe of golden-yellow; most effective; the petals or standards are of a lighter violet. This is a very beautiful form, not mentioned in Nicholson or Robinson. Allium azureum, a species with globular umbels of small blue flowers; very distinct. Polygonum sphærostachyum, remarkable for the brilliancy of its densely packed crimson flower-spikes. Gladiolus vinulus is a half-hardy early flowering species, with cream-coloured flowers, the lower segments marked with a stalked fan-shaped violet spot, with a white spot in the centre.

Utilisation of the Cocoa-nut in Brazil.—It is stated that the Brazilian Minister of Agriculture has addressed a circular to the consuls abroad with the object of creating a trade in copra, the dried kernel of the Cocoa-nut (Cocos nucifera), and coir, the fibre from the husk. It is suggested at the same time that by using only half the suitable land along the Brazilian sea-shore, 3,519,978 Cocoa-nut trees could be planted 15 yards apart, which would bear fruit from their sixth to their fortieth year. The copra alone would be sold for £12 per ton, and the ground by the sea-shore being good for nothing else, a gross profit would be made of £900,000 out of rather more than 75,000 tons. It is pointed out, too, that the provinces of Amazonas and Para, which used to produce only £300,000 a-year, now that commerce has made demands on their vegetable productions (chiefly indiarubber), produce a value of £6,000,000 a-year.

PARIS.

Chrysanthemum frutescens (Marguerites) as Large Specimens.—The lovely white Marguerite is grown into very large and handsome specimens 4 to 5 feet across, and with stems as thick as one's wrist, by M. Auguste Gillard, Boulogne-sur-Seine, the old variety being that chiefly used. Covered with star-like white flowers, these fine specimens rival in beauty the specimen Azalea indica, but are much more lasting. They are used for plunging outdoors in summer, and a fine clump of them is a beautiful object when viewed closely, and is also a telling thing in the distance, being visible as far as the eye can reach. Carefully tended they last all the season, and give a good supply of flowers for cutting. The barest protection suffices for winter.

Vegetation in Paris.—Already the alternations of heat and cold seem to have laid hold on the flowering shrubs in Paris gardens, and nothing but constant attention and watering keep them from looking very seedy. Should the threatened scarcity of water be realised, the gardens will suffer greatly. The Lilacs and Pæonies seem to keep up best; and the planted out annuals, although good, are not so fresh as they would have been if the weather had been fine throughout. The Horse Chestnuts early shed their flowers, and some time ago, when the thunderstorms came after dry weather, their sudden collapse produced an effect like a snowstorm in the neighbourhoods where they are planted thickly.

Horticultural Buildings.—A survey of the horticultural buildings in the grounds of the great Exhibition at Paris shows that the French are behind us in such matters. The generality of the exhibits may be summed up in one word—"bad." Metal framework is generally used, and the comfort of the plants seems to be sacrificed to the ornamentation of their abodes. In the ventilation of the houses the plan adopted is that which passed out of date, in this country at least, twenty years ago, and hardly one of the houses has any provision for bottom ventilation, without which houses are practically unventilated. The side-air generally comes in on the heads of the plants in the French plant-houses. *From our Special Correspondent.*

PLANT NOTES.

ALLIUMS.

IT is true that these neglected plants have an objectionable odour when bruised, but otherwise many of them are elegant, ornamental, hardy plants, succeeding with scarcely any kind of cultivation; indeed, if once they are planted in well-drained garden soil, the most that is required for many years is simply to keep them free from weeds, and afford support to the flowers of some of the taller growing species, Alliums are easily raised from seed, which if sown in the spring, may be expected to flower the following year. For convenience it is a good plan to sow them in small pots, plunging the pots in a cold frame, where if kept uniformly moist, the seeds germinate quickly, after which plenty of light and air should be afforded. They may remain in the pots till growth is completed, when the roots may either be planted out-of-doors or grown on in pots as may be desired There are several of them very useful for the latter purpose, and indeed they will bear to be gently forced. The white varieties are most prized, viz.:— neapolitanum, subhirsutum, and triquetrum; the sweet-scented A. fragrans (nothoscordum), might also be included. The best coloured species are: azureum—one of the best, pedemontanum, acuminatum, Murrayanum, McNabianum, all rose-purple or mauve; Moly is the best yellow. *F. R.*

CALANDRINIA OPPOSITIFOLIA.

This charming new Portulaceous plant is now nicely in flower in the Alpine House at Kew. It is of recent introduction, having flowered for the first time in Europe, at Kew, last year, where, we are told, it has proved fairly hardy, and may now be classed amongst acquisitions. The flowers, which are larger than C. umbellatus, are pure white, freely produced, and last for a considerable time. The leaves narrow, oblanceolate, succulent, and deciduous. It ripens seed freely, which germinate freely if sown directly, so that it will soon find its way into the trade. It looks a plant that will withstand any amount of drought, and should be planted in dry sunny spots on the rock. It was collected at Waldo, Oregon, and also on the coast mountains of Del Morte County, California, near Smith River. It was figured in our pages last year. *D.*

CALCEOLARIA SINCLAIRII.

A New Zealand species, of comparatively recent introduction. It has a somewhat dense, shrubby habit, the flowering branches growing about 18 inches high, producing numerous terminal and axillary, rather lax, corymbose, many-flowered heads. The individual flowers are small, nearly white, and beautifully spotted internally with reddish-purple. The pouch, so characteristic of the genus, is entirely wanting in this species, giving the corolla a somewhat campanulate and regular appearance, in some measure like the old C. violacea, but less divided, and rounder than in that species, which, in every respect, is a much inferior plant to Sinclairii. When grown as a cool greenhouse, the plant makes a capital decorative subject. After flowering, the old stems should be cut away, when numerous fresh shoots will soon rise from the root-stock. The plant should then be slightly shaken out and divided, if more plants are needed, repotted in suitable-sized pots—32's we find most convenient—and encouraged to make fresh growth in a cool frame, which can be kept somewhat close for a short time; afterwards the greenhouse will suit it admirably. As soon as re-established give air abundantly, merely protecting from frost in the winter. In May of the next year, handsome flowered specimens should result. *F. R.*

ONONIS ROTUNDIFOLIA.

Of the several species of "Restharrow," this is one of the most desirable. It forms a neat, compact bushy plant from 1 foot to 1½ foot high, and although herbaceous the branches are sufficiently woody to require scarcely any artificial support, and are densely clothed with petiolate, trifoliate, slightly viscous, roundish-toothed leaflets. The flowers vary in colour from rose to red or magenta, according to the stage of development, and they are abundantly produced in axillary three-flowered racemes for several months during summer. The plant being quite hardy, is of the easiest possible culture, succeeding well in any ordinary garden soil, either in the mixed herbaceous border, or on the rockery; although, on the latter, it is perhaps seen to more advantage. Although it seeds freely, and is easily increased in that way, yet it has no tendency to become weedy or overrun its space, therefore there need be no apprehension in placing it amongst select things. It may also be easily propagated by dividing the crowns just before growth commences. *F. R.*

ROCK PLANTS.

CISTUSES. — The nomenclature of these plants has for years been a standing puzzle to gardeners, and to botanists, too, if one can judge from the diverse conclusions arrived at by the various workers. Like the Aquilegias the Cistus hybridises freely both in a wild state and in cultivation, and this fact has doubtless something to do with the difficulty of names. C. florentinus, which we have known in gardens for many years, turns out now, we are told, to be C. longifolius, an old species figured in Sweet's *Cistineæ*. It forms a handsome compact bush, the leaves dark green, and the flowers white, unblotched.

C. lusitanicus is another beautiful dwarf bushy kind, suitable for the rockery, and perfectly hardy. Its origin is obscure, and we are of opinion that it is a hybrid between ladaniferus and monspeliensis, or a near ally of the latter.

C. albiflorus we now find is C. hirsutus. It is a very nice rock plant. The flowers are smallish, cup-shaped and white. C. albidus, a species well known in England, which we receive from Continental gardens under the names of incanus, canescens, pulverulentus, varius, &c. C. corbariensis, a perfectly hardy shrub, making huge bushes in a few years, is a hybrid between populifolius × salvifolius—we have also received it as C. cordifolius. These are only a few amongst many.

Helianthemums are almost as bad. Nine-tenths of the supposed species received from the Continent will turn out H. vulgare. One of the best of these is, of course, H. formosum, others being H. ocymoides, H. lasianthum, and H. Libanotis, a pretty little shrub known in gardens as Cistus Clusii; Cistus and Helianthemum rosmarinifolium, &c. *D.*

FLORISTS' FLOWERS.

REPOTTING AURICULAS.

WHEN looking over the collection of Auriculas a few days ago, that Mr. T. E. Henwood, Reading, grows so well, we talked over the matter of repotting the plants. He said he thought there should be two periods in the year for doing this—one in May, the other at the end of September, or when the plants were making such autumn growth as they put forth at that season of the year. I think there is something to be said in favour of the autumn repotting. I have found in my own case that, owing to the long time during which water is withheld, and the plants are permitted to become dry, that some of the thoroughly pot-bound plants lose some of their fine fibrous roots, and that an autumn repotting would save them. Such a state of things would apply only to plants grown in a cold frame or house without fire-heat, because when the latter can be applied as requisite, there is no danger of the plants suffering from frost. That is a distinct advantage. As far as my own collection is concerned, I am careful of watering when a mild time comes in January, because one does not know how soon frost may occur. It is surprising how long a time an Auricula may be kept dry in winter without showing signs that it is suffering in any way for want of moisture. There is a good deal of moisture in the atmosphere, which gathers on the pot and surface-soil, and assists to keep the plants from flagging.

I have found it beneficial to repot young stock in autumn. As a rule, I repot my young stock first, doing this early in May, and placing the plants in small pots; then if these are shifted again in the autumn, giving them just a shift without breaking the ball more than is necessary; the process assists in the development of roots. Plants treated in this way appear to make a good start in early spring.

Mr. Henwood rears his young stock by potting the offsets, and placing them under an ordinary hand-light, which occupies one corner of his Auricula-house. If kept close for a time and shaded from the sun, they soon put forth roots, and grow into size. They are helped by having a little peat placed in the compost in which they are potted; their roots appear to travel in search of it, and derive great support from it. The flowering plants are best repotted in May; any that have bloomed, but from which it is not necessary to take seed, have the seed-pods cut away, leaving the truss-stem to decay naturally. Such plants as are required to produce seed I do not shift until such times as the seed-pods have pretty well matured. But it may be laid down as a general principle that the sooner after blooming the plants are repeated the better. *R. D.*

MARKET-GARDENING IN THE WEST.

THE Potato season is now in full swing, and on Monday many of the market-gardeners increased the number of their work-people, and engaged as many extra hands as they could get, and could conveniently put to work.

The market-gardening district which encircles Mount's Bay, from Mousehole to Perranuthnoe, presents just now (says Thursday's *Cornishman*) a scene of great activity. The fields are dotted with groups of labourers, who may be seen busily engaged in drawing, assorting, and packing, the tubers for the London and Midland markets, and during this week and next the heaviest exports of the season will be made. As an instance of the way in which the Potato crop is being lifted, we may point to one of the fields cultivated by Mr. John Oliver, of Trenow. On a recent day forty-four shovels were at work at one time, with all the attendant pickers-up, sorters, packers, carriers, &c. Nearly 2 acres of Potatos were dug, hampered, and carried to rail or steamer within 12 hours.

The crop continues to yield well in size and quality, and we have not yet heard that a single Potato has been found tainted with the dreaded disease. Driven to it by threatened gluts of markets and falling prices, scarcely one owner of Potato-ground has allowed the crop to mature. In many instances only a week more would have turned out a 25 per cent. heavier yield, while a fortnight or three weeks would have seen such a Potato produce as West Cornwall has rarely witnessed. But the fear of a much lessened price hastened the lifting of the crop. For a similar abundant yield we are referred to a season ten years ago, when frost cut the Potatos just as they were well above ground. Then succeeded glorious growing weather of alternate mild rain and warm sunshine; and the frost-checked crop "beat the record" for many a year.

Reverting to the present output, the showers of rain which fell last week slightly interfered with its drawing, and many were under great apprehensions lest the wet weather should bring on a disease, which is much dreaded by the growers. Fortunately the showers were accompanied by a strong breeze, which kept the atmosphere clear and cool, and prevented from settling down on the land the damp and clammy fog which, if not the cause of the Potato blight, generally precedes, and, it is pretty well known, materially helps to develop it.

On Saturday the price was from 18*s.* to 20*s.* per bushel. On Monday the buyers were offering 14*s.*, 16*s.*, and 18*s.* per bushel, but we did not hear that any were sold at the lowest quotation, though a large quantity changed hands at 16*s.* to 18*s.*

The fruit crops this year promise to be abundant. Gooseberry and Currant bushes are generally heavily laden. The blossom, which a short time ago made the Apple trees look so beautiful, has favourably "set," and already the trees are covered with the young fruit, which, if permitted to come to perfection, will be plentiful.

DISEASE OF DAFFODILS.

Puccinia Schroeteri. *Pass.* — During the last month or two a good deal has been published in the *Gardeners' Chronicle* as to "disease" and "rot" in the foliage and bulbs of Narcissus, but until now nothing very definite as to a cause has been printed. The Rev. C. Wolley Dod has now, however, forwarded from his garden examples of common double Narcissus badly attacked by Puccinia Schroeteri—a fungus not referred to in Mr. Plowright's recently published book on this tribe of fungi, and, therefore, probably new to this country. Mr. Dod writes, that the disease is "not epidemic," but that it grows "sparingly," the special examples forwarded to us from a clump were thickly infested with the newly-arrived pest.

The accompanying illustration (fig. 118) shows part of a single diseased leaf with its diseased pustules, and at the margin two or three of the brown spores enlarged 400 diameters. The diseased patches occur on both sides of the leaf, but more sparingly on the back than the front. It is unnecessary to illustrate or describe this fungus in any great detail, as several allied species have been fully illustrated in past volumes of the *Gardeners' Chronicle*. It is sufficient to say that Puccinia Schroeteri is closely related to P. malvacearum, the deadly pest of Hollyhocks; and the life-history of the fungus of Narcissus agrees with that of the Hollyhock. Many species of Puccinia have a Uredo or young condition, but no Uredo is known for either the Narcissus or the Hollyhock fungus. Neither has any Æcidium condition been recorded for either; this being so, the readers of the *Gardeners' Chronicle* will understand that the spores of the Narcissus fungus germinate as soon as they are mature upon the host plant, and produce at once new pustules of spores. The fungi to which the Narcissus fungus belongs produce many generations of spores in one season, and so make great havoc in gardens, as every one acquainted with the history of the Hollyhock disease knows only too well. Diseased plants should, of course, be utterly destroyed, if possible, but no amount of burning or burying will get rid of all the minute spores which are produced in hundreds of thousands upon every affected plant. The new arrival is not confined to one species of Narcissus; it has been recorded on N. poeticus. The fungus may be considered a very threatening one, but time only can show whether it will spread in Britain, as did its ally, P. malvacearum. Mr. Dod's original examples have been given to the Department of Botany, British Museum, South Kensington. *Worthington G. Smith, Dunstable.*

IRIS IBERICA.

To examine this extraordinary flower, and believe it allied to the large group of Iridaceæ, produces almost as much astonishment as looking at an Orchid and believing it allied to the large groups of Amaryllidaceæ, although the latter, it is true, are not under the same denomination. The Iris, with its reflexed outer segment, erect inner petals, and petal-like styles, has a flower as far removed from the other Iridaceæ as the Orchid, with its one or two stamens, is removed from the Amaryllidaceæ.

Looking at the Iris iberica, one cannot help thinking how much, throughout its history, it has been played upon by insects. The three erect petals are almost white, having only the faintest blush of amethyst. They are very accurately veined with a brownish-purple tint. Why should this deeper colour have kept itself so exclusively to the veins? Who can tell? It is a common phenomenon in the variation of plants for colour to run solely in the veins, without infiltrating also the intravenous tissue. These erect petals evidently serve as ensigns for catching the eye of insects. The smoky-brown recurved petals of this Iris are, however, the wonderful part of this flower. Their large dark-veined, spoon-shaped, expansion, forms a very convenient landing-place for insects, and the prominent large black eye in its centre appears very significant. It marks the place of the entrance of the tunnel, formed by the arched pistil. At the bottom of the tunnel the food of the insect is to be had. In getting it the important office of fertilising the ovules is performed. Without the aid of insects the pollen could not possibly reach the stigma. The insect might scent the nectar, or, seeing the prominent general colouring of the flower, it might fancy there was nectar in it, but the thing is for the plant to help its special insect to find easily the nectar it provides for it, while at the same time it extorts from it the unconscious service of fertilisation. Without this prominent black eye the opening of



Fig. 118.—Disease of Daffodils: Puccinia Schroeteri.

the tunnel, especially to a novice insect, would be difficult to find. It might expend its energy in fumbling about in search of a way to the nectar.

The special apparatus of this Iris for cross-fertilisation is the interesting part of it. To the insect the black eye at the entrance of the tunnel appears unmistakably to serve the same purpose as an index-hand, or an arrow on a signboard, would serve to us. Then the pistil is closely superposed on the recurved petal, and forms the arched roof of the tunnel. The stamen is closely applied to the roof of the tunnel, and at the bottom of the passage are hairy papillæ, which are probably the organs which secrete the nectar. Moreover the tunnel, being curved downwards, does not admit of being swamped with rain. The stigma is an edge under a curled up projection at the upper part of the entrance, which protects it from rain after it has received the pollen.

It is very probable that all these detailed arrangements are mainly intended for novice insects. It should be remembered that most insects usually die off every season, like annual plants; their eggs only are left to be hatched in the following season. Therefore the young ones have not the opportunity of being trained in the ways of the world by their parents; they have to gain experience for themselves. The plant, which requires their services, has therefore to help them to gain this experience, and it very often does so in a marvellous way. Index-fingers and arrows thus become the means of communication between plants and insects, the one being often so thoroughly dependent on the other for the continuance of its existence.

Judging from the disposition of the parts, one may, perhaps, safely assume that the insect which was brought up with the Iris iberica was of the size of a bee, and that it had hairs on its back. In creeping in and out of the tunnel to get at the nectar secreted at the furthest end, it brushed off the pollen from the anther which lies under the archway, formed by the style. Then in getting into one of the two other tunnels of the same flower, or that of another, it could not help brushing the pollen on to the stigmatic edge, which would retain it by its papillæ Things are so arranged that the insect would accurately and unconsciously go on performing this important service, in exchange for the nourishment its foster-mother as unconsciously provided for it. Once a novice insect found its way to the nectar-factory, it would repeat this operation instinctively and unerringly. It would admirably cross-fertilise all the allied plants in the vicinity. Biological chemistry would then do the rest.

Must nectar be always sweet to attract insects—by sweet is meant sweet to human taste? Probably this is not at all necessary. One of the Fritillarias, at the base of each petal, has a little white cavity. In that is suspended a drop of insipid gummy liquid, like water. It is easily absorbed by blotting-paper, which would show that this nectar was neither sweet nor viscid. (The cut flower under observation had been kept in water). Ants are particularly fond of sweet things; and as they are ever climbing up plants, and exploring flowers, every bit of sweet nectar they could get at would be readily robbed by them. An insipid nectar would, therefore, be perhaps protected against universal depredation, while specially selected insects might like it. Like the Cypripedium, the Iris iberica is a beautiful example of a flower adapting itself to the advantages of cross-fertilisation, and this appears of value mainly because it unsettles the fixed atomic arrangement inherited by self-fertilisation, or in-and-in breeding. It affords opportunity for much greater variation, and therefore also greater suitability to new surroundings, and greater advantage in the competition for life.

On removing the pistil the filament of the stamen is found to have an erectile power, or a power of springing backwards. It is this evidently which keeps the stamen closely applied to the roof of the tunnel, and thus out of the way of the insect in its creepings in and out of it.

Who can tell how many millions of years were required for the Iris iberica and its insect to build up, by slow degrees, so perfect a suitability of means to an end, and to so specialise its flower that, were it not for its leaves and other parts, probably few would consider the Iris allied to the other regular-flowered Iridaceæ. *E. Bonavia, M.D.*

JUTE AND ITS USES.

The development of the Jute industry in this country is one of the most marked in the history of any vegetable fibre. Dundee, as is well known, is the centre of this now flourishing trade, and it has been associated with the jute manufacture since about the year 1822. Jute, as is well known, is the fibre obtained from the stems of Corchorus capsularis and C. olitorius, belonging to the natural order Tiliaceæ, natives of India, where it has for a very long time been used for making rice and sugar-bags. When first introduced into this country it was used for the coarser kind of work, such as sacks, bags, &c., but it was soon shown that the fibre was capable of being converted into fabrics of a very fine appearance, and after being dyed was applicable to carpet weaving. It is still largely used for this purpose, but its use has also been extended in the direction of art tapestries and such-like printed fabrics;

and more recently jute has been applied to a large number of uses, for which hemp has hitherto been in demand. The jute exhibits of Messrs. Cox Bros., of Camperdown Works, Dundee, at the late Glasgow Exhibition gave an excellent idea of the rapid development of the trade, for besides a very great improvement in carpet weaving and sacking, there were shown numerous finely-finished samples of window-cords, ropes, and twines, equal in appearance and finish to those made from the best hemp. Since the exhibition, specimens of these manufactures have been liberally presented to the Kew Museum. A very good idea of the importance of the jute trade may be had from a description of Messrs. Cox's works, from which the following notes have been gathered.

The whole premises, which are built in a most substantial manner, cover an area of 28 acres; a railway runs into the works from the Caledonian line for the direct conveyance of the jute, coal, and other materials; and it is stated that, notwithstanding all modern improvements have been adopted in the machinery, as many as 90 tons of fuel are consumed per day.

The jute fibre arrives packed by hydraulic pressure into bales weighing about 400lb. each, which are landed from the vessels in the Dundee docks into the railway wagons, and conveyed direct to the works; from here the bales are taken as they are required to a house called the "batching-house," where they are broken up and the qualities assorted. The fibre is then subjected to a mixture of oil and water to facilitate its subsequent treatment. The successive processes of carding, drawing, and roving reduce the filaments to certain degrees of fineness, and prepares them for the next process of spinning into yarn. The spinning mills contain over 20,000 spindles, and the weaving sheds 1,000 power-looms. "About 120,000 bales of jute of 400lb. each are annually used, which is one-eighth of the consumption of the town of Dundee and district, and about one-fourteenth of the total imported into Great Britain, which includes much that finds its way to the Continent. Besides large quantities of every size of yarn sold to the trade, the length of cloth annually produced is from 30,000,000 to 40,000,000 yards. Even a partial enumeration of the woven products of jute manufactured at these works shows how widely the fibre is made to enter into the commercial, agricultural, social, and even personal life of the world." The following are some of the articles enumerated: sacking, tarpaulins, rick covers, sacks, and bags for all purposes, horse blanketing, mattress cloth or bed ticks, furniture cloth, embroidery cloth, matting, hearthrugs, carpets, curtains, table and bed covers, and various other articles, to manufacture which as many as 5,000 hands are employed. *John R. Jackson, Museum, Royal Gardens, Kew.*

NURSERY NOTES.

MESSRS. BECKWITH'S NURSERIES.

Among the growers of plants and flowers for Covent Garden Market few are better known than Messrs. Beckwith, not only for the enormous numbers which they continually send in, but for their good quality also. It is, therefore, hardly to be wondered at that other market growers, large and small, should in some measure feel a desire to visit such an establishment, and see for themselves, not only what is grown, but gather at least a few hints respecting the methods pursued in so large a business concern. The original nursery has been established at Tottenham for some thirty years, and where the lion's share of their success in the plant and cut flower trade has been achieved; but Tottenham has become a densely populated place, and it is only with great difficulty that plant growing can be now carried on with success. The impurity of the atmosphere, coupled with dense fogs, which work disaster, are points which handicap any nurseryman whose lot it is to reside in the vicinity of London, Manchester, and some other large towns. Notwithstanding these drawbacks, many things are still well grown, "though," as aptly observed by Mr. Beckwith himself, "whatever we can do well at Tottenham we can do much better at Rye House," a remark, the truth of which is very obvious.

On the occasion of a visit made this last spring, house after house was observed filled to overflowing with Pelargoniums of the decorative section, all in fine condition, every plant a picture of health, while the hard, short-jointed stems and bronzy-tipped leaves here and there bore evidence that artificial heat had been withheld, and that nothing but a dry, cool structure and comparatively little water at the root could have produced the uniform sturdiness which prevailed; even such kinds as Madame Thibaut—as a rule, one of the grossest growers, and too often seen with leaves the size of a Savoy Cabbage leaf—were equally compact as the rest—a fact which alone proved that the method of culture was the correct one. A closer inspection of the thousands of these plants showed they were crowded with trusses of bloom. The plants were mostly in 5-inch pots, the soil well rammed in, which is an important point that must not be omitted when the production of short-jointed wood is looked for.

Of other things which were represented in bulk may be mentioned Maidenhair Fern, and white Marguerites, grown for sale in pots and as cut blooms, which they yield in great profusion. Tree Pæonies, also, were in full swing, and charming plants they make for conservatory decoration early in the year, their gigantic blossoms almost equalling in size that of an ordinary dinner-plate, while the colours embrace the most brilliant hues as well as the purest white, and the most delicate tints imaginable. Particularly noticeable were some shades of rose and flesh, while a most lovely white had the base of its petals powdered, as it were, with sulphur.

In company with the Pæonies were Japanese Maples in great variety, which are being grown for experimental purposes, and mainly to test the value of their foliage when associated with cut flowers; many of them were certainly very elegant, those with palmate and pinnatifid leaves of bronzy hue being especially so.

Another feature was a houseful of Pancratium, probably P. speciosum, the whole of which had been worked from one plant; many of the largest bulbs used occupy 14 and 16-inch pots. Of this plant Mr. Beckwith observed: "We are never without flower," and of which the spikes in all stages of development bore ample proof; these plants were growing in a moist temperature of 75° or 80°, the luxuriance of the plants proving the appropriateness of the treatment.

Lilium longiflorum var. Harrisii looked promising in pots, as likewise many other plants whose names cannot be given in detail. Doronicum austriacum was being grown as a pot plant, and very striking it is when so grown, affording at the same time an illustration of the usefulness of some of our best hardy perennials; this one is a most profuse bloomer, and has large rich yellow flowers.

The grafting of Roses was going on briskly, and the fact that hardly a failure was to be seen among the lot must have been very gratifying to Mr. Beckwith and the propagator.

Taking leave of the Tottenham nursery, a visit was made to the new establishment at Rye House, at which place there are at present some two dozen houses, about 300 feet long and 20 feet wide, with preparations for a considerable addition during the present season. One of the principal features here are Tea Roses in pots, and planted out, these amounting in the aggregate to 125,000, house after house being filled with such kinds as Perle des Jardins, Perle de Lyon, Niphetos, Souvenir d'un Ami, and a small batch of Baroness Rothschild. In their flowering season these produce several thousand dozens weekly, sufficient in itself, one may imagine, to supply the demand of Covent Garden alone; but when we realise the huge consignments continually pouring in from other sources at the same time, we can only conclude that the demand for cut Roses must be enormous. Pelargonium Venus displayed a glorious bank of its pure white flowers—a sight not easily described; here it was, a centre bed 8 or 9 feet wide, and 300 feet long, a dense sheet of white flower at the time of our visit, which, it should be remembered, was very early for this section of Pelargoniums to be in flower at all. The individual flowers possess little of the quality which florists require, but for earliness and freedom to bloom and constitution it is a long way ahead of every other variety. Equally early among coloured varieties was a light scarlet called Madame Laucezwia. Zonals also were grown the selection being confined to Robert Hayes, pink, very continuous bloomer; Zamia, amaranth, very large; and Lady Chesterfield, salmon, extra fine; while Raspail, made a brilliant display alone.

Another of these large houses was filled with Tree Carnations, principally Miss Joliffe and Mdlle. Carle, the former being represented by some 10,000 plants, while the latter, in much smaller numbers, served to illustrate its great value as a white flower. The flowers are freely produced, of a pure white, fragrant, and of good shape; it is also of free growth, and easily propagated.

Gardenias are also grown, extensively and were well set with bloom; while Lily of the Valley, Daffodils, and such things are forced in almost endless quantity. The grafting of Roses was carried on with the same success as at Tottenham, while another large item was found in Chrysanthemums, Madame Desgrange, G. Wering, and Roi des Précoces being the chief kinds grown. With this latter cross Mr. Beckwith is adopting a very wise course, and which, doubtless, will have its due reward. It has been the custom with most growers for market to plant out their Chrysanthemums and lift them on the approach of frost, instead of which, Mr. Beckwith has erected several portable houses with a flow and return pipe in each; in these the plants will be planted in due course, and the house-top and sides eventually taken away, to be re-placed again in autumn, thus avoiding all risk of lifting or exposure to frost.

The same system is also being extended to Tea Roses, which are planted within the house, the latter to be removed in summer time to admit of a thorough ripening of the wood; in the latter case the plants will receive undoubted benefit by full exposure, and provide a still richer harvest of bloom. The cost of pots is dispensed with entirely, likewise the labour for potting, and removing them to and from the houses.

Visitors to this establishment cannot but be struck by the strict uniformity throughout; the houses have iron rafters, while the side-walls are formed of concrete, a gutter being formed to convey the rain-water into the tanks inside, these running the whole length of the houses. There is not the slightest obstruction from roof supports internally in any of the houses; the iron rafters spanning the roof are in one piece, and are embedded in the concrete walls on either side, which render them almost indestructible. The whole of the glass is heated by five large tubular boilers, each 22 feet long, to which is attached a gigantic stack of somewhat elaborate design. All the boilers are fixed beneath the houses, which made no apparent difference to that particular house under which it was placed. Abundance of piping exists in all the houses, Mr. Beckwith believing in a maximum amount of piping at a low temperature, rather than a minimum amount of piping at a high temperature, and there is no doubt whatever as to which is the more beneficial to plants. The fuel employed is anthracite coal, about 2000 tons being the annual consumption at the two nurseries. *J.*

PLANT PORTRAITS.

Ampelovitis Davidii.—A Vine from Northern China, with foliage resembling that of the Virginia Creeper, but with bunches of purplish fruit of the size of currants. *Revue Horticole*, May 1.

Clivia miniata, Chevalier Hynderick, *Illustration Horticole*, t. 80.

Simaruba tulæ, *Gartenflora*, May 15.—A tree, native of Porto Rico, with pinnate leaves, and terminal, loose, much-branched, many-flowered cymes of small red flowers.

HOME CORRESPONDENCE.

☞ *Correspondents will greatly oblige by sending early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Photographs or drawings of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

PEARS AND THE SEASON OF 1888.—Some time ago you asked for reports as to how Pears were affected by the wet season of 1888. I waited until our Pears were finished. We have just stewed the last of Uvedale's St. Germain. Of others, Jargonelle was fair; Clapp's Favourite, good; William's Bon Chrétien, 12 dozen on wall tree, small, some were fair, some cracked; Dr. Hogg, fair; Louise Bonne de Jersey, a few but good; Gansell's Bergamot, good; Brown Beurré, few and good; Marie Louise, Beurré Bosc, Croft Castle, Ne plus Meuris, Huyshe's Prince Consort, were good; Glou Morçeau, Beurré Diel, Winter Nelis, were badly cracked; Doyenné du Comice, Passe Colmar, of which sort there were not many, were fair; General Todtleben and Duchesse d'Angoulême, did not ripen; Bergamotte d'Esperen never ripened; Josephine de Malines was a good crop, and excellent. It is a Pear which never cracks here, but wants a south wall. Uvedale's St. Germain on a wall facing west has borne 10 dozen, 8 dozen, and 17 dozen, three years running. Last year I thinned them to one Pear on each spur; none of those left fell off, but the Pears were smaller than usual, none weighing as much as a pound. This year there were only a few bunches of bloom at the ends of five or six branches. It did not fruit until it had filled the wall, and then had half its roots cut one year, the other half two years afterwards. P.S.—We finished Claygate Pearmain Apple to-day, May 31. *H. R. R. N.*

TULIPS AT THE TEMPLE SHOW.—We had read in our gardening papers of the intended display of Tulips at this show, and scanned with the pleasures of anticipation the very eulogistic remarks that were made on Mr. Barlow's and other growers' flowers which were going to be sent there. But after all this flourish of trumpets the display was a disappointment in point of quantity and quality, and besides, Tulips should not be shown in the same tent as the bright tuberous Begonias, Calceolarias, Poppies, Pæonies, and other bright flowers, whose colours kill the less vivid Tulips. I went to the large tent, feasting on all the beauty and grace of the Orchids there assembled, and coming back through the tent in which were my quondam favourites, I could not help thinking how shabby and dingy they all looked, wishing at the same time their growers had kept them at home. Tulips are very nice, but the comparison with Orchids is too much for them—they ought to have an exhibition to themselves. Parrot Tulips, which the true florist ignores, would bear the ordeal fairly well—not other kinds. *Country Visitor.*

A BIT OF RIVER-SIDE GARDENING.—On the Upper Mall, Chiswick, are some little plots of ground, running almost down to the water's-edge, that just now present an interesting and picturesque appearance. That owned by J. T. Thornycroft, Esq., of torpedo-boat fame, was striking, by reason of its very simplicity, with blue Irises dotted about the grass—this little lawn only, indeed, having been sown with grass seed on April 15 last, presenting now a beautifully green sward. A great favourite in this part is Wistaria sinensis; you meet with it in every other garden. It is just now flowering freely, and literally wreathing the trim villas (Rothbury House, Lady Smart's residence, especially) with its racemes of lilac flowers. A good associate to this is the Laburnum—a charming effect being produced by the mingling of the flowers of the latter with those of the former. *B.*

ORCHID SPECIMENS FOR KEW HERBARIUM.—Following your remarks at p. 688 on this subject, allow me to say that I think Orchid growers in this country will find it a relief to have done with the captious Professor. The course for all lovers of Orchids is now clear, and that is to send all specimens to Kew, and more especially the whole inflorescence of any plants which have been named by Professor Reichenbach, such specimens being marked "from the type or originall plant." Some contradictions may result, which will require a lot of study to be able to understand, but in a short time, if my suggestion is acted on, a quantity of useful material will result. We must remember that a very large proportion of Professor Reichenbach's species have come from Great Britain, directly or indirectly through the *Chronicle*, and most of the plants are still here. *James O'Brien.*

SPEAR MINT.—Usually this much wanted herb is increased by placing some of the roots in shallow trenches on well prepared beds early in spring—this was the way we used to increase ours; but for the last three years we have left off this practice, and now put in suckers, and from these we quickly get good beds of strong mint. The way we do, is to first prepare the bed, then pull up the pieces when about 4 inches long, dibble them in at a distance of 8 inches in the rows, and 10 inches from row to row. These receive one or two good waterings if dry, and when the plants have grown to 10 inches high, we pinch out the top. Beds prepared in the manner described produce plenty of good mint by the first week in June, and make very fine roots for forcing the following spring, and especially so if not picked too severely the first season. I may say it is not yet too late this season to put in suckers, selecting a shady position for them. *H. Markham.*

PACKING STRAWBERRIES FOR TRAVELLING.—This is, without doubt, the most difficult of all fruits to pack for transit. The following is a method which has proved very successful this year. A 6-inch punnet (the smallest size) is filled with cotton-wool, and the wool is kept about 1½ inch higher in the centre, above the rim. On this is laid a sheet of tissue paper. Each fruit is placed in a leaf, commencing at the rim, and working round and upwards until the whole surface is covered. Lime tree leaves are the most suitable, being of a pliable soft texture. The Strawberry leaf is rather stiff, unless they be picked a few hours beforehand, when they become a little limp. After the surface is covered, some larger leaves, such as Vine leaves or Maple, are laid on the top; then a sheet of tissue-paper, and on the top of this is placed a sheet of cotton-wool; then a punnet of the same size as the one containing the fruit is filled three-parts full of cotton-wool, and placed on the top, bringing the inverted rim on to the one containing the fruit, the two are securely tied together and packed in boxes, where they will travel safely by rail and carrier, landing at their destination in the same condition as when packed. This sort of packing is a rather difficult task for a beginner; but by a little practice he will soon become expert, and it is worthy of a trial, as so much shaking about in boxes, as takes place in transit, seriously disfigures the fruit. All our Strawberries are similarly treated when consumed at a distance, and they are placed on the table in the punnets in which they are packed in the garden. *Wm. M. Baillie.*

THE GARDENERS' ORPHAN FUND.—In reply to the letter of "A. D.," which you published last week, in reference to the forthcoming election, I beg to say that the committee are quite conscious of, and fully estimate the difficulty to which he refers; but they do not, however, see any remedy. They have most carefully considered the matter, and consulted the secretaries of other charities, and the unanimous verdict of these competent authorities has been that to take away the voting power of the subscribers would be simply to ruin the fund. In other words experience, which is better than precept, has shown that in affairs of this nature—no vote means no money. Therefore, while fully alive to the evils of the present system of election, and deploring the great waste of money and time it occasions, they feel that any departure from it would be unwise and probably disastrous. *G. Deal, Chairman.*

LEAFING OF THE OAK AND ASH.—In former years, notices have occasionally been communicated to the pages of the *Gardeners' Chronicle* relating to the varying times of the leafing of the above-mentioned trees, as indicative of a dry or a wet summer. The drift of the old adage runs thus:—If the Oak is out before the Ash, a dry summer is to follow, and *vice versâ*. Although I have but slight faith in the proverb, I have, nevertheless, been a careful and constant observer, as the seasons come round, for at least the last twenty years, having selected for observation two trees growing close to each other; and during that period I have occasionally noticed a considerable difference between them, but I have never seen the Ash first in leaf, although on several occasions I have seen but little difference between the first expansion of their buds, last year being one of them, and its character I need not attempt to explain here. These two trees are at the present time conspicuously different, the Oak having been in leaf for several weeks, while the Ash is only beginning to burst its buds. In situation these trees form part of shelter on the north side of the garden, and they are daily under my eye. They are surrounded by other hardwood trees, such as Beech, Elm, &c., which are now in leaf, and Horse Chestnuts, which have been in flower for a week or more, while within 40 feet from where the Ash stands, Apricots against a wall 14 feet in height, with a south aspect, are fully the size of Walnuts; and some Potatos at the bottom of the wall are quite 2 feet in height—unassisted. I mention these in order to mark the contrast towards the Ash of date May 27, latitude 57·38. The month of May will be long remembered here for its warmth and genial character, with an entire absence of frost. The following are the past week's readings of maximum and minimum temperatures, taken out of Stevenson's latticed thermometer stand, viz.:—

	Max.	Min.		Max.	Min.
May 19	74	45	May 23	67·1	50
,, 20	69·1	49·4	,, 24	74	50
,, 21	78	52·2	,, 25	65·2	46
,, 22	76·1	51·2			

Rainfall since May 3 —·04.

I may also mention that Wistearia sinensis has been flowering in great profusion for the last ten days, and Clianthus magnificus is also flowering freely, having stood the winter outdoors. Lilacs, Hawthorns, and Laburnums are now in full bloom. *J. Webster, Gordon Castle County.*

CONOPHALLUS TITANUM.—The probability that this vegetable giant would flower at Kew this year has already been noted in these pages, and now, on the plant's further development, we are glad to be able to state that a fine inflorescence is rapidly approaching maturity. Probably no plant, except the Victoria regia before it flowered for the first time, has been watched with greater interest than this, and if the dimensions given for it by Beccari and others be rivalled, we may hope soon to see at Kew a truly marvellous flower. The tuber of this plant two months ago weighed exactly 57 lb. It may be seen in the Victoria-house. *W.*

STEPHANOTIS FLORIBUNDA.—In your issue of to-day I notice some remarks by Mr. Ward respecting the Elvaston variety of this plant. It would certainly interest many growers of the plant to know when it was introduced. We have a plant growing in a border, about, or rather over, forty years old, and this year it has already borne nearly 1500 trusses of flowers. No variety need be better than this, and, judged by the size of the trusses, it might be described as a new variety, but it is only the old one. Years ago I used to imagine there were different varieties of Stephanotis, but for years now I have given the matter no credence. I look upon the various results obtained as matters of culture. *R. M.* [Our correspondent has lost the point of the note he alludes to. There is a variety named Elvaston, after the garden in which it originated, which flowers the first year after it has been raised from a cutting, but which the next year assumes the habit of the parent species, and makes long shoots, instead of remaining dwarf. There is no difference in the size or number of the flowers on a truss. ED.]

WALNUT TREES NOT BREAKING.—We have several very large Walnut trees here which are scarcely making any growth, and on examination I find the wood is killed for a considerable length, more especially the tops, which may be attributed to the severe frosts in the first week of October last. Perhaps some of your numerous correspondents will state through your columns if it is a general thing. *J. Street, Cannon Hill, Maidenhead.*

ARD RIGH DAFFODIL.—I have been lifting my Ard Righ Daffodil for the last week, much earlier than usual, and I take the opportunity of sending you a few bulbs. I have had them photographed. The large bulbs of Ard Righ enclosed are two years undisturbed, and the great

cause of decay is from their getting water-logged in broken ground under cultivation, the wet passing down between the divisions. This variety flowers much earlier than most other sorts, and is for this reason longer at rest. Last summer was very wet, and no doubt the effect would be to rot thousands of bulbs left for three or four years without attention. The shapely round bulbs are likewise Ard Righ, two years planted from offsets, and are such as I am selling to the trade for forcing purposes. Next year they would come from the soil like the larger ones. *W. B. Hartland, Cork.*

THE WINTERING OF PARSLEY.—I believe there is a good deal in "J. P.'s" theory that there may be some close connection between fogging and curling, or, in other words, that Parsley may be curled into tenderness as well as weakness. I certainly found that this was so in regard to some of the more choice Fern-leaved strains, as they were called. These frequently failed to winter safely, while other less curled strains escaped. But this winter, for the first time for many years, the entire crop, with a few exceptional plants, perished. It was the usual strain of Veitch's, sown quite in an open quarter, and cultivated in the usual way; about half of the crop cut down early in September, so as to ensure a short stubby growth before winter. The crop could hardly be said to fog off, so much as simply to rot off, or perish at the roots. And yet I find my neighbour, Mr. Bishop, within 2 miles, as the crow flies, has had a good supply, as stated in the *Gardeners' Chronicle*. There were, however, considerable differences in regard to shelter and site, in favour of the latter. I also find that Parsley failures have been common last winter over wide areas, and will endeavour to preserve and sow some plain or common strains, if these can be had, to test their hardiness against next winter, for it is infinitely better to have the plainest Parsley to little or none at all. As to the latter, books might be written of the miseries of the gardener who is short of Parsley, and of the enormous consumption in households during Parsley famines. What the pampered cooks will say to plain Parsley, remains to be heard; but probably, should another winter hit the curled strains as hard as the last, they will even be content with Hobson's choice. *D. T. F.*

—— This crop seems to have suffered most in the southern parts of the country, for from the cold, snowy North we hear no complaining of loss of the plants. That is just as might be expected. The snow is the blanket which keeps Parsley, as well as all other lowly vegetation, from perishing of cold. In the South there was scarcely any lasting snow, but alternating frosts and thaws—albeit, the frosts were generally of no great severity; hence the loss we are most of us bewailing. My Parsley, after the severe weather of 1877 and 1888 was capital; now I must beg and borrow of my neighbours, who with more forethought had sowed broadcast in narrow beds, which, in November, were covered with garden frames, and matted up in bad weather. This is a provision I shall in future adopt. *S. W. by W.*

SOCIETIES.

ROYAL HORTICULTURAL.

Chiswick Chrysanthemum Conference.

A meeting of the Executive Committee was held in the band tent at the Summer Show of the Royal Horticultural Society in the Temple Gardens, on Friday, May 31. There were present, T. B. Heywood, Esq., President of the Conference, in the chair; the Rev. W. Wilks, Messrs. H. J. Veitch, A. F. Barron, Norman Davis, E. Wills, Shirley Hibberd, W. Mease, J. Wright, J. Laing, G. Paul, and E. Molyneux.

A representative schedule of classes was drawn up, consisting of thirteen for plants and twenty-two for cut blooms, embracing all sections and methods of cultivation, with a view to obtain competition to suit all classes of cultivators and lovers of Chrysanthemums.

To make the exhibition still more useful, a class was made for appliances best suited for growing and showing Chrysanthemums.

The subjects of papers to be read at the Conference were selected, and readers suggested. Particulars will be announced as soon as the arrangements are completed.

It was decided to issue papers to a large body of growers of the Chrysanthemum for statistical returns of various subjects connected with the plant and its growth, for future usefulness.

READING HORTICULTURAL.

The usual summer exhibition of this Society took place on the 29th ult., as usual, in the Abbey ruins. Unfortunately a tremendous storm broke over the town about noon, and completely deluged the tent and show grounds, though little or no damage was done to the exhibits; but it lessened the attendance, which was all the more to be regretted as the show was a very bright one — indeed, one of the best held at Reading for some years. Messrs. Sutton & Sons generously supplemented the prize-list by giving the sum of 10 guineas as premium prizes for amateurs in some of the leading classes, varying in sums of £2 to 10*s*.

Stove and Greenhouse Plants.—The class for nine plants brought three collections, Mr. J. Cypher, Exotic Nursery, Cheltenham, being placed 1st, with a somewhat uneven lot in point of size, but containing a few very fine specimens, such as Erica ventricosa magnifica, E. affinis, Darwinia tulipifera, and D. fuchsioides, Aphelexis spectabilis, Bougainvillea glabra, Anthurium Schertzerianum, Wardii, &c.; Mr. Finch, gr. to J. J. Marriott, Esq., Coventry, came 2nd, with some nice fresh even plants, including Cattleya ? Mossiæ, Erica Cavendishiana, Ixora Prince of Orange, I. Pilgrimi, &c.

In the class for six plants, Mr. J. James, nurseryman, Norwood, was 1st, with Erica Cavendishiana, Anthurium Schertzerianum, and its large variety, Wardii, Ixora Prince of Orange, Franciscea calycina major, and an Azalea. In the amateurs' division, groups of six specimens were also shown.

The best specimen stove and greenhouse plant was a superb example of Clerodendron Balfourianum, from Mr. Baskett, gr. to W. J. Palmer, Esq., Reading; Mr. Cypher being 2nd, with Erica Cavendishiana.

Orchids.—These plants have become a good feature at Reading, and there were at least five exhibitors of three specimens. Mr. Finch was 1st, with a fine piece of Lælia purpurata, Cattleya Mossiæ, and Dendrobium suavissimum; 2nd, Mr. Lawrence, gr. to Mrs. Owen-Knox, Caversham, with Dendrobium oculatum fimbriatum, D. thyrsiflorum, and Cypripedium Robelinii. Messrs. Pound, gr. to G. May, Esq., Caversham, and H. James, were awarded extra prizes. The best specimen Orchid was a fine piece of Dendrobium nobile.

Azalea indica.—A very few good plants were shown, and their bright colours greatly helped the effect. The best nine came from Mr. T. Lockie, gr. to G. Fitzgerald, Esq., Oakley Court, Windsor, who had fine examples of Eclatante, Duchesse Adelaide de Nassau, &c. There was also a class for six specimens.

Miscellaneous.—Roses, Pelargoniums, and Fuchsias, were very conspicuous. The heat had told somewhat upon the former. Gloxinias were very fine indeed; they are always fine at Reading; large, well grown, and grandly bloomed, the flowers of the highest quality, and they contrast most favourably with what is often seen elsewhere. Calceolarias were a good feature also.

The best six greenhouse Ericas came from Mr. J. Cypher, who had well-grown and bloomed plants of Erica ventricosa coccinea, E. ventricosa rosea, E. hirsuta, E. Cavendishiana, E. Lindleyana, and tricolor Wilsoni. Mr. J. Mould was 2nd.

Groups arranged for effect made a very pretty feature indeed. Mr. Woolford, gr. to A. Palmer, Esq., Reading, had a charming group, there being a bed of Maidenhair Ferns, from which rose up Orchids and other flowering plants, interspersed with Dracænas, Crotons, &c, with Palms at the back, and a good piece of Sobralia macrantha. Mr. J. James was 2nd. Some groups of smaller size were also staged in another class.

Foliaged Plants were a good feature, stately Palms and spreading Tree Ferns giving bold touches of green about the tent. The best half-dozen came from Mr. Finch, who had very fine examples of Kentia Fosteriana, K. Canterburyana, Cycas Neo-Caledonica, Dasylirion acrotrichum, Croton Disraeli, and Cordilyne indivisa; 2nd, Mr. Currey, gr. to Colonel Pepper, Salisbury.

Foliaged plants were also shown in fours by amateurs. Ferns also made a good feature. Palms were shown in collections of three varieties, and Lycopods were fresh, bright, and well grown.

Cut Flowers.—These were represented by Roses, Mr. Robins, gr. to E. D. Lee, Esq., Hartwell House, Aylesbury, being 1st, with a capital lot of twelve blooms; Mr. Turton, gr. to J. Hargreaves, Esq., Maiden Erleigh, being 2nd.

Pansies were fairly well shown. Bunches of stove and greenhouse flowers were a good feature, and in the class for twelve bunches of hardy flowers Mr. G. Phippen, nurseryman, Reading, was to the fore, with an excellent collection.

Fruit was in good character for the season. Mr. Lane, gr. to J. D. Smith, Esq., Ascot, had the best two bunches of Black Hamburgh Grapes, finely coloured and finished; Mr. Turton being a good 2nd.

Mr. Turton had the best two bunches of white Grapes, staging very fine Foster's seedling; Mr. Ashby being 2nd. Mr. N. Kneller, gr. to W. S. Portal, Esq., Malshanger, Basingstoke, had the best thirty-six fruits of Strawberries, showing very good President; Mr. Goodman, gr. to C. Hammersley, Esq., Bowne End, being 2nd, with Captain. Mr. Robins had the best dish of Peaches, showing very fine Alexander; Mr. Pound coming 2nd, with Waterloo. Mr. Robins had the best dish of Nectarines, showing fine Lord Napier.

Vegetables were represented by excellent Potatos, round and kidney, Asparagus, Lettuces, Rhubarb, French Beans, &c. The best brace of Cucumbers was of Model, from Mr. Lockie; Mr. C. Littledale, Twyford, being 2nd, with Telegraph. There was a good competition for the special prizes for six dishes of vegetables, offered by Messrs. Oakshott & Millard, of Reading, Mr. T. Lockie being 1st, and Mr. Goodman 2nd. Messrs. James Carter & Co., High Holborn, offered special prizes for their Model Cucumber and their Blenheim Orange Melon, there being a good competition in each class.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

The ordinary monthly meeting of the Scottish Horticultural Association was held in 5, St. Andrew Square, on the 4th inst., Professor Bayley Balfour in the chair. Mr. James Greive, Pilrig Nurseries, read a paper on "Florists' Flowers," in which he dealt with the history and progress of the improvement of the various classes of flowers so designated. To illustrate the paper, masses of Pansies, Violas, Gladiolus The Bride, Cinerarias, Calceolarias, &c., from the Pilrig Nurseries, were exhibited. A paper on "The Sparrow," by Mr. McMillan, Trinity Cottage, was read by Mr. Henderson, of Clermiston, in which the bird was denounced as the most destructive of the gardeners' foes.

Among the exhibits there was an interesting seedling of Saxifraga nepalensis (? pyramidalis), from the Edinburgh Botanic Garden. The inflorescence was about 18 inches in length above the foliage, open, paniculate, the branches spreading horizontally from the base upwards; the flowers are large, pure white, but deeply tinted with bright rose-crimson spots at the base of the petals.

A numerous collection of cut blooms of Orchids was exhibited by Mr. A. Grant, St. Leonards Hill, Dunfermline, among which were fine samples of Cattleya labiata, Lycaste Deppei, and L. aromatica; Cypripedium Harrisonianum, Leptotes bicolor, various Masdevallias, along with good specimens of Cypripedium calceolus, C. parviflorum, and C. macranthum, from the open ground; also Utricularia montana.

LAW NOTES.

AYLING *v.* WENDT.

In the Queen's Bench Division of the High Court of Justice, London, on Tuesday, the case of Ayling *v.* Wendt came before Mr. Justice Wills and a common jury. This was an action brought by plaintiff, Mr. Charles E. Ayling, market gardener, against defendant, Mrs. Fanny Sarah Wendt, the owner of the market garden known as the "Five Acres," situated between Clay Lane and Holly Bush Lane, to recover £634 19*s*. 10*d*., the amount alleged to be due on the award of an arbitrator. In alternative, plaintiff claimed damages for breach of contract, by which it was said the defendant had agreed at termination of his lease to pay a fair price for the stock in the market garden. The defendant, in defence, denied that any such award as that set up by the plaintiff could be made, and said that if

she was liable for anything she brought £95 into court as sufficient to meet plaintiff's claim. She also counterclaimed for £300 damages, alleging that plaintiff had failed to fulfil his covenant to cultivate according to the most improved mode of market gardening. In reply, plaintiff submitted that he had cultivated in accordance with the most improved method. He further said that if he had not cultivated to the highest point of perfection he was willing to bring £30 into court in satisfaction of the defendant's counterclaim.

Mr. Baylis, Q.C., and Mr. C. M. Baker appeared for the plaintiff, while Mr. Winch, Q.C., and Mr. C. N. Crosse represented the defendant.

Mr. Baylis, in opening the case for the plaintiff, said his client was a market gardener, and had been so for many years. In 1875 he purchased the lease of a market garden situated between Clay Lane and Holly Bush Lane, Hampton, of Mr. George Austin. That lease expired last Christmas, having been granted by the defendant to Mr. Austin for twenty-one years from 1867. The action was brought on a covenant in the lease to the effect that at the end of the term for which it had been granted the lessor would pay to the lessee a fair price for the stock of the market garden. In the event of a difference arising it was to be referred to arbitration in accordance with the Common Law Procedure Act, 1854. It appeared that when Mr. Austin obtained the lease he proceeded to lay out money on it in order to make it remunerative. He planted a great number of fruit and Rose trees, as well as vegetables.

His Lordship said he had been looking at the covenant, which appeared to him to provide that the lessor was to pay what was found to be due on a valuation being made under the Common Law Procedure Act. If there had been a proper valuation under the Common Law Procedure Act, plaintiff was entitled to £600 odd, although the other party had not been heard. If, however, there had not been a competent valuation, the plaintiff could not go before the jury and ask them to assess that which was to be assessed under the covenant by a valuer.

Mr. Baylis said his first point of law was, that the plaintiff had done all that he was required to do under the Common Law Procedure Act, and that, therefore, he was entitled to the amount claimed. He understood, however, that his learned friend intended to attack the contention.

His Lordship remarked that the covenant appeared to provide that the lessor should only pay what the valuers awarded.

Mr. Baylis said there were two independent covenants, and, according to the authorities, if the defendant did not pay a fair price, the plaintiff had a right of action.

His Lordship observed that it would be better to deal with the point at once.

Mr. Baylis said there were certain facts to which he desired to call his Lordship's attention. In 1875 plaintiff paid Mr. Austin nearly £800 for the stock on the land.

Mr. Winch, on behalf of the defendant, said, that if he won the action he should only get his costs. He was willing to forego any advantage he might obtain by a judgment in his favour in the action if plaintiff would agree to refer the whole question to some valuer. He desired to have the case settled.

His lordship remarked that that sounded very much like a wise course for the parties to adopt.

Mr. Baylis said he had spoken to his client, who preferred to take the verdict of the jury.

His Lordship: He must take the judgment of the judge also.

Mr. Baylis then proceeded to read a correspondence which he said showed that the defendant would not appoint a valuer, though she was called upon to do so by the plaintiff. The plaintiff appointed his valuer under statute, that as the defendant would not appoint a gentleman to act for her the plaintiff's valuer proceeded to make his valuation, which he maintained was binding on the defendant.

Mr. Winch said the plaintiff had not complied with the statute. After appointing his arbitrator he did not give the defendant seven days' notice to appoint her representative.

Mr. Baylis said the letters showed that the plaintiff gave the defendant seven days' notice to appoint.

Mr. Winch observed that the letters referred to were prior to December 17, when the plaintiff appointed his arbitrator. The seven clear days' notice must be after the appointment.

His Lordship: Is there any authority upon the point?

Mr. Winch: No.

Mr. Baylis: I can find none. Certainly, the learned counsel submitted that the lease contained two independent covenants, and that therefore the plaintiff had a right of action.

His Lordship said he had been looking at the section of the statute carefully, and he thought that the use of the word failure in connection with the appointment of an arbitrator rather implied that some notice of the appointment by the one party had been given to the other. He was, in fact, satisfied upon the point.

Mr. Winch said he should contend that the covenant in question could not be construed as two collateral covenants.

Mr. Baylis said he was prepared to accept the offer of his learned friend, and leave the matter to a gentleman who understood market gardening, and who would report to his Lordship.

Mr. Winch observed that when the case came back again he should argue that Apple trees twenty years of age ought not to be valued.

His Lordship: That is a matter for the arbitrator.

Mr. Winch: Well, I am quite willing to leave it to the arbitrator, who will make a report to your Lordship on the claim and counterclaim.

His Lordship: I think the question should be left to a gentleman who understands the question. It is a purely trade question.

Mr. Winch: Then a residue of the case will be heard before your Lordship on the report of the referee, without a jury?

His Lordship: Yes.

The case was accordingly referred.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending June 3, is furnished from the Meteorological Office:—

"The *weather* has been generally dull and rainy over Ireland, Scotland, and the extreme south-west and west of Ireland, but over the east and south-east of England the conditions during the greater part of the week were fine. Thunder and lightning occurred in a few places during the earlier days of the period, and towards the end of the time thunderstorms of exceptional severity were experienced in nearly all parts of Great Britain; at many of our northern and eastern stations they were accompanied by exceedingly violent hailstorms.

"The *temperature* has continued above the mean in almost all districts, the excess having ranged from 1° to 3° over Ireland, the south-west of England, and the 'Channel Islands;' however, it has either been rather below, or has just equalled, the normal value. The highest of the maxima, which were recorded on June 2 over Great Britain, and on various dates in Ireland, ranged from 67° in 'Ireland, S.,' and 'Scotland, W.,' to 77° in 'England, N.W.,' and to between 82° and 85° over southern, central, and eastern England. The lowest of the minima were recorded in most places on May 30, and ranged from 38° in the north and east of Scotland, to 46° in 'England, S.' Towards the close of the period the minima over England were very high; in London during the nights of June 1—2 the thermometer did not fall below 61°.

"The *rainfall* has been a little less than the mean in the south and east of England, but more in nearly all other districts, especially in the north-west of England and the south of Ireland.

"*Bright sunshine* shows a very general decrease in the west and north, but an increase over eastern, central, and southern England; the percentage of the possible amount of duration ranged from 20 to 31 in Scotland, and from 28 to 32 in Ireland; while over England it ranged from between 33 and 38 in the west, to 54 in 'England, S.,' and 59 in 'England, E.'"

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending June 3.	Accumulated. Above 42° for the Week.	Accumulated. Below 42° for the Week.	Accumulated. Above 42°, difference from Mean since Jan. 1, 1889.	Accumulated. Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (—) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1889.	Rainfall. Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	3 +	77	0	+ 114	+ 6	1 +	112	18.4	20	22
2	3 +	85	0	+ 54	+ 5	5 +	88	10.2	27	26
3	3 +	95	0	+ 24	+ 6	0 av.	81	9.6	37	25
4	3 +	109	0	+ 6	+ 112	1 —	86	9.4	59	27
5	1 +	100	0	— 1	+ 60	3 +	80	13.4	45	24
6	3 +	110	0	+ 3	+ 75	1 —	82	10.1	54	26
7	2 +	85	0	+ 63	— 23	7 +	95	17.9	31	27
8	2 +	95	0	+ 33	— 1	11 +	88	12.8	33	26
9	1 —	86	0	— 49	+ 88	3 +	83	14.8	38	31
10	0 av.	80	0	+ 29	— 53	4 +	105	15.6	28	23
11	2 —	76	0	— 7	— 14	9 +	95	16.0	32	29
12	0 av.	96	0	+ 13	— 16	0 av.	100	10.1	49	36

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, June 6.

Business brisk, with prices well maintained all round, with the exception of Grapes, which are easier. *James Webber, Wholesale Apple Market.*

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Ficus elastica, each	1 6	7 0
Arum Lilies, p. doz.	6 0	12 0	Fuchsias, dozen	3 0	8 0
Begonias, dozen	4 0	12 0	Lobelias, dozen	3 0	5 0
Calceolarias, dozen	6 0	9 0	Marguerites, doz.	6 0	12 0
Cineraria, per dozen	6 0	12 0	Mignonette, doz.	4 0	9 0
Cyperus, per dozen	4 0	12 0	Musk, dozen	2 0	4 0
Dracæna terminalis, per dozen	30 0	60 0	Nasturtiums, doz.	3 0	5 0
— viridis, per doz.	12 0	24 0	Palms in var., each	2 6	21 0
Erica, various, doz.	12 0	30 0	Pelargoniums, per dozen	6 0	15 0
Euonymus, in var., per dozen	6 0	18 0	— Ivy-Leafed, doz.	3 0	6 0
Evergreens, in var., per dozen	6 0	24 0	— scarlet, doz.	4 0	6 0
Ferns, in var., doz.	4 0	18 0	Roses, H.P., doz.	12 0	24 0
Foliage plants, various, each	2 0	10 0	— Fairy, doz.	6 0	9 0
			Spiræa, doz.	9 0	15 0
			Stocks, dozen	4 0	6 0

Bedding Plants in variety from 1s. per doz.; per box, 1s. 6d. to 2s. 6d.

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0	Narcis., white, 12 bun.	2 0	6 0
Anemone, 12 bun.	1 0	3 0	— double, 12 bun.	4 0	6 0
Arum Lilies, 12 blooms	2 0	4 0	Pansies, 12 bun.	1 0	3 0
Azaleas, 12 sprays	0 6	1 0	Pæonies, bun.	0 4	0 8
Bouvardias, per bun.	0 6	0 9	Pelargoniums, 12 spr.	0 6	1 0
Camellias, white, 12 blooms	2 0	4 0	— scarlet, 12 spr.	0 4	0 6
Carnations, 12 blms.	1 0	2 0	Polyanthus, 12 bun.	2 0	4 0
Eucharis, per dozen	3 0	6 0	Primulas, dbl., 12 sp.	1 0	1 6
Gardenias, 12 blooms	2 0	4 0	Ranunculus, 12 bun.	1 6	3 0
Heliotropes, 12 spr.	0 6	1 0	Roses, Tea, per doz.	1 0	3 0
Lilac, white Fr., bun.	3 0	5 0	— coloured, dozen	2 0	4 0
Lily-of-Val., 12 spr.	0 6	1 0	— red, per dozen	2 0	4 0
— French, bunch	0 9	1 6	— Safrano, dozen	1 0	2 0
Maiden Hair Fern, 12 bun.	4 0	9 0	Spiræa, 12 bun.	6 0	8 0
Marguerites, 12 bun.	3 0	6 0	Stephanotis, 12 spr.	2 0	4 0
Mignonette, 12 bun.	3 0	6 0	Tuberoses, 12 blms.	1 0	2 0
			Wallflowers, 12 bun.	2 0	4 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve...	2 0–	4 0	Lemons, per case ...	12 0–	21 0
— Canada and Nova Scotia, per barrel	10 0–	17 0	Peaches, per doz. ...	6 0–	24 0
Gooseberries, ½-sieve	4 6–	5 6	Pine-apples, Eng., lb.	1 6–	2 0
Grapes, per lb. ...	2 0–	4 0	— St. Michael, each	2 0–	8 0
			Strawberries, per lb.	2 0–	5 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100 ...	... 6 0–	...	Lettuce, per dozen ...	1 6–	...
— French, bundle	2 0–	8 0	Mushrooms, punnet	1 6–	...
Beans, Jersey French, per lb. ...	... 3 6–	...	Mustard and Cress, punnet ...	... 0 4–	...
Beet, red, per dozen	1 0–	2 0	Onions, per bunch ...	0 5–	...
Carrots, per bunch...	0 6–	...	Parsley, per lb. ...	0 6–	...
Cauliflowers, each ...	0 6–	...	Peas, French, per qt.	3 0–	...
Celery, per bundle ...	1 6–	2 0	Potatos, new Fr., lb.	0 3–	...
Cucumbers, each ...	0 6–	0 9	Rhubarb, bundle ...	0 6–	...
Endive, per dozen ...	2 6–	...	Shallots, per lb. ...	0 6–	...
Green Mint, bunch...	0 4–	...	Spinach, per bushel...	2 6–	...
Herbs, per bunch ...	0 4–	...	Tomatos, per lb. ...	2 0–	...
Leeks, per bunch ...	0 3–	...	Turnips, per bunch, new ...	... 1 0–	...

POTATOS.—Beauty of Hebron, 50*s.* to 70*s.*; Imperators, 50*s.* to 60*s.*; Dunbar Magnums, 120*s.*; and Lincoln, do., 50*s.* to 65*s.* Large supplies of new Potatos from Malta.

The Malta arrivals close this week. Lisbon supplies have been heavy at 6*s.* to 6*s.* 6*d.* per cwt. Cornish and Jersey have commenced rather heavily, the price varying from 9*s.* to 13*s.* Market for old Potatos very uncertain.

FRUITS AND VEGETABLES.

STRATFORD: *June* 4.—There has been an excellent supply of all kinds of produce at this market during the past week; and, with a good attendance of buyers a brisk trade was done at the undermentioned quotations: — Cabbages, 4*s.* to 4*s.* 6*d.* per tally; Turnips, 6*s.* per dozen bunches; Carrots, cattle feeding, 16*s.* to 19*s.* per ton; do., household, 25*s.* to 30*s.* do.; Mangels, 13*s.* to 16*s.* do.; Swedes, 15*s.* to 20*s.* do.; Onions, Dutch, 4*s.* to 4*s.* 3*d.* per bag; Watercress, 7*d.* per dozen bunches; Cress, 1*s.* 6*d.* per dozen baskets; Mint, 2*s.* to 3*s.* per dozen bunches; Carrots, 3*s.* do.; Onions, 2*s.* 6*d.* to 3*s.* do.; Cucumbers, 3*s.* to 6*s.* per dozen; Gooseberries, 4*s.* to 5*s.* per half-sieve.

POTATOS.

BOROUGH AND SPITALFIELDS: *June* 4.— A fair demand and prices fully steady. Scotch Regents, 80*s.* to 125*s.*; English, 60*s.* to 105*s.*; Magnum Bonums, 65*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.*; other varieties, 60*s.* to 80*s.* per ton.

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

DAFFODIL, NARCISSUS.—Are any details known of the cultivation of Daffodils for elixir, or liqueur, said to have been brought by Jesuits from France, and introduced into the Channel Islands? *M. J. M.*

POLYGALA VULGARIS.—Why called, and used as, Rogation flower, a practice continued at Wolverhampton down to commencement of last century, and known to be used in such processions as early as A.D. 550? ["Because used in processions in Rogation week"—see Britten and Holland, *Dictionary of English Plant Names.*] *M. J. M.*

NOTICES TO CORRESPONDENTS.

BLIGHT ON GOOSEBERRIES: *McG.* Tobacco-water—one part to sixteen parts of water, 2 oz. of soft-soap, and 1 oz. of sulphur to the gallon of mixture. Syringe the bushes with this, and when the blight disappears syringe heavily with water.

BOOKS: *A. B.* Table Decorations: *Artistic Flower Decorations*, illustrated, B. C. Saward. (*The Bazaar* Office, Strand, London, W.C.)

CELERIAC: *Querist.* If it was sown with the main crop of ordinary Celery it will be ready to plant out at the same time. It is always advisable to prick out Celeries on rich soil placed on an impervious bottom—say 4 inches in depth of soil. Plant the Celeriac in beds of three rows each, with 2 feet alleys between, if there are several beds. This is better than planting many rows together, as it is easier then to get amongst the plants to hoe the ground and denude them fo the lowest leaves, besides the aëration of the crop is more complete. The wider the plants stand apart the bigger the tuber, and the converse. Only well decayed manure should be used, as the root has only four and a half months to make its growth, and much watering is needful in dry weather; but do not water unless it is needed, or the roots will be hollow. Distance 15—20 inches from plant to plant.

CLIVEAS POTTING: *An Inquirer.* Pot them now, and stand in a warm position—say a window facing south. Shake out most of the old soil, and work in amongst the roots some fairly rich sandy loam. Do not over crock, but let the drainage be efficient. Make the soil firm, and finish off 1 inch below the rim; for, as they should not be again disturbed for two or three years, some allowance must be made for the inevitable increase in bulk of the roots.

CORRECTIONS: DECORATIVE PELARGONIUM PEARL.—This variety, which was stated in the report of the Temple Gardens Show to have been exhibited by Messrs. H. Cannell & Son, came from Mr. T. Miller, Southdown Nursery, Margate. It is a pure white sport from Madame Thibaut, the flowers large, finely formed, and borne in bold trusse.—Mr. O. O. Wrigley desires us to say that his brother, Mr. E. G. Wrigley, was the grower of the Cattleya figured in last week's *Gardeners' Chronicle.*

CRICKETS, &c., IN HOUSES: *Constant Reader.* Use beetle traps; and for the woodlice, pieces of Carrot or damp hay. Why not try some beetle poisons?

DUCK STRANGLED BY FROGS: *H. R.* This is not at all unlikely to happen at a certain period of the year, if the frog mistook the duck for one of its own kind! Your losses previously may be traceable to the same cause.

EARLY CABBAGE: *Agricola.* Ellam's Early can be bought in your county at Mr. H. Deverill's, Cornhill, Banbury. One of the next best early varieties is the Sprotboro, or Early York. None excel it for quickness of hearting without tying up, delicacy of flavour, and tenderness when cooked, and moreover the ribs are not prominent, as in most other varieties. Do not sow before the second week in August, unless the soil of the garden is heavy, and consequently cold, or the garden has a northern aspect, and then the third or fourth week in July might not be too soon.

FAGUS SYLVATICA (COMMON BEECH), &c.: *H. R.* Writers on sylviculture in the Australian Colonies do not mention this tree, so perhaps it has been found unsuited to the climate and the soils of those countries. Of trees indigenous to Britain which succeed there, mention is made of Quercus pedunculata and Fraxinus excelsior. We should think that Pæonies would not grow well generally, unless such species as decora, villosa, paradoxa, humilis, lobata, and the Moutan varieties.

HERBACEOUS PLANTS FOR CUT BLOOMS: *G. M.* Phlox decussata, hybrids; P. ovata, Hellebores of sp., Winter Aconite, Hepaticas, Geum, in single and double flowered vars.; Pyrethrum roseum in many vars.; Delphiniums in great variety; Pæonies, tuberous-rooted vars.; Trollius europæus, Asphodeus ramosus, Helianthus multiflorus (dwarf single and double Sunflowers); Carnations, Picotees, Pinks, Michaelmas Daisies many vars.; Alstromerias, Anthericum liliastrum; Aquilegias, Centaurea montana and C. macrocephala, Chelone Lyoni, C. obliqua, C. o. alba, Dielytra spectabilis, D. eximia; Doronicum austriacum, Lathyrus grandiflorus, L. g. albus; Lychnis chalcedonica plena, L. diqica rubra plena, L. vespertina, Monarda didyma, Pentstemon in variety; Potentillas, double, in variety; Scabiosa caucasica, Spiræa aruncus, S. filipendula, S. palmata, Statice incana, Zauschneria californica, and species of Iris. These are but a few of the fine hardy perennials available for your purpose; and, moreover, no border is complete without bulbous plants, of which selections may be made that would afford bloom almost the whole year.

HORSE CHESTNUT: *R. C. T.* In Britten and Holland's *Dictionary of English Plant Names* the following explanation is given: — The name is given . . . probably on account of the size and coarseness of its fruit (seed) compared with that of the common Chestnut. Parkinson, however, says the "Horse Chestnuts are given in the East country, and so through all Turkie, unto horses, to cure them of the cough, shortnesse of winde, and such other diseases." Its old Latin name was Castanea equina. When the leaf falls it leaves a scar not unlike a horseshoe, the vascular bundles representing the nails. Large Vines next week.

INSECTS: *W. H. C.* We are unable, even with a strong lens, to find a single insect, white worm, or maggot, in the box of soil you sent. The Cyclamen roots occasionally are injured by the white larvæ of the brown weevil (Otiorhynchus sulcatus). The soil should be carefully removed and sifted. Please send one or two of the grubs in a quill or small pill box to Professor Westwood, Oxford. *I. O. W.*

MINERAL MANURES: *O. M. P.* Nitrogenous manure in the article referred to would mean farmyard manure, or any other excreta of animals, dead animals, fish, blood, bones, woollen rags, guano, &c. Mineral manures would include common salt, salts of ammonia, salts of potash, lime and its compounds, salts of soda, salts of magnesia, and those special substances you mention which come under the terms lime and its compounds, and salts of potash. For a Potato crop, strewing on the surface of the soil between the rows at the rate of 1 to 1½ cwt. per acre is the best method of employing these mineral manures. The manure should not come into close contact with any part of the plants.

NAMES OF PLANTS: *C. W. K.* Dendrobium Bensoniæ xanthinum.—*J. M. G.* What should have been printed Ledum latifolium was made to read Sedum, &c. — *J. F.* 1, Staphylea pinnata; 2, Orchis mascula, white var.; 3, O. maculata, white form; 4, Brachypodium pinnatum. —*A. B. and C.* Calliphruria Hartwegiana, closely allied to Eucharis. — *E. D. L.* 1, Cratægus crusgalli; 2, Jasminum revolutum; 3, Weigela rosea; 4, Syringa Josikea; 5, Spiræa Thunbergii; 6, Weigela rosea, variegated form; 7, Gaultheria antipoda. The names promised last week are: 1, Orobus albus; 6, Berberis vulgaris; 7, Berberis umbellata; 8, Cornus stolonifera—not sanguinea, as stated last week.—*W. G. B.* Lonicera xylosteum. — *J. C.* 1, Spiræa chamædrifolia; 2, Viburnum Opulus, the Gueldres Rose; 3, Buddleya globosa; 4, Diervilla (alias Weigela) rosea; 5, Helianthemum, garden variety; 6, Corydalis lutea; 7, Cattleya Mossiæ.—*C. W. K.* Oncidium pulvinatum.—*G. N.* 1, Pholidota pallida; 2, Claytonia perfoliata.—*W. X.* 3, Sempervivum ciliare.—*J. W. O.* 1, Isatis tinctoria; 2, Sisymbrium austriacum; 3, Cynoglossum officinale.—*Constant Reader.* Maxillaria tenuifolia. — *A. W.* Fernleaved Beech. — *J. D.* Celsia cretica.—*Vox.* Chrysocoma comaurea.—*Mungo Chapman.* 7, Berberis vulgaris; 8, Viola sylvatica var. alba; 9, Waldsteinia geoides; 10, Symphytum orientale; 11, Vesicaria utriculata.

NARCISSI NOT FLOWERING: *Constant Reader.* The cause is doubtful, probably the heat or the condition of the soil is answerable for the injury.

ODONTOGLOSSUM CRISPUM: *W. E.* Many thanks. The appearances are due to the union, at a very early stage of growth, of two flowers.

PANSY: *R., Woking.* The flower is very dark indeed —almost black—but, owing to its having been packed without green moss, or anything damp about it, it had shrivelled up. We should think it is worth preserving.

SMALL SPIRAL SHELLS: *R. B.* The pretty little elongated spiral shells appear to be Rissoa ulvæ. They are "strictly littoral, and inhabit in myriads the green oozes of estuaries. They occur in all brackish water and estuary localities between tide marks round the British islands, where they are a favourite food of water birds." They were found on pots of Eucharis in considerable numbers, and the same species was sent to us, found in the same situation, some years ago. *I. O. W.*

VINE BUNCHES WITHERING: *Anxious.* The withering of the tip of your Grape bunches is owing to a grossness of growth in the Vine, followed by some check.

WEED ERADICATOR: *Sells.* We have tried it and found it efficacious, but it requires to be used with care.

COMMUNICATIONS RECEIVED.—Croucher (many thanks).—H. W.—J. Weathers.—J. B., Berlin.—X., Gottingen.—D., Berlin.—P., Ghent.—J. L., Brussels.—Sir H. R.—J. G. H.—C. van T., Haarlem.—J S.—Walter Clark.—R. D.—J. R. J.—A. D.—J. O'B.—Wild Rose—J. J. W.—D. T. F.—W. R.—O. T.—W. R., Sandy.

DIED. — We regret to announce the death, on June 4, aged eighty years, of JAMES WILLIAM WIMSETT, of the firm of Wimsett & Son, Chelsea.

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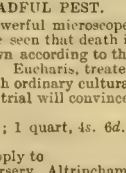
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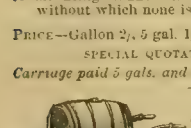
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ARCHANGEL MATS, RAFFIA.—Russia Mats and Raffia at lower prices than supplied by any other firm; also all kinds of Shadings, Nettings, Canes, and other Sundries at Wholesale Prices to the Trade only.
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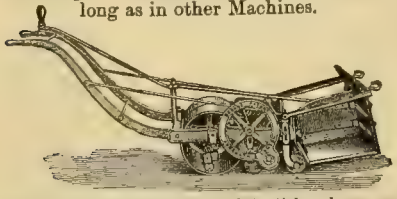
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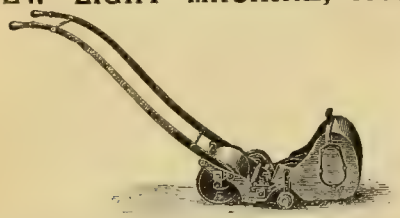
Enabling the Cutting Parts to last twice as long as in other Machines.



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VERY EASY TO WORK.

Prices and Particulars on application.

GARDEN ROLLERS OF ALL SIZES.

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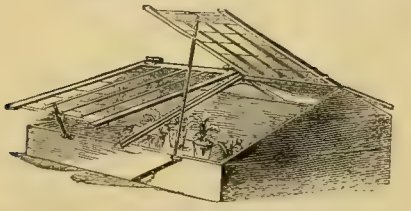
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1 Light Frame,	4 ft.	by 6 ft.	Cash Prices, Carriage and Packing FREE.	£2 15 0
2 " "	8 "	by 6 "		4 7 6
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5 " "	20 "	by 6 "		9 5 0
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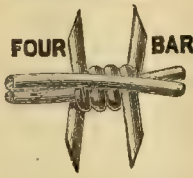
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3	3 4	5 0	6 8	10 0
2	4 6	6 9	9 0	13 6
1½	6 0	9 0	12 0	18 0
1	8 0	12 0	16 0	24 0



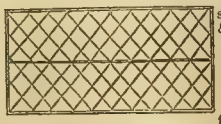
STEEL BARB WIRE.

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100 yd. Reels	...	... 6 0
265 " "	½ cwt.	... 12 6
530 " "	1 cwt.	... 23 0

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6 feet by 3 feet ... 2s. each.
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Made any size to order at following prices :—

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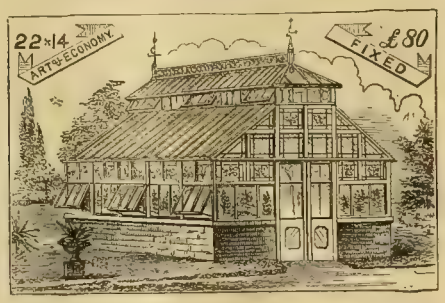
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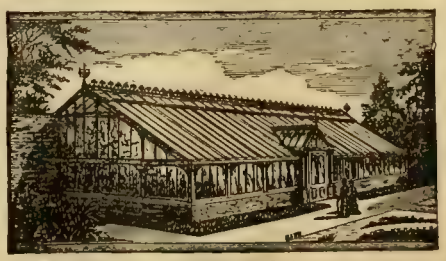


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Has an open steel roller.

A man can work a 24-inch machine.

There is no easier working, no better finished, no stronger, no more durable mower in the market.

The Front Roller, with simple adjustment for regulating height of cut, enables the machine to cut close to the ground, and to do fine work, besides adapting it for verge cutting.

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HORTICULTURAL BUILDERS and HEATING ENGINEERS,

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of every description, in either Wood or Iron, or both combined.



Wooden Chapels, Shooting Lodges, Tennis Courts, Cottages, &c.

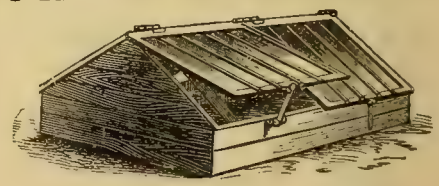


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PORTABLE PLANT FRAMES.

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12 feet " 4 feet "		4 7 6
6 feet " 5 feet "		3 10 0
12 feet " 5 feet "		5 17 6

Larger sizes at proportionate prices.

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GLASS.—CHEAP GLASS.

8s. 6d. per 100 feet 15 oz. 12×10, 18×12, 18×14, 24×14, 14×12, 20×12, 18×16, 24×16,

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HORTICULTURAL GLASS

STOCK Inches.	SIZES Inches.
14×12	20×15
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18×12	22×16
20×12	24×16
16×14	20×18
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21-oz. and **15-oz. Foreign,** of above sizes, in boxes of 100 feet and 200 feet super.
English Glass, cut to buyers' sizes, at lowest prices, *delivered free and sound* in the country, in quantity.
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and keep a fixed temperature under glass, by using "FRIGI DOMO," made of prepared hair and wool: a perfect non-conductor of cold.

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"FRIGI DOMO"
REGISTERED TRADE MARK
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Price £3 10*s. per Ton in bags. Lots under* 10 *cwt.* 4*s. per cwt.; 1 cwt. Sample Bag sent Carriage Paid to any Station in England on receipt of a Post-office Order for* 5*s.*

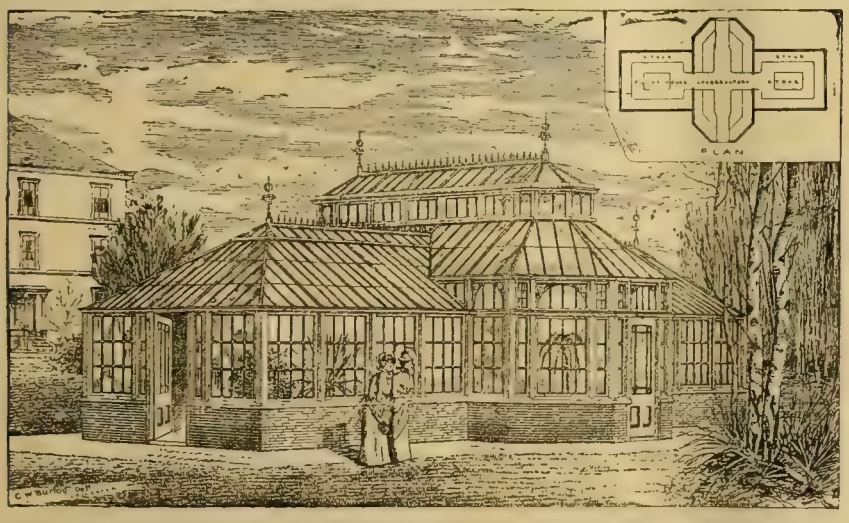
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All Mowers sent on a Month's Trial, *Carriage Paid.*

LAWN MOWERS,

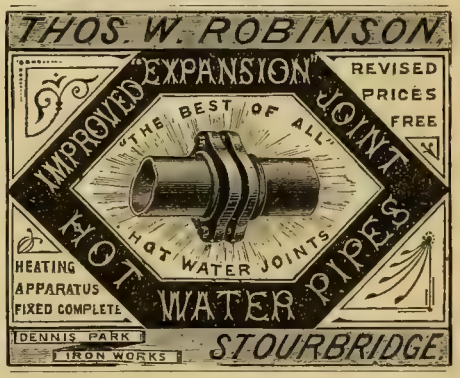
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"NEW AUTOMATON,"	the Best Gear Machine.
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Orders executed promptly by all Ironmongers.
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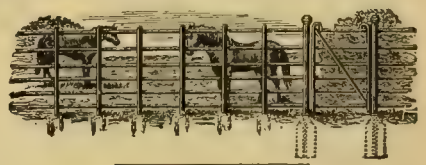
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GARDEN NETTING, 2 yards wide, 1½*d.*, or per 100 yards, 10*s.*; ditto, 4 yards wide, 3*d.*, or per 100 yards, 20*s.*
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SHADING BLINDS made up any size.
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IRON FENCING, HURDLES, GATES, &c.



IRON ROOFING AND HAY BARNS.



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7	„ ..	0	4	6	18	„ ..	0	10	0
8	„ ..	0	5	0	19	„ ..	0	10	6
9	„ ..	0	5	6	20	„ ..	0	11	0
10	„ ..	0	6	0	21	„ ..	0	11	6
11	„ ..	0	6	6	22	„ ..	0	12	0
12	„ ..	0	7	0	23	„ ..	0	12	6
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EPPS'S
GRATEFUL—COMFORTING.
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MADE WITH BOILING MILK.

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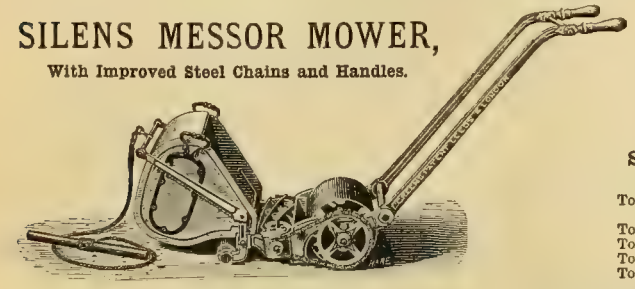
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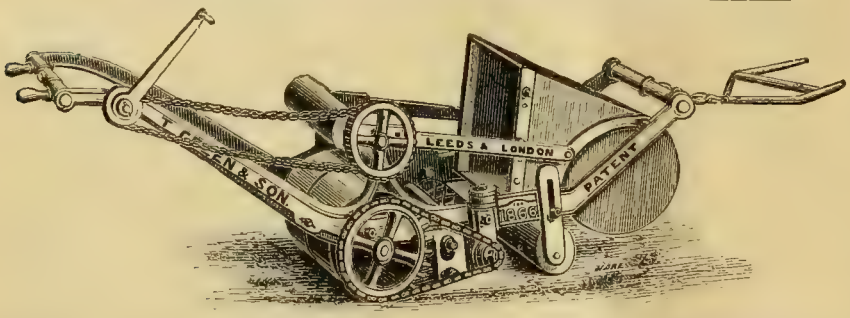
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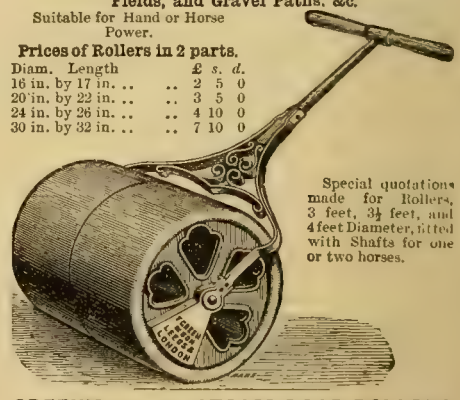
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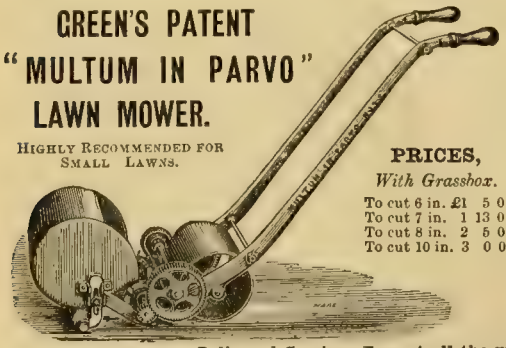
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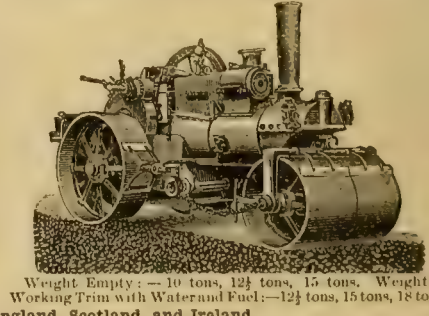
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Friday Next.

ESTABLISHED and IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, June 21, at half-past 12 o'Clock, a large quantity of various IMPORTED ORCHIDS from Messrs. Shuttleworth, Carder & Co.; also an importation of RODRIGUEZIA SECUNDA, with 30 to 70 bulbs, covered with healthy leaves, as fresh as when gathered. It bears long sprays of rosy-crimson flowers. A new DISA (D. SCULLYI) bears strong spikes of large pink flowers with long spurs, ONCIDIUM LANCEANUM and ZYGOPETALUM ROSTRATUM, now very difficult to obtain; ESTABLISHED ORCHIDS, &c.

On view morning of Sale, and Catalogues had.

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MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, on the Premises, Gunnersbury House, Acton, W., five minutes' walk from Mill Hill Park Station, District Railway, on TUESDAY, June 25, and following days, at 1 o'Clock each day, the remaining superior and exceptionally well-made FURNITURE; also the whole of the remarkably well-grown STOVE and GREENHOUSE PLANTS, including a very fine lot of Specimen Eucharis amazonica, Pancratiums, Dracænas, Crotons, Aspidistras, Azaleas, Palms, Ferns, TWO COWS, HEIFER, POULTRY, One-horse MOWING-MACHINE, TWO CARTS, HAYMAKING MACHINE, GARDEN UTENSILS, &c.

On view the Saturday and Monday prior to the Sale. Catalogues had of Mr. HUDSON, the Head Gardener, on the Premises; of Messrs. WARE, HAWES, AND WOOD, Solicitors, 7, Great Winchester Street, E.C.; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Tuesday, June 25.

ORCHIDS in FLOWER.—SPECIAL SALE.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be GLAD TO RECEIVE NOTICE OF ENTRIES as SOON AS POSSIBLE.

Wednesday Next.—(Sale No. 7942).

An extensive Consignment of VANDA CATHCARTII, just received direct; EPIDENDRUM ALATUM, CŒLOGYNES, PLEIONES, &c. Also a fine lot of Established ORCHIDS.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, June 19.

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WITHOUT RESERVE.

In fine condition, an Importation of DIACRIUM INDIVISUM, a grand species of the same section as Diacrium (Epidendrum) bicornutum, but more compact, freer flowering, and requiring less heat, produces sprays of 20 to 30 large snow-white flowers. SCHOMBURGKIA LYONSII, one of the most beautiful and showy of Orchids, produces large heads of showy purple and white flowers. ANGRÆCUM ARCUATUM, white, and fragrant; ONCIDIUM BAUERI, &c. Also the new DISA FULCHRAS, and other rare DISAS.

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On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 7942.)

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, June 19, at half-past 12 o'Clock precisely, a choice Collection of ORCHIDS in FLOWER and BUD, comprising grand forms of Cattleya Mendelii, C. Mossiæ, C. Warnerii, C. gigas, Odontoglossum Alexandræ, O. vexillarium, Oncidium macranthum, Lælia purpurata, &c.

On view morning of Sale, and Catalogues had.

MESSRS. HOME, SON, AND EVERSFIELD, will SELL by AUCTION, on MONDAY, June 17, at 12 o'Clock, on the Premises, 123, Caledonian Road, N., the STOCK IN TRADE of a TIN PLATE WORKER, including a number of Patent Paragon and other Greenhouse Oil Stoves, suitable for Conservatories and other Buildings where heat is required at a nominal cost.

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MRS. PARKER, finest Silver ... ... ,, ,, ,,	12	0
SURPRISE, finest Salmon ... ... ,, ,, ,,	10	0
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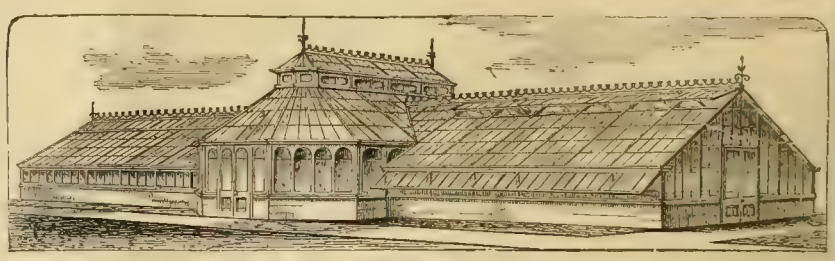
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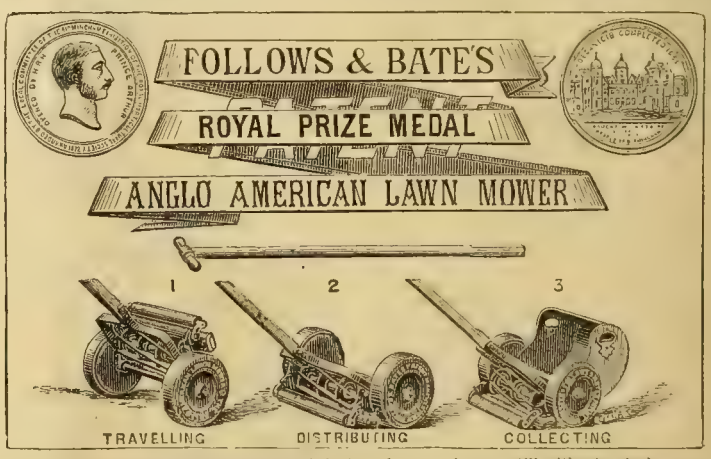
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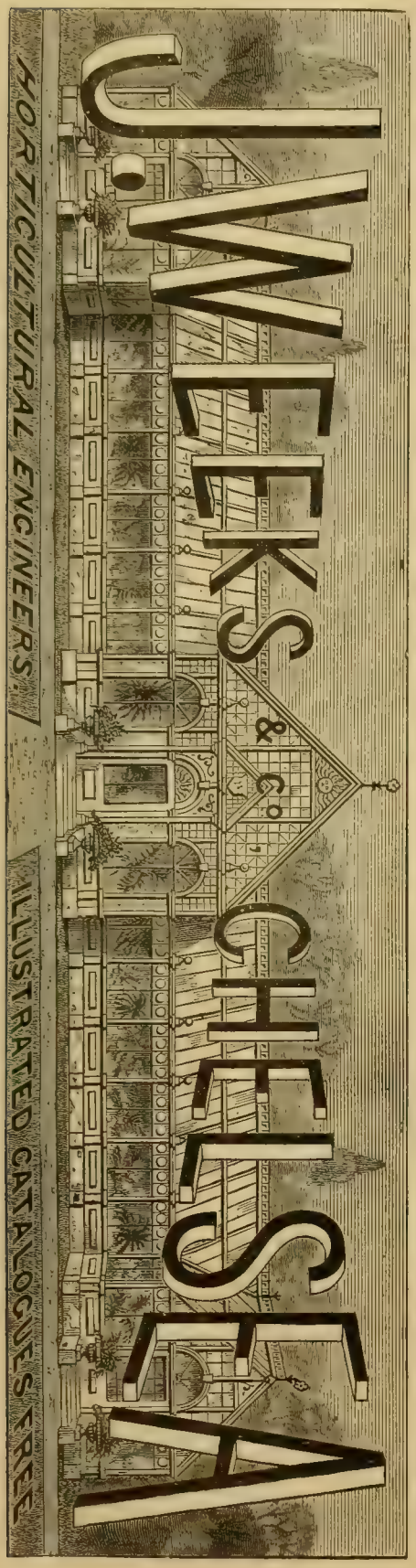
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SATURDAY, JUNE 15, 1889.

ROSE PROSPECTS.

IS it too soon to write about these? One might think that at the beginning of June we were pretty safe, and that there was nothing likely to disturb the equanimity of the Rose-grower at so late a period; but experience has proved how illusory all this is, and how "the unexpected" happens in Rose growing as in many other things. We have had frosts in the middle of June, we have had a plague of aphides, or we have had such scorching weather that Roses have been in and out in a few days; therefore it is with some hesitation that I venture to touch once more on our Rose prospects.

I have just been through my own Roses, having been engaged in disbudding, which is essential to having satisfactory blooms by-and-by, and for one thing, I see as yet but little trace of aphides, although one sees notices of their appearance in some quarters. The Roses have broken well, the shoots are clean, and buds promise fairly; but with all that, I stand somewhat in doubt. Sometimes the poor people say to me, "Oh! I am very well in health, but, then, my cough is troublesome, or rheumatics are very bad," &c. The conclusion which you come to is, that the person who speaks to you is, after all, a bit of an invalid; what they mean is, that they can eat and drink, that digestion is in pretty good order, but still they are not quite right So, I fancy, it is with Roses. One cannot find much fault, but still there is a suspicion that they do not look quite so well as one would wish, and that the cold sunless summer of 1888, resulting in unripened wood, is having its effect now, and we shall probably find Roses somewhat deficient in size; and this is the verdict pronounced by others besides myself. Otherwise, I cannot conceive a more favourable

season than we have had; the plants were backward until the beginning of May; then came the most beautiful, genial weather we have had at this season for many years—splendid rains at intervals, and then bright sunshine—so that all ought to go well.

Now is the time when liquid manure ought to be applied; it is of no use waiting till near the time of blooming, but now, when the buds are forming; it will materially help them to give two or three waterings with it, whether it be artificial manure or, what I think is as good as anything, liquid manure made with cow-dung and soot. It may be put into a barrel, made tolerably strong, and then, when taken out, it may be diluted with clear water and given twice a week. The beds should be hoed frequently, to keep down weeds, and to keep the soil well open. This is more especially necessary after the liquid manure is applied.

But there are other points of view from which we may regard "Rose prospects," and amongst them we must give a foremost place to the—

Rose Conference.—This ought to be a great opportunity for advancing the culture of the Rose, but I fear a fatal mistake has been made in altering the time originally fixed (the last week in June) to the first week in July. I strenuously opposed it, but the opinion of the committee was in favour of the change. My reasons are these: the first week in July brings us into the very midst of the Rose exhibition season, and although it may be very well to write and talk loftily about the honour being more to be considered than mere gain, I am quite convinced that the fixture will deter many amateurs from being present, and they form a very important element in the matter.

Then I have always thought that one of the main objects should be the gathering together of the various species of Roses and comparing notes on them, and that the botanists might be able to materially assist the florist in this Conference, but I very much fear that not only the summer varieties, such as Gallicas, hybrid Bourbons, &c., will be past their best, but that most of the species will be over. Already I see in my own garden that many of them are rushing rapidly into flower, and, should the weather be warm, they will all be over by that time; and here may I note one thing about exhibiting Roses: I see observations sometimes about "those hideous formal green boxes." I have for twenty years past seen the same and heard the same complaints, but I unhesitatingly affirm that if you want to see what Roses really are, there is no other way in which they can be so well displayed; I have seen the attempts among the French Rose growers to set them out "decoratively," all I can say is, that it was always a ghastly failure, that there was no beauty about the arrangement, and that it was impossible to see what the Roses were like. I have seen, too, in some places Maidenhair Fern largely introduced, and of course Maidenhair Fern is always pretty, but it seemed out of place, and looked as if it were designed to hide defects rather than to set off excellences. I also recollect a Rose show where we were told beforehand with a great flourish of trumpets, that "we should see what we should see," that the formal arrangement of stands would be done away with, and that a new order of things would be inaugurated. Alas! it came to nothing; the front of the stages was draped with Isolepis gracilis, and some round baskets were staged, but in all else there was no improvement, and the improvement was considered so questionable—it has never been repeated. The fact is, the Rose, like all double flowers, does not lend itself to decorative purposes; the National Rose Society tried to encourage the arrangement of Roses by offering a special prize for some years, but the competition was so small and the results so unsatisfactory that it was abandoned, and I have rarely seen an arrangement that was perfectly satisfactory; single Roses make a beautiful one, but they are so evanescent that they are practically useless for this purpose. I shall be curious to see if anything comes of the idea that a more artistic arrangement is possible.

There is another point of some interest to Rose exhibitors, the prospect of Rose showing; here, as in everything else, there are changes—societies rise and fall, as empires do—and we have to record the demise of two or three; but then their places are likely to be occupied by others. Unfortunately there is the same clashing of exhibitions, although great efforts have been made to prevent it. There is also a change in exhibitors. Most Rose exhibitors will regret the disappearance of Mr. T. B. Hall, of Larchwood, Rockferry, from the tented field; he has been a successful and genial exhibitor, and all his competitors have found him an able, sometimes victorious, but always a thoroughly straightforward foe. Then Mr. W. J. Grant, of Ledbury, exhibits for the last time this season; he, too, has been a very successful grower, and his admirably arranged stands of flowers will be greatly missed from both our metropolitan and provincial shows. Then, amongst smaller exhibitors, Mrs. Fuller, of Bexley, will create a blank not easily filled in some of the smaller Kentish exhibitions; one of which, a friend who is rather of a sporting tendency, described as "Mrs. Fuller first, and the rest nowhere." It is, of course, impossible to predicate under the changed circumstances what will be the character of our exhibitions; there are other growers coming forward, and it may be that the withdrawal of one who is a redoubtable champion may make them more hopeful, for they are sometimes wont to say, "Oh! if Mr. So-and-So is going to exhibit, I shall not, for one has no chance against him;" so that good may, perhaps, be evolved out of this evil.

On the whole, then, I think the outlook is hopeful; there is no lack of enthusiasm amongst Rose growers. There are many new varieties we are anxious to see, and so we may anticipate a pleasant season.

I may just add, that there is a good hope that our Royal patroness, Her Royal Highness the Princess of Wales, will be present at the Metropolitan show of the National Rose Society. *Wild Rose.*

New or Noteworthy Plants.

LÆLIO-CATTLEYA × DIGBYANA-MOSSIÆ, *n. hyb.*

This is the superbly beautiful hybrid exhibited by Messrs. James Veitch & Sons at the meeting of the Royal Horticultural Society on May 14 last, and described in the report in these columns, at p. 630, as Lælia Digbyana-Mossiæ. In the following week it is also mentioned at pages 652 and 658, and figured at p. 657, fig. 111, consequently there is no need to give a detailed description at the present. It is decidedly a great acquisition, and may possibly be the forerunner of a race with fringed flowers. The colour is very much like C. Mossiæ, but the long ovary (4½ inches), the infolding side-lobes of the lip, as well as the deep fringes of the same, are all strongly characteristic of L. Digbyana, the pollen parent. The white membranous sheaths of the pseudobulbs are also derived from the same source, though the leaves are not glaucous as in L. Digbyana. The flower is now being carefully dried, having been received a few days ago from Messrs. Veitch. The pollen masses are very unequal, as in other hybrids between the two genera, and it is this circumstance which led to the name proposed above. We have a number of genuine Cattleyas and other genuine Lælias, but these bigeneric hybrids are completely intermediate; and as they invalidate the characters of both genera, it seems to me preferable to indicate their origin by calling them Lælio-Cattleya×. Mr. Seden is certainly to be complimented on his promising acquisition. *R. A. Rolfe.* [The generic name is felicitous, but we hope some means may be taken to render the specific name less cumbrous. Ed.].

A Trial of Bedding Tulips.

Like the Viola during the wet summer of 1888, the early Tulip in the cool and moist spring of 1889 amply vindicated its claim to be regarded as the spring bedding plant *par excellence.* In private gardens, as in our public parks, the early Tulips proved most effective; and whether massed in beds, or planted in long ribbon lines, the colours were bold, striking, and effective, and the individual flowers large and well developed. It was expected, and results proved, that Hyacinths generally would not bloom so finely as usual; forced Tulips scarcely reached their high standard of excellence, but those planted in the open appeared to flower with such surprising lustre, as if desirous the labour and care bestowed upon them by man should not go unrewarded.

In the light sandy soil of their Portland Nursery at Reading, Messrs. Sutton & Sons planted out representatives of all the large collection of early Tulips, old and new, they are in the habit of annually importing.

There are about one hundred varieties of early single Tulips, and some fifty double varieties. Of the Duc Van Thol section there are some ten or more varieties. They are dwarf, easy, and quick in getting into flower, but those who have seen them only when forced into bloom in a high temperature at mid-winter have no idea how fine they are when bloomed in the open ground. Though planted late and growing in a season that was late and uncertain, the Van Thol section were in flower by April 8. These Van Thols are so well known in their colours of rose-scarlet, white, yellow, vermilion, &c., as not to need description. The violet is very pretty, novel, and distinct; the ground colour is violet bordered with white. The rose Van Thol always opens white, but changes to rose; this much should be stated, as some gardeners might be led to think they have not the true variety.

Of the scarlet early Tulips—and throughout this extensive trial they were planted in shades of colour so as to admit of comparison—Artus, deep scarlet, is very effective; it is quite dwarf, and rather late in opening. Vermilion Brilliant is undoubtedly the best and most brilliant of the scarlet Tulips when it is true, but there is reason to believe the scarlet Van Thol is often sent for it; the stigma of Vermilion Brilliant is always larger, and those who are acquainted with the bulbs can soon distinguish the difference between the two. Bacchus is a good dwarf purplish-crimson shade; the deepest in colour is Couronne Pourpre, or Purple Crown, which is dwarf, quite distinct in colour, and very effective. Grace Darling, a somewhat scarce and expensive variety, is of a showy orange or carmine-red colour, very large and showy, with a bright golden base, the flowers stout and of fine shape. Of the rose-coloured Tulips, Proserpine still heads the list. It is something to have been the raiser of this splendid variety. Its value as a bedder could have been seen in all the London parks. One named Adeline, of a carmine-rose colour, is a good succession to it, blooming about a week later; it might be termed a late, dwarf, dark Proserpine, valuable because it is late. Of violet shades, Wouvermann is deepest in colour, a dark wine-purple, dwarf, rigid in growth, and an admirable bedder. Van der Neer, is one of the most perfectly formed of our early single Tulips, dwarf, effective, and an excellent bedder. President Lincoln, or Queen of Violets is of purplish-lilac, assuming a grey tint with age; dwarf and effective. Of the white Tulips the white form of Joost van Vondel, is very fine indeed, large in build, pure in colour, erect and fairly dwarf. This and the good old White Pottebakker are the best whites; the latter in every way a most excellent bedder; the last-named is the earliest to get into bloom, but the white Joost van Vondel is the purest in colour. One named La Latière or Mrs. Cutbush, is known as the blue Tulip; the flower is white, sometimes charmingly tinged with pale blue. If this blue shade could be

distributed all over the petals, then we could say a real blue Tulip was added to our collections. Of yellow Tulips there is now a large group, one named Bird of Paradise, is early, large, handsome, dwarf, and fine in colour; it is one of the earliest to flower. King of Yellows and Ophir d'Or, are also fine and striking varieties, the second not quite so large, but better in build and deeper in colour. They are all three about of a height, the first-named a little the earliest in point of time. But they all come under the category of expensive varieties at present. The old yellow Pottebakker is still good, and makes a very fine and effective bed. Chrysolora, once a great favourite, is now distanced by others, but it is better in colour than Canary Bird. The old Golden or Yellow Prince is one of the latest, dwarf, only about 8 inches, and makes a good useful bedder.

So far I have dealt with the self-coloured flowers. There are yet the edged ones; they are bordered or margined with some light colour upon a dark one. One of these is known as American Lac, shaded salmon with a thin edge of white, quite distinct, large, and a good grower; Cerise Gris de Lin is in the same way, but deeper in colour, and with a broad margin of cream; Le Matelas, bright rose, edged with white—becomes more distinctly edged with age; but Keizerskroon is the very finest of all the edged Tulips—a noble flower, and forms a massive and magnificent bed. Duchesse de Parma is large and useful; it is feathered and flamed with orange on a bronzy-crimson ground; La Remarquable has a chocolate-maroon ground, edged with pale rose or pink, large and striking; Lac van Rhyn or Rhein has a lake ground, broadly edged with white, dwarf, and very late.

Striped, flaked, and variegated flowers form another section, and of these the most noticeable are Cottage Maid, rosy-pink, flamed with white; Joost van Vondel, bright deep rose, with white flames or stripes—very fine and bold; La Rioute, in the way of Cottage Maid, but much larger; Royal Standard, a pretty striped variety, which makes a pleasing bed; Spaandouk, yellowish-white, flaked and striped with rosy-carmine—very dwarf, and rather late in flowering; and Thomas Moore, yellow, shaded with brownish-orange—a very distinct and useful variety; in fact, it possesses quite a character of its own, as there is nothing else like it.

Many of the double flowers make excellent beds, and produce striking masses of colour; but the single varieties have the most refined character, and therefore are more generally employed for garden work than the double. Tournesol, for instance, an old and favourite Tulip, that will not be distanced for years to come, makes a grand bed, and in order to show what it is capable of, Messrs. Sutton & Sons planted out in their seed trial grounds near the Great Western Railway, a plantation of 3000 bulbs of the variety, that presented to view a striking patch of colour when in bloom, and enabled one to realise something of what the bulb fields of Holland are like when in full flower.

Of scarlet self-double Tulips, the best are Lady Grandison, bright crimson, very dwarf, and early, about 6 inches in height; Matador, bright scarlet red, dwarf, late, and very showy; Prince of Wales, deep shaded red, dwarf; Rubra maxima, crimson-scarlet, very large and full; Vuurbaak, very bright fiery red, and which makes a showy bed; and the old Imperator Rubrorum, still a good and useful variety.

Of rose-coloured Tulips, mention must be made of Queen Emma, bright carmine or purplish rose, dwarf, and distinct; Rosalie, a double Proserpine—one might say the double form of it—distinct and fine; and Turban Violet, rosy violet, distinct in colour, but rough in the flower. Of white varieties, Blanche Hative, white, with yellowish centre, very early; and La Candeur, the later to flower of the two. The best yellow for bedding is the Yellow Tournesol, yellow, shaded with orange-brown. Purple Crown is the best crimson; it is of a deep maroon shade, and makes an effective bed.

The best edged Tulips are Gloria Solis and Tournesol; the former darker in the base, and not having so much yellow on the edge. Duc de Bordeaux is like Gloria Solis, but it has more yellow on the edge, and is later. Epaulet d'Or has a yellow ground, edged with maroon crimson. Helianthus is very late, the base bronzy-crimson edged yellow.

There is one advantage about double Tulips for bedding purposes: they are late, and help greatly to prolong the bloom in the garden. The following are the very latest varieties:—Admiral Kingsbergen, golden yellow, striped with red; Blue Flag, pale-purplish violet; Eastern Queen, carmine-red, striped with white; Mariage de ma fille, crimson and white flaked; Queen Victoria, striped scarlet and white; Rex rubrorum, crimson-scarlet; and Yellow Rose, golden-yellow.

The Dutch growers make a point of selecting varieties with variegated foliage, and in some cases the variegated leaves are really very effective. Of single varieties with variegated foliage the best are Lac van Rhyn, very good; Purple Crown, Silver Standard, and Yellow Prince, one of the best of double varieties; Rex Rubrorum, in this case the colour of the flower being so much softer, more of a carmine tint; and the old Double Yellow.

The showy Parrot Tulips are very late also. Some of them are wanting in rigidity of stem, but they are richly coloured, and find great favour from their laciniated petals and grotesque markings. *R. D.*

Orchid Notes and Gleanings.

EPIDENDRUM PATENS, *Sw.*

This is quite an old-fashioned plant, and one seldom seen in gardens at the present day, perhaps because it has had to make room for showier things of later introduction. Years ago it was evidently considered a showy plant, and was figured in *Loddiges' Botanical Cabinet*, t. 1495, and in the *Botanical Magazine*, t. 3800, and it seems still probable that a good specimen would well repay the trouble of cultivation. The other day a fine raceme, a foot long, and bearing twenty-one creamy-white or light yellowish flowers, 1½ inch across, was sent to Kew by Messrs. F. Sander & Co., of St. Albans, for name, and one could easily see that a good plant bearing several of these elegant drooping racemes would be a very beautiful object, though the colour is not so brilliant as in some of the more showy genera. The plant is of medium size, the distichous leaves oblong-lanceolate in shape, and very coriaceous, the lip wholly adnate to the column, shortly four-lobed, with the two inner ones smaller than the outer pair. It is a native of the West Indies and Central America. *R. A. Rolfe.*

MASDEVALLIA PARLATOREANA ×, *Rchb. f.*

This natural hybrid was sent home by Mr. Walter Davis, the discoverer of the beautiful M. Davisii, not by Pearce, as stated in my note at p. 680. The error arose through a slip of the memory. It is interesting to note that Mr. Davis suspected its hybrid origin at the time of its discovery, for he has been good enough to inform me that he noted it as an intermediate form or hybrid between M. Veitchiana and another species, which was afterwards named M. Barlæana—a fact since proved.

MASDEVALLIA POLYANTHA, *Lindl.*

This Masdevallia, which was described by Lindley in his *Orchideæ Lindenianæ*, as nearly allied to M. Schlimii, Linden, does not appear to have ever been in cultivation under the name; but on carefully dissecting and examining one of the flowers, I find the two really belong to the same species; so that Lindley's name must be considered as a synonym of the other. Lindley himself did not describe the internal organs, and I suspect did not dissect the flowers, for he speaks somewhat doubtfully of its distinctness. We may, therefore, consider M. polyantha to be in cultivation, though not recognised on account of the above-named circumstance. It seems desirable to put the fact on record. *R. A. Rolfe.*

MILTONIA FLAVESCENS, *Lindl.*

This is not one of the showiest of the Miltonias, though very remarkable when in flower, on account of the very long, distichous, acute bracts, which extend beyond the flowers, which arise from their axils. The latter are light yellow in colour, the lip with a few red markings on the disc, and the column-wings yellow with red lines. It was introduced over half a century ago, from Brazil, and was originally described by Lindley in the *Botanical Register*, t. 1627, as Cyrtochilum flavescens. The Mexican locality there ascribed to it has proved erroneous. Miltonia stellata, Lindl., figured in *Sertum Orchidaceum*, t. 7, as Cyrtochilum stellatum, is now considered to be a form of the same. A specimen was received at Kew the other day from the Liverpool Horticultural Company, for name, and as it has been sent from other sources, on former occasions, I infer that it may, perhaps, not be very well known in gardens, though a good plant appeared in one of the collections at the late Temple Show. *R. A. Rolfe.*

CATTLEYA INTERMEDIA VAR. PARTHENIA.

When compiling the "List of Garden Orchids" (see p. 648), I had not seen the above-named variety, but now a raceme has been kindly forwarded to Kew by R. H. Measures, Esq., of Streatham, from the authentic plant. It is a most beautiful variety, the whole flower of the purest white—quite an albino, for the colour has vanished from the front lobe of the lip, as well as from the rest of the flower. Of course, it is C. intermedia in every other respect. I think it the purest white Cattleya I ever saw, and as this colour seems to be much sought after in the C. labiata forms, the variety must be considered a valuable one. In the list above-named the varietal name is wrongly spelt "Partheniana," by a slip; the final syllable should be struck out. *R. A. Rolfe.*

EXPERIMENTS WITH POTATOS, 1888.

Much controversy has during recent years occurred regarding the action of dissolved and undissolved phosphates, as affected by the amount of free phosphoric acid supplied to the soil by various artificial manures. We have now been favoured with the report of some experiments on Potatos in 1888, conducted by Mr. W. I. Bartholomew, at Putnam, United States, bearing on the question.

The experiments were carried out in the same field; the land on one part had grown a crop of Rye in 1887, the other part was in grass, and had been mown in that year.

Over each plot was sown broadcast 4 cwt. per acre of a mixture of sulphates of potash and magnesia, and 1½ cwt. per acre of sulphate of ammonia. And at the time of planting the Potatos the land was divided into sections, and various phosphatic manures of equal money value were applied. The following table gives the result.

Yield of Saleable Potatos per Acre, in Bushels of 60 lb. weight.

	Experiment 1. Planted after Rye.	Experiment 2. Planted after Grass.	Average gain by use of the Phosphates.
	Bushels.	Bushels.	Bushels.
Without phosphates ...	127	139	.....
Dissolved bone black (animal charcoal)	165	177	38
Grand Cayman's phosphate .	164	148	23
Thomas slag	156	149	20
South Carolina rock	128	152	5
Bolivian guano	144	131	5

The striking result of these experiments is the large increase of Potatos by the use of dissolved

bone black, Cayman's phosphate, and basic slag, and that the profit is greatly in favour of the dissolved phosphate, being a direct gain of 16 bushels of tubers. The basic slag yielded much the largest quantity of small potatos.

It will doubtless be admitted by most horticulturists that, in order to be food for plants, phosphate of lime, like other constituents of plant-food, must be in a soluble condition, hence the recorded value of dissolved animal charcoal.

These results fully confirm those of Dr. Andrew Aitkin, conducted by him for the Highland Agricultural Society of Scotland, showing that there is a greater economy in using dissolved phosphates rather than the raw material, for plants that require a quickly available food supply. *John J. Willis, Harpenden.*

Nursery Notes.

HEXTABLE NURSERY, SWANLEY.

Mr. E. J. Bonny's neat and convenient block of houses is situated amongst fruit and Hop gardens in the beautiful county of Kent. Orchids alone are grown, and especially those which are compact in habit, and productive of showy flowers; and although a difference of temperature is provided for the plants, usually called intermediate and warm house, all may be said to be grown cool. The houses, which are span-roofed, run side by side, and the noticeable features about them are the ample provisions made for ventilation which are freely made use of. Shading is also considered to be an important matter, and each house is so furnished as to be well shaded. Rain-water for the plants is of much importance, and one of the first works Mr. Bonny carried out on taking over the nursery was to place a rain-water tank at the end of each house—outside, communicating with a tank inside. This was considered better and cheaper than putting rain-water tanks inside the houses already constructed, and those who have not sufficient rain-water accommodation might see Mr. Bonny's tanks with advantage.

The first cool house entered contained Odontoglossums in fine health—many in bloom. From amongst these came the superb spotted O. crispum Bonnyanum, and other fine varieties. A fine stock of plants of O. grande were showing their flower-spikes, and O. nebulosum and some varieties of O. Pescatorei were noticed in bloom. In the same house was a quantity of large tufts of scarlet Sophronitis. The next house entered had a general collection of plants which require a little more heat than Odontoglossums, and here were numbers of species of Lycaste, plants of Cœlogyne corrugata, and of varieties of Lælia anceps, L. autumnalis, L. Gouldiana, &c.; besides these plants were sturdy examples of the somewhat scarce Miltonia Phalænopsis, and very vigorous plants of the beautiful crimson Broughtonia sanguinea, which here grows and flowers profusely on rafts, in baskets, and in pots.

The next house visited contained chiefly species of neat growth and handsome flowers, and amongst them were some very fine Lælia præstans, Promenæa citrina, P. stapelioides, P. s. heteroptera, a very fine and healthy mass of Cymbidium tigrinum, Pescatorea cerina with very large flowers; Cypripedium Schlimii, very vigorous, the plants standing in a cool corner of the house; Cattleya Schilleriana, a fine lot of the mauve Sophronitis violacea, &c. The next house contained fine Dendrobium suavissimum, a quantity of the scarce Aërides crassifolium, one of them in flower; good specimens of Scuticaria Hadwenii, and Cattleya intermedia in flower and in bud; some plants of a good importation of the true Epidendrum nemorale majus, and other plants. The fifth house had a batch of Cypripedium bellatulum and C. Godefroyæ, some in bloom; also of C. hirsutissimum, some of which were in flower; many C. Sedeni, C. lævigatum, C. Parishii, C. Hookeræ, and a goodly number of Oncidium Papilio majus, and O. P. Krameri, with flower spikes; Dendrobium Brymerianum, and other Dendrobes, and a good strain of Miltonia vexillaria.

The sixth house, a larger structure, is arranged with a central stage for specimen Lælias and Cattleyas, and placed on it were some very large masses of Lælia purpurata, chiefly of the dark-coloured strain; some good forms of Cattleya Mossiæ and C. Mendelii, stout plants of C. Dowiana, and other Cattleyas, and two very pretty varieties of Vanda suavis. Here, too, showing flower-spikes, were some plants of a Vanda supposed to be new, and in the way of V. Parishii; some stout V. Amesiana and V. Kimballiana; healthy Phalænopsis and Angræcums, even A. sesquipedale seeming to be extra vigorous in the cool temperature given to all the Orchids here—in summer, at least. A number of a curious-looking Dendrobe, freshly imported, in appearance intermediate between D. thyrsiflorum and D. densiflorum, were safely established, and will soon flower, and thus settle their claim to novelty. Mr. Bonny makes the most of his nursery, and has added appliances for the manufacture of Orchid baskets, rafts, &c., which he is able to supply in quantity.

GLOXINIAS AT TOWER HOUSE, CHISWICK.

Some very excellent plants are now in flower at the above garden. The chief characteristics of the strain are ample leafage, profusion of flowers, remarkable alike for their immense size and substance, superb form, and rich, varied, and well-defined colouring.

There is now no necessity of reverting to the old practice of leaf propagation, as Gloxinias can be raised from seed and flowered within six months from the time of sowing. As to the time for sowing the seed, this operation is generally performed about January or February, but Mr. Bones's practice is to sow in August, as it is found that the plants flower more freely than is the case by sowing earlier. Certainly the results observed showed the soundness of the practice, most of the plants bearing 50 and 60, some indeed 70, flowers. Mr. Bones takes much interest in the raising of seedlings, and success is beginning to crown his efforts. A seedling from Flambeau is a decided improvement on that well-known variety, till now the best scarlet. The flower has a more vivid colour, and it is of better form. Another seedling is of a novel shade of colour, difficult of description, varying like shot-silk. Another may be compared to old chintz. An improvement was also noted in that fine purple flower—The Moor. It may prove of practical interest to give the method of growing Gloxinias practised by the gardener. The seed is sown at the end of August, a great point being to sow as soon as the seed is ripe, employing for soil an equal proportion of sifted loam, peat, and leaf-soil, and adding a liberal quantity of clean silver-sand. The pots (small 32's) should be quite clean, and carefully drained with clean crocks, placing over them a little moss or leaves. The pots are filled to within half an inch of the rim, and the soil is pressed moderately firm and even. The seed is sown thinly and covered lightly with some sand or fine soil, and watered very gently with a fine rose can, the soil in the pots having been well watered some hours previously. The pots are then placed in a temperature of from 65° to 75°, and covered with a piece of glass or tile; if the former some moss or paper should be placed to exclude the light. As soon as the seedlings appear, they should be exposed to light to keep them sturdy; and directly the plants are large enough to handle, they should be pricked off into pans 3 inches apart, using soil similar to that employed for the seed-pots, returning the plants to the same temperature as that whence they were taken. Keep close, and damp overhead once or twice daily according to the weather. As soon as the plants have filled the space in the boxes or pans, pot off into large-sized 60's, using the soil a little rougher so that the water can have free egress. Be careful not to break the small leaves in the operation. Pot moderately firm. The same temperature will still be needed, keeping the bed damp round the pots by the liberal use of the syringe in bright weather.

As soon as the roots appear through the soil the plants should be shifted into 48's or 32's, in which they should be allowed to flower, unless very large specimens are required, and then they must have a still further shift into 8-pots. As soon as the flowers appear, development should be encouraged by giving the plants manure-water once or twice a week. They should never be subjected to a too dry atmosphere, or the specimens will be attacked by thrips and greenfly, and when once these pests are allowed foothold it is not easy to oust them. *B.*

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 718).

CATTLEYA—*Continued.*

Var. Warscewiczii, Rchb. f., in *Gard. Chron.*, n.s., xix., p. 243; Veitch, *Man. Orch. Pl.*, pt. 2, p. 27, with fig. *C. Warscewiczii* Rchb. f., in *Bonplandia*, ii., p. 112; Id., *Xen. Orch.*, i., p. 78, t. 31. *C. gigas*, Linden, ex Dufresne, in *Ill. Hort.*, 1873, p. 70; Id., 1874, n.s., t. 178; Jenn., *Orch.*, t. 18; *Flor. and Pomol.*, 1867, p. 69, with plate; *Fl. Mag.*, n.s., t. 144; *Gard. Chron.*, n.s., ii., p. 617, fig. 127; *Id.*, xvii., p. 343, fig. 53; Warn., *Sel. Orch.*, ser. 3, t. 7; *Lindenia*, t. 63; *Garden and Forest*, 1888, p. 437, fig. 69; *The Garden*, xxi., t. 337. C. Sanderiana, *Gard. Chron.* n.s., xvii., p. 802; *Id.*, xix., p. 401, 404, fig. 62; *Orchidophile*, 1886, p. 17, with plate. *C. Warscewiczii Sanderiana*, Rchb. f., in *Gard. Chron.*, n.s., xviii., p. 8. *C. gigas Sanderiana*, O'Brien, in *Gard. Chron.*, n.s., xx., p. 404. ?C. Roezlii, Rchb. f., *Revue Hort.*, 1888, p. 572, with plate. C. labiata var. Roezlii, Rchb. f., in *Gard. Chron.*, n.s., xviii., p. 457. ?*C. gloriosa*, Carrière, *Revue Hort.*, 1885, p. 333.—New Grenada. Originally introduced by Warscewicz, about 1848 or 1849, though it soon died. It was re-introduced some years later by M. Linden, and is now known to be one of the finest varieties of the group.

The following names represent colour variations, or polymorphisms of the same:—*C. gigas burfordiensis*, O'Brien, in *Gard. Chron.*, n.s., xx., p. 404. *C. gigas imperialis*, O'Brien, *l.c.*, p. 404; *C. imperialis*, Hort., ex Veitch, *Man. Orch. Pl.*, pt. 2, p. 28. *C. Warscewiczii Cleopratæ*, *Fl. and Pomol.*, 1868, p. 93. *C. Warscewiczii*, Juno, *Id.*, p. 93. *C. Warscewiczii rochellensis*, Rchb. f., in *Gard. Chron.*, ser. 3, iv., p. 533. *C. rochellensis*, Rchb. f., *l.c.*, in note *C. Warscewiczii tricolor*, *Fl. and Pomol.* 1868, p. 93.

C. lælioides, Lem. = C. Skinneri.

C. Lamberhurst—hybrid = C. citrino-intermedia.

(28.) C. Lawrenceana, Rchb. f., in *Gard. Chron*, n.s., xxiii., p. 338; *id.*, p. 374, 375, fig. 68, 69; *Lindenia*, t. 44; Warn. and Will., *Orch. Alb.*, t. 342; Sander, *Reichenbachia*, t. 12.—Mount Roraima, British Guiana. Introduced by Messrs. F. Sander & Co., in 1884. A very beautiful species, first discovered by Schomburgk between 1840 and 1844, but which remained practically unknown until forty years afterwards.

Var. concolor, Rchb. f., in *Gard. Chron.*, n.s., xxv., p. 585.—A light purple unicolorous variety.

Var. rosea-superba, Veitch, *Man. Orch. Pl.*, pt. 2, p. 41.—Flowers larger than type, delicate rosy-purple, striated with white.

C. Lawrenceana, Warscew. = C. Dowiana.

C. Leeana, Sander = C. labiata Trianæ.

C. Lemoniana, Lindl. = C. labiata.

C. Leopoldi, Versch. = C. guttata, var. Leopoldi.

C. Lindleyana, Rchb. f. = Brassa cattleya × Lindleyana.

C. lobata, Lindl. = Lælia lobata.

(29.) C. Loddigesii, Lindl., *Collect. Bot.*, t. 37; Hook., *Exot. Fl.*, t. 186. *Epidendrum violaceum*, Lodd., *Bot. Cab.*, t. 337. *E. Loddigesii*, Rchb. f., in Walp. *Ann. Bot.*, vi., p. 313. *Cattleya Arem-*



Fig. 119.—A giant aroid at Kew, Amorphophallus titanum. (see p. 750.)

bergii, Scheidw., in Otto and Dietr., *Allg. Gartenz.*, 1843, p. 109. *C. intermedia*, var. *variegata*, Hook., *Bot. Mag.*, t. 4085.—Brazil. Received from Rio de Janeiro by Messrs. Loddiges, of Hackney, early in the present century. C. ovata and C. maritima are generally referred here, but an examination of Lindley's types shows that they belong to C. intermedia. With a series of specimens I am unable to separate C. Harrisoniana (an earlier name than Harrisoniæ), except as a variety.

Var. CANDIDA, *Gard. Chron.*, n.s., xxvi., p. 331; *C. candida*, Williams, in *Gard. Chron.*, 1851, p. 453.—A beautiful white variety.

Var. HARRISONIANA; *C. Harrisoniana*, Batem., ex Lindl., *Bot. Reg.*, sub t. 1919; *Journ. Soc. d'Hort. Paris*, 1857, p. 725, with plate; *Gard. Chron.*, ser. 3, v., p. 109, fig. 13; *Epidendrum Harrisonianum*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 317; *Cattleya Harrisoniæ*, Paxt., *Mag. Bot.*, iv., p. 247, with plate; *Orchidophile*, 1888, p. 15, with plate; *Gard. Chron.*, ser. 3, v., p. 108, fig. 12; *C. Harrisonii*, P. N. Don, in *Florists' Journ.*, 1840, p. 183; *C. Papeiansiana*, Morr., in *Ann. de Gand.*, 1845, t. 5.—Stems generally longer and more slender; front lobe of lip corrugated, disc orange-yellow, with 3—5 raised lines, lateral margins deflexed. *C. Harrisoniana Regneriana*, Rchb. f., in *Gard. Chron.*, ser. 3, iv., p. 264, is a form with short sepals and petals, and a slight variation in the colour of the lip.

Var. VIOLACEA, Hort., *Gard. Chron.*, n.s., xvi., p. 435; Warn. and Will., *Orch. Alb.*, t. 333; *C. violacea*, Hort., *Gard. Chron.*, 1851, p. 453.—Flowers more deeply coloured than the typical form.

(30.) C. LUCIENIANA, Rchb. f., in *Gard. Chron.*, n.s., xxiv., p. 456. A supposed natural hybrid "There can be no doubt its parents are C. Forbesii and C. guttata or granulosa," remarks its author, who also compares it with a dark Isabella. It flowered with M. Lucien Linden.

C. LUDDEMANNIANA, Rchb. f. = C. LABIATA var. LUDDEMANNIANA.

(31.) C. LUTEOLA, Lindl., in *Gard. Chron.*, 1853, p. 774; *Bot. Mag.*, t. 5032; *Flore des Serres*, t. 2479; Rchb. f., *Xen. Orch.*, i., t. 83 (fig. 1, var. *fastuosa*, fig. 2, var. *lepida*); *Epidendrum luteolum*, Rchb. f., in Walp. *Ann. Bot.*, vi., p. 313; *Cattleya flavida*, Klotzsch, in *Allg. Gartenz.*, 1856, p. 73; *C. Meyeri*, Regel, *Ind. Sem. Hort. Petrop.*, 1855, p. 17; *Gartenflora*, 1856, p. 116, with fig.; *C. modesta*, Meyen, ex Regel, *Gartenflora*, 1856, p. 116 (in note); *C epidendroides*, Hort., *C. Urselli*, Schill.; *C. Holfordi*, Hort., and *Epidendrum Cattleyæ*, Hort., ex Rchb. f., *Xen. Orch.*, i., p. 209 (in note); *C. sulphurea*, Hort., *Gard. Chron.*, n.s., xxiv., p. 10.—Brazil, in the Upper Amazon region. Described in 1853, though in cultivation with Messrs. Backhouse, at York, and with Messrs. Booth, at Hamburgh, some time previous. It is the smallest Cattleya known.

Var. ROEZLII, Rchb. f., in *Gard. Chron.*, n.s., xv., p. 782.—Peru. Said to have brighter colours than the typical form, with two purple spots on the lip.

C. Malouana, Linden = C. LABIATA var. LUDDEMANNIANA.

(32.) C. MANGLESII ×, Rchb. f., in *Gard. Chron.*, n.s., xiv., p. 556.—A hybrid raised by Mr. Dominy for Messrs. Veitch, between C. labiata Luddemanniana ♀ and C. Loddigesii ♂.

(33.) C. MARDELLII ×, Seden, = LÆLIO-CATTLEYA MARDELLII.

C. marginata, Paxt. = LÆLIA PUMILA.

C. maritima, Lindl. = C. INTERMEDIA.

C. Massangeana, Rchb. f. = C. LABIATA var. TRIANÆ.

(34.) C. MASTERSONIÆ ×, Seden, ex. Rchb. f., in *Gard. Chron.*, n.s., x., p. 556.—A hybrid raised by Mr. Seden, for Messrs. Veitch, between C. Loddigesii ♀ and C. labiata (vera) ♂.

(35.) C. MAXIMA, Lindl., *Gen. and Sp. Orch.*, p. 116; Id., *Bot. Reg.*, xxxii., t. 1; *Bot. Mag.*, t. 4902; *Flore des Serres*, t. 2136; *Ill. Hort.*, n.s., t. 29; Rchb. f., *Xen. Orch.*, i., t. 95; *Gard. Chron.*, n.s., xxii., p. 620, fig. 108; *Epidendrum maximum*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 316. Ecuador and Northern Peru. Sent by Hartweg, who found it on the banks of the Rio Grande de Malacotes, in 1842, to the Horticultural Society, in whose garden it flowered in 1844.

Var. ALBA, *Gard. Chron.*, n.s., xvi., p. 846 (in note). Sepals and petals pure white, lip white, marked with rose-purple veins.

Var. APHLEBIA, Rchb. f., in *Gard. Chron.*, n.s., xxii., p. 394. A variety without dark purple reticulate veins on the lip, and the yellow disc surrounded by light purple.

Var. BACKHOUSEI, Rchb. f., ex. Warn. and Will., *Orch. Alb.*, t. 193.—Stems short and thick; flowers of a deeper colour.

Var. DOCTORIS, Rchb. f., in *Gard. Chron.*, n.s., xix., p. 624.—A pale rose-coloured variety, with more slender bulbs and thinner leaves.

Var. HRUBYANA, Linden, in *Lindenia*, i., p. 29, t. 12.—A delicate flesh-coloured variety, with pale rose-coloured nerves.

(36.) C. MEASURESII ×, Rchb. f., in *Gard. Chron.*, n.s., xxvi., p. 526.—A supposed natural hybrid between C. Aclandiæ and C. Walkeriana, in cultivation with Mr. R. H. Measures, at Streatham.

C. Mendelii, Hort. = C. LABIATA var. MENDELII.

C. Meyeri, Regel = C. LUTEOLA.

(37.) C. MISS HARRIS, N. E. Br., *Gard. Chron.*, ser. 3, ii., p. 96.—A hybrid raised by the late Dr. Harris, of Lamberhurst, between C. labiata Mossiæ ♀ and C. Schilleriana ♂.

(38.) C. MITCHELLI ×, Rchb. f., in *Gard. Chron.*, n.s., vi., p. 386; *Fl. Mag.*, n.s., t. 337.—A hybrid, raised by Mr. Mitchell, gardener to Dr. Ainsworth, of Lower Broughton, Manchester, from C. guttata Leopoldi ♀ and C. labiata Trianæ ("C. quadricolor") ♂.

C. Morganæ, T. Moore = C. LABIATA var. MENDELII.

C. Mossiæ, Hook. = C. LABIATA var. MOSSIÆ.

C. nobilior, Rchb. f. = C. WALKERIANA var. NOBILIOR.

C. odoratissima, P. N. Don = ? C. VIOLACEA.

C. ovata, Lindl. = C. INTERMEDIA.

C. pallida, Lindl. = C. LABIATA var. MOSSIÆ.

C. pallida, Williams = C. LABIATA.

C. Papeiansiana, Morr. = C. LODDIGESII.

C. Peetersii, André = C. LABIATA var. MOSSIÆ.

C. Percivaliana, Hort. = C. LABIATA var. PERCIVALIANA.

C. Perrinii, Lindl. = LÆLIA PERRINII.

(39.) C. PICTURATA × Rchb. f., in *Gard. Chron.*, n.s., viii., p. 584. *C. hybrida picta*, *Fl. Mag.*, n.s., 1881, t. 473. A hybrid, raised by Mr. Dominy for Messrs. Veitch, from C. guttata ♀ and C. intermedia ♂. Not to be confounded with C. hybrida × (as the second name would imply), which has quite different parentage. C. flaveola × and C. scita × would appear to be natural hybrids with the same parentage.

C. Pinellii, Lindl. = LÆLIA PUMILA. *R. A. Rolfe, Herbarium, Kew.*

(To be continued.)

PLANTS IN FLOWER AT KEW.

THE following plants of interest are now flowering at Kew:—

Landolphia florida.—A large specimen of this interesting plant is a conspicuous object in the Palm-house, where it is trained along the roof and allowed to grow as it likes under the lantern. It flowered for the first time two years ago, and was figured in *Bot. Mag.*, t. 6963. It has large opposite shining Laurel-like leaves, and large terminal corymbs of white Jasmine-like flowers, very fragrant and lasting. For clothing pillars in large tropical houses this species is most useful. Economically it is interesting on account of its being one of the best of the rubber-yielding climbers of tropical Africa. Several other species of Landolphia have been in cultivation at Kew for some years, but the above is the only one that has flowered as yet.

Protea cynaroides.—A fine example of this huge-flowered plant may be seen in the Succulent House (No. 5). This species has already been noted several times as having flowered during the last year or two at Kew. P. nana, also noted recently, has still a few fresh flowers upon it. Proteas are easily cultivated, big flowered in most cases, and generally attractively coloured. Many of them are certainly worth re-introducing, and growing as greenhouse flowering plants.

Amorphophallus campanulatus.—A group of about thirty plants of this gigantic Aroid (fig. 121, p. 755) has been a great attraction during the last month, most of them having developed a huge inflorescence. The smell they exhale is sometimes almost overpowering, but notwithstanding this objectionable character in this plant, it is one of the most remarkable and interesting of all Aroids. The trumpet is huge, equally huge is the spadix, the colours of both are almost as wonderful as the Rafflesia. The smell exhaled by each inflorescence lasts only about two days, and is most powerful when the spathe is fully expanded, and not as appears to be generally believed on the first opening of this organ. An example of this plant was lately exhibited from Kew before the Royal Society, and attracted a great deal of attention. The source and character of the odour is being investigated by Professor Dunstan.

Streptocarpus.—The seedlings and hybrids of these plants are now in full flower. That this genus is certain to become of great value horticulturally is plain enough to anyone on seeing what has been done by Mr. Watson, at Kew, in so short a time by cross-breeding and selecting. In the Succulent-house and also in the T-range there is a fine display of the flowers of these plants.

Phyllocactus.—Nothing could be more attractive than a group of these plants when in flower, and few plants are more easily got into that condition. Some fine varieties have lately been flowering freely at Kew, the best of them being that known as "J. T. Peacock." It has full flowers, 8 inches across, deep crimson, shaded with violet on the inner petals. No doubt one of its parents is Cereus speciosissimus. If someone would take a group of these to a London flower show there would be a sudden rise in the value of this genus of Cacti.

Orchids.—Of these the most noteworthy now in flower are Lælia (Brassavola) Digbyana, Nanodes medusæ, Cirrhœa saccata, sometimes met with as C. viridis, and in one collection at least as Cychnoches Egertoniana. The plant at Kew bears four long racemes. Masdevallia muscosa, the species with a sensitive labellum; Disa racemosa, Phalænopsis Mariæ, P. cornu-cervi, and some good forms of P. grandiflora; Aërides Hughii, Lissochilus Krebsii, &c.

Watsonia aletroides, W. humilis, and several other species of this genus of Irids are in flower in the alpine-house.

Puya Whytei (*P. cærulea*).—A strong example of this beautiful Bromeliad is now in flower in the Succulent House (No. 5). The scape is 4 feet high, stout, and bears numerous flowers arranged on spike-like branches 6 inches long. In shape the flowers are not unlike those of Lapageria; they are 2 inches long; the three petals are recurved, and coloured a shining blue-green, or what is known as peacock-blue. The filaments are the same colour, and the anthers are bright orange. This plant is one of the most useful of all the Puyas, as it grows freely in a cool-house, and blooms oftener than many of them do. In Chili, where this species is a native, it bears scapes 12 feet high; and it was on learning this fact, after seeing a plant of the Puya in flower at Kew, several years ago, that Miss North determined to visit Chili to obtain pictures of this and other striking plants there. It was figured in the *Gardeners' Chronicle*, vol. xvi., 1881, p. 437.

Kniphofia Northiæ.—The flowers of this plant are unattractive, being yellowish-green with white stamens. They are produced on a thick short scape a foot long, the upper half covered with a dense mass of flowers, and the lower half with greenish scales 1½ inch long. But the foliage is larger and more ornamental than in any other of the many known Kniphofias, and the plant is worth growing on this account alone. Each leaf is a yard or more long, 4 inches broad at the base, keelless, with fine marginal teeth, and of a silvery-green colour. The Kew plant is grown along with the Agaves. It was introduced from Grahamstown to Kew by Miss

North, who obtained it from Mr. Tidmarsh, after having made a sketch of a fine plant in flower in the gardens of which he has charge.

Passiflora Pfordtii. — A plant is in gardens under this name which is really P. alato-cœrulea, a hybrid raised by the late Mr. Masters, of Canterbury, many years ago, and figured by him in Lindley's *Botanical Register*. It is in flower in the Temperate-house. *W.*

THE APIARY.

HONEY AND SWARMING.

Honey is at last coming in, and bees breeding very fast. The welcome sound of swarms is heard in the land. I had a very good one on May 21, which is doing well. About here (Pewsey Vale, Wilts) the country is looking very beautiful, and if the somewhat scanty sunshine increases, much honey may be expected. I have, however, hinted before that it will most likely be the best policy this year to pay most attention to a reasonable increase of the stocks of bees. It is pretty well known that a reasonable increase of bees is consistent (in a good season) with a reasonable amount of honey; but a large increase of stocks and a large surplus of honey cannot be obtained the same year, except the season is very extraordinary. Swarms ought to fetch a good price.

To Compel Swarming.

If the bee-keeper does not wish to wait for swarms, they are easily made both from skeps and bar-framed hives. First, skeps. Let there be two strong stocks, which may be called A and B and C an empty skep. On a fine warm day, when drones are flying, drive all the bees carefully from A into the emptyhive C, and put C on the stand of A. Then put hive A, which would be full of brood, on the stand of B, moving the latter hive to a new stand. Thus all the bees from A will be in C, and will make a good swarm, which will commence work at once. Sufficient bees from B will enter hive A, hatch out the brood, and make a new queen, while hive B will, of course, have their queen, brood, and young bees. This plan is always safe, and nearly always successful. The only bother is in driving the bees, but that can soon be accomplished. Of course it is much more easy to make artificial swarms from bar-framed hives, and this can be done in a few minutes. A very easy plan is to take a frame of brood and bees, but not the queen, from a hive, and put it into an empty hive. Do the same with nine or ten other hives. The hives will not miss one frame of brood. The bees will be so mixed that they will become thoroughly demoralised, and will not think of fighting. This would make a good swarm, which could be supered at once, and would in a fair season produce a large surplus. This latter system is largely practised in America. If increase is not desired, hives may now be supered.

Doubling.—This is an excellent way of getting honey. Get a box which would hold about eight or ten frames, take a frame of brood from the hive you are going to double, and put it in this box, and fill up the box with frames of comb or foundation, and place it on the hive. The bees will be sure to ascend and hatch out the brood, and will then fill the combs with honey. *Bee.*

VEGETABLES.

BRANCHING BROCCOLI.

By the courtesy of Messrs. Sutton & Sons, I was enabled to grow a quantity of plants of their branching Broccoli, I having had something like a hundred plants planted out. The entire collection of plants was of uniform size, but none was of such gigantic proportions as that figured at p. 713 of the *Gardeners' Chronicle*. I was, however, quite satisfied with the size of my plants, as they were of dwarf habit, and every one of them passed through the winter unhurt by frosts. Each plant had a central head, which was of excellent quality, and of the usual size, and six to nine smaller heads arranged around it. I have been informed that some specimens have produced as many as eleven of these heads. They are of excellent quality when cooked. I will venture to predict a great future for this hardy Broccoli. It is one of the latest varieties, coming in well before the Cauliflowers, which are reared under hand-glasses, are ready to be cut. I can rarely get good heads of the winter Broccolis in this exposed garden, these being four times out of five spoiled by frost; but the late spring kinds are very valuable, coming in as they do when most other green crops have run to seed, and spring Cabbages and Cauliflowers are not in season. *J. Douglas.*

Early Varieties of Peas.

After trying several different kinds of Peas, I find none to equal Veitch's Extra Early for earliness. I made a sowing in pots on January 25, and put them in a newly-started Peach-house, till the young plants were just breaking through the soil; they were then taken to a cold frame, and in the middle of March to the trenches, which were prepared for them on a border facing south. From these plants we gathered well-filled pods on June 4 last, and could have gathered enough for one dish. On June 1, I made sowings in the open by the side of my old favourite, William I., which I find is fully ten days later than the Pea first named; and, as is well known, William I. is hard to beat. Extra Early is a fine-flavoured Pea, with haulm growing about 3 feet to 3 feet 6 inches high, according to the soil; and the pods, which are numerous, contain from five to seven Peas each, which cook well. Telephone does exceptionally well here if sown early, following closely William I. The pods grow to a fine size, but when this variety is sown later it never equals Champion of England, especially in a dry season. Sander's Marrow did well here in 1887 and 1888, but still I have not a very good opinion of it. The pods are usually produced in pairs, and the individual Peas are of the largest size, and of very rich flavour, and boils of a deep green colour. Ne Plus Ultra is one of the best Marrow Peas grown, and this and Sturdy are good for late supplies; but the old British Queen Pea quite eclipsed these two last year, producing splendid Peas after the others were done, notwithstanding that all were sown in well-manured trenches. *H. Markham.*

PLANT NOTES.

Ramondia pyrenaica.—What a beautiful and interesting plant is this! It seems to be one of those alpines of which growers never tire of handling, and when growing naturally, visitors never fail to admire. A most handsome group of the old Ramondia has been established in a small recess on the Kew rockery; it is now in full flower, and is really one of the most interesting plants at present in flower there. Though it does not necessarily require a north exposure in all gardens, it seems to thrive best in such, planted in the face of an almost perpendicular wall, with a good depth of peaty or leafy soil. The variety alba, which is rather scarce, must be a beautiful plant, the flowers are said to be larger, pure white, the stamens black, and the plant altogether more robust. We are rather disappointed in R. Nataliæ, a new species recently introduced; it appears quite inferior to the old one. R. serbica, which has flowered with us two years, we had also decided to discard, but we are told that in a garden in Germany where R. pyrenaica and R. serbica are growing together, the latter is by far the better. What say any of your experienced correspondents?

Erigeron aurantiacum.—An entirely new departure in a Composite of this class, and one of the loveliest dwarf border plants we have seen for many a day. It seems best raised from seed, for although we believe it to be a good perennial, we find the finest flowers produced from two-year-old plants—that is, raised from seed in spring, pricked out in the nursery beds, and planted in its permanent quarters either in early autumn, or early spring. Besides being a border plant of first-rate quality, we find it a most useful rockery subject, where, with a suitable background, it makes a charming picture. It resembles Aster alpinus in habit, though perhaps more robust, the flowers large, and of a very rich orange colour; a native of Asia Minor, and, of course, perfectly hardy. It may also be increased by division, and should always be grown *en masse*, it being then much more striking than when seen in small patches.

Aster Stracheyi.—This charming little alpine daisy has now fully established its reputation as a hardy plant, and in addition to this we find it of the easiest to manage, and a most useful subject for the rockery, where it is now at its best, and very bright and attractive. It rarely grows more than a few inches in height, usually 2—3, producing very numerous stolons, not unlike Strawberry runners, rooting where they come in contact with the soil, and thus forming stools on their own account. We have it planted on a piece of rockery composed of decaying limestone, the stolons have taken possession of the whole space within the last couple of years, forming a most intricate network of stems, &c., and making a charming spot now they are in full bloom. The ligules are numerous (30—40), narrow, and half an inch long, always bluish-purple. The pappus is reddish, and also ornamental. Native of the Western Alpine Himalayas, Kumaon, Pindari, &c. It may also be raised from seed.

Polygonum sphærostachyum.—This is certainly one of the prettiest of the dwarf alpine Polygonums, and, as we have proved it, perfectly hardy in the open garden. P. viviparum, a well-known species; P. paleaceum, from the Khasia mountains; P. affine (syn. Brunonis), and the present species, are all very difficult to distinguish in a dried state, and, in consequence, have been somewhat confused. P. viviparum, which is nearest sphærostachyum, and which itself is a variety of bistorta, can be readily recognised by its solitary and slender flower-spikes, and its half erect or spreading pink flowers; P. affine is well known in gardens, and may be distinguished by its creeping tufted habit, and longish slender spikes of pinkish flowers. In sphærostachyum the flower-heads are globose or slightly elongated, the flowers, crowded, drooping, and of a vivid blood-red colour. It is by far the handsomest of those above-mentioned, and though it does not seem to form large patches, it is easily increased by the seeds, which should be gathered and sown as they fall; they are usually unripe, and cannot be kept.

Rodgersia podophylla.—Amongst hardy plants with ornamental foliage the Rodgersia will always take a first place, both on account of its undoubted hardiness, its subtropical aspect, and the lovely bronze colour which tinges the foliage from early summer until late autumn. In every garden where there is an abundance of water in the form of a stream, a pond, lake, or other medium, a clump of this lovely plant should find a home. Its luxuriant foliage will form an interesting feature in the garden. When grown as recommended above, however, it rarely flowers, owing no doubt to the luxuriance of growth; but when starved, *i.e.*, grown in the ordinary flower border, it flowers freely, and is as lovely, and not unlike many of the white-flowered Spiræas. The leaves, too, though smaller, are of a deeper bronze, and very attractive. A native of Japan: and may be increased by the freely produced stoloniferous rootstocks. *D.*

Orchids at the Luxembourg.—The oldest collection in France, says M. Godefroy, formerly established in the Garden of the Ecole de Médecine, and now under the charge of M. Jolibois, who has turned his attention to hybridising with such zeal that his seedlings are to be counted by the thousand. We trust he will not give them botanical names! A portrait of M. Jolibois is given in the last number of the *Orchidophile*.

THE HERBACEOUS BORDER.

GERANIUMS.

THE Geranium, Crane's-bill, differs from the Stork's-bill Pelargonium in form of capsule, and in the fact that it has ten stamens whilst the latter has seven. Geraniums, moreover, are herbaceous plants which die down each autumn to grow again in the spring. Though much too little grown, the plants are ornamental and free flowering, and the genus is well represented in miniature by the British species Herb Robert, whose bright red flowers appear in April and during the summer months. A white-flowered variety of the same was some years since found by the writer, and is described in *Flora Hertfordiensis*. Not only are the members of this genus free-growing and free-flowering, but some possess comparatively large flowers, such as would surprise many who have not made their acquaintance, as, for instance, Geranium platypetalum.

The following would make a desirable selection to grow. The names are placed somewhat in order of merit:—G. armenum, of comparative recent introduction, is a neat-habited plant, some 20 inches in height, with large, deep purplish rose-coloured flowers, of good form; G. ibericum platypetalum, is one of the most robust in habit, and an abundant bloomer; the flowers are large purplish-blue, well elevated above the foliage; G. Endressi is equally robust as the latter, the colour of the flowers being pink; G. cinereum, a Pyrenean plant, grows to the height of about 6 inches, tufted in form with silvery-coloured foliage, and is covered during June and July with veined rose or purple flowers, whose ground colour is white—very suitable for rockwork; G. sanguineum, an indigenous plant, of compact, dense habit, producing a succession of blood-red or crimson flowers; its average height is 8 inches. G. macrorhizon variegatum, the Italian large-rooted species, is 18 inches high, has purplish flowers, which may be described as a rather dwarf form of G. i. platypetalum; G. ibericum, the Iberian or Levant form, is a somewhat robust plant, with blue flowers; G. subcaulescens has pretty rosy-crimson flowers, and averages 8 inches in height. To these may be added the British trailing striped G. sanguineum lancastriense, and the British Crowfoot-leaved G. pratense and its white variety. *W. Earley.*

PLANTS AND THEIR CULTURE.

LARGE Tree Ferns must have abundant supplies of moisture to assist them to develop their foliage, the trunks being syringed three or four times a day; and in dry airy houses they should always be damped over, late in the evening. Plants in hanging-baskets especially Ferns will take much moisture to keep them in robust health, and if they can be dipped in a water tank once or twice a week it would be beneficial. Roses, in pots, should be kept clear of greenfly, and be plunged in coal-ashes outside; being well watered, and syringed occasionally. The stock of Gladiolus Colvillei alba and Brenchleyensis and other varieties of bulbs, Ixias and Sparaxis, for conservatory decoration, should get abundance of air, and more water as growth increases; the early Gladiolus will now be ready to transfer to the conservatory—a portion of the early bulbs should be placed on the north side of a wall to retard them. The late, large growing varieties should be placed in a warm corner in the open.

The Present Treatment of Bouvardias.—Last year's stock of Bouvardias which were cut back some time since, shaken out, and re-potted into pots of a smaller size, should have made free growth. The oldest plants that are not worth retaining having been discarded, preference should be given to young stock. The plants which have as yet stood in a cold frame to harden them, will now be ready to transplant in the open on a spent hotbed, consisting of manure and tree leaves. Bouvardias grow luxuriantly in such quarters when once the roots have penetrated the cool moist bottom, and give very little trouble afterwards. The plants should have the points stopped occasionally, and be syringed twice daily in bright weather, affording them liquid manure if it should seem to be needed during growth, but when too much wood is being made it should be discontinued. No shading will be necessary, as the plants should be allowed all the sunlight possible, this being productive of bloom. By treating the plants as above advised, the frames or pits they have hitherto stood in may be put to other uses. The plants will not bloom so early as those in pots, but they will form a valuable succession to them. A small amount of care is required when lifting the plants in September, so as not to injure the roots, and it is well to put them for a short time in a north aspect before housing. Syringe the plants night and morning, and oftener, if drying winds prevail, thereby preventing the falling of the foliage—a loss which has often to be lamented when the plants are put into a dry house immediately after lifting them.

Bouvardias raised from cuttings last spring will require care, the object being to obtain plants for early blooming. The earliest will now be ready to transfer to the flowering pots—5-inch pots—and for this potting rather more loam should be made use of in the compost. Afford the plants abundance of sunlight, placing them in a close pit, not using any fire-heat, but shutting them up early in the afternoon. As the plants increase in size use the syringe freely, and admit more air, so as to ripen the wood. Late-struck plants will require an intermediate-house until they are shifted into their flowering pots, and they should be grown on without any check until their pots are full of roots.

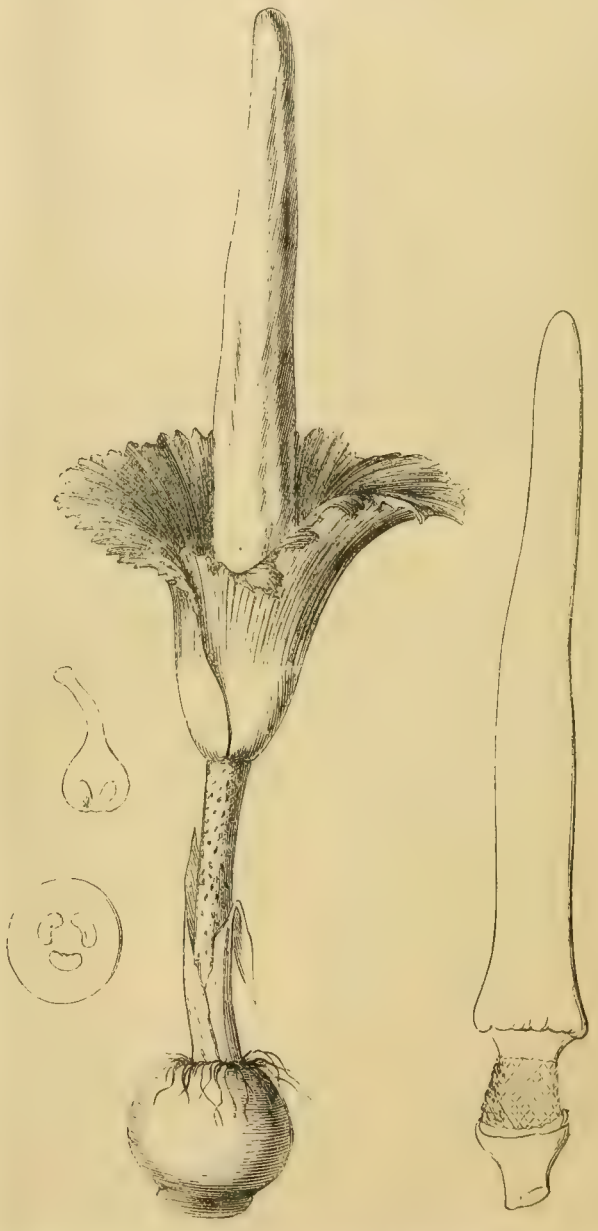


FIG. 120.—INFLORESCENCE OF CONOPHALLUS TITANUM: SPADIX 6 FEET LONG: STALK RATHER LESS THAN 3 FEET. FROM DR. BECCARI'S DRAWING. (SEE P. 750.)

Salvias.—The plants struck early this season should now be placed in their flowering pots or planted out in a warm border, without employing manure. A poor shallow soil is more prolific of flowers, and it is best when the site is fully exposed to the sun. When planting them, a basin should be left round the stem to retain water; the syringe must be frequently employed on the foliage; and the shoots stopped, to induce compactness. Manure-water may be given if it is seen that it is needed, and the plants treated as advised for Bouvardias. When they are put into their blooming pots, a cool shaded house is best for them until re-established. Plants in pots may be

plunged in coal-ashes or cocoa-fibre, standing them on a hard bottom. Small plants are sometimes in request for vases, &c., and these are better raised by striking the points of the shoots now in a warm pit, which should, when rooted, be potted up; and when they come into the pots in which they are to flower, stand them in a sunny spot during the late summer time to ripen their shoots. The most useful varieties for small pots are S. splendens, S. Heeri, and S. gesneræflora. *G. Wythes, Syon House, Brentford.*

The Orchid Houses.

In Orchid-growing, as indeed in work of all kinds, success is all the easier secured by having a reasonable system of work for the whole year. With this in view, it should be the rule in all collections, large or small, to have at least two general inspections for the purpose of cleansing and attending to the wants of the plants individually. Early in the month of June is a suitable season with most gardeners, and where bedding-out does not interfere with the Orchid-houses, the first or second week is a good time to begin, as the weather is then sufficiently warm to allow of extra water necessary for cleansing being made use of, and the frequent going in and out be done without risk. Where the flower-garden takes up all spare help just now, the Orchid inspection should begin later. The proper mode is to see first in what part the plants most need attention, and having then cleared a space of the staging, and cleansed it, the plants on the next section of staging should be handled one by one, their leaves and pots cleaned, their labels seen to, and themselves placed on the previously cleared staging; thus, a fresh space is cleared, which is treated in the same way, and so on until the house is finished, everything being left clean, and another house begun in the same way. While the work is going on, a vessel of tobacco-water and sponge should be at hand for use where insects are seen, or appear likely to be hidden; indeed, it is well to use it in all cases as a preventative. While passing the plants over, any repotting found necessary should be done, and unthriving plants, not growing or rooting well, should be taken out of their pots, and placed in small baskets or on rafts—Cattleyas, Lælias, and plants of like nature especially; so managed, a poor specimen may be induced to make a fresh start, and a good plant result.

Sticks for tying Orchids should be avoided as much as possible, and pegs never used, especially the galvanised wire ones used in some gardens, as it is only a question of time, and often a very short time, when such pegs destroy the plant. I have seen many instances of this; only recently a plant of Cœlogyne cristata, which had been secured in this way, with the rhizomes killed at every point of contact with the wire. A skilful potter knows how to secure rootless plants, if dwarf, without having to resort to pegs or stakes. In the cool houses, when the sphagnum moss thrives as it should, it grows high up round the plants, and up to a certain point it does no harm, but at these periodical inspections it should be clipped over, or relaid on the surface by pressure, cutting away all that is growing up round the young growths. Where stakes have been used and have decayed, in replacing them care should be taken to remove the stumps, or fungus is likely to cause damage. Properly inspected and cleaned now, the Orchids will pass the summer with little trouble, and will not need much handling until the next inspection, just before the warm season wanes, although there will be quite enough to do in attending to the necessary work which each day brings. Plants in baskets, or on blocks, or rafts, should be suspended over the walks as much as possible, and where hanging them over other plants on the staging is unavoidable, their relative positions should be changed as often as possible. *James O'Brien.*

The Flower Garden.

The Rhododendrons.—These have flowered but indifferently, the cold, wet summer of last year being to blame for this. The compensatory part of this failure to flower is that there is less labour in picking off the seed pods. The present is an excellent time to prune into form any Rhododendrons which may have got mis-shapen, or which do not quite fit their position. New growth is made so fast at this season that severe pruning is soon hidden by the new shoots. Any plants transplanted since the new year will either require a thick mulching of stable litter, or to be watered in dry weather. The former is to be preferred, as giving the least labour.

Other Flowering Shrubs.—It is rather late to cut into shape Ghent Azaleas, as new growth is now in a forward state, yet any which may have encroached on the walks or on other plants should be cut back. The new shoots made after this date will not flower next year. There is yet time to cut into form Lilacs, Laburnums, Syringas, Brooms, Barberries, Wiegelias, and Lauristinus, without risk to their flowering well next year, but even if it were so, a bushy, handsome growth is, in all well kept gardens, much to be preferred to a short season of flowers. Outside the garden, in the woods and untrimmed shrubberies, such pruning would be in as bad taste, as inside it is the reverse.

Box Edgings.—Where there is a quantity of these it is a good practice to trim them some time this month, and it is seldom that they require a second clipping the same year. If the weather be dull, all the better for the box plants, as the sun will not cause them to look brown for two or three weeks afterwards. Such weather, however, is not indispensable to box clipping, because if sunny, it is an easy matter to scatter the clippings over the cut part for a couple of days, after which time there is no risk of browning. Edgings of Sedums and Saxifrages in rockeries and ferneries, may, during the present damp weather, be quickly put in order by first pulling out all flowers and seed pods, pressing the plants down and trimming the sides with an edging iron.

General Work.—In my case this is indeed very general, owing to the unusual amount of rain, and the warmth, and consequent rapid growth of grass, weeds, and plants. The mowing of the lawn ought to be done once a week if a velvety sward is desired, for when it is not mown so often as this, it will probably, if we get a dry time, soon present a patchy, dried-up look, and an unsightly lawn detracts from the other surroundings of the garden, no matter how good these may be. As regards weeds, these should have no quarter. Get the bedding-plants to cover the ground quickly, therefore if it be not mulched with cocoa-fibre, when the beds were first planted—as all beds should—the soil should be deeply stirred between the plants previous to pegging down such as require it. Clip with sheep-shears the turf edgings of the beds, and the same implement is the best wherewith to clip ground-work plants — as variegated Thyme, Cerastium, and Gnaphalium lanatum. Hereabouts Carnations this season are poor indeed. Early in the season some unascertained disease caused the leaves to wither away in much the same form as if they were being converted into shavings. The disease seems now to have died out, and the plants, with but few exceptions, have survived, but the flower-shoots are weak; but for all that, tying up of the stems should be carefully done, as it is just possible that just as the plants have mended, so the flowers may turn out better than we expect. *W. Wildsmith, Heckfield Place, Hants.*

Fruits Under Glass.

The Cucumbers in Bearing.—Where these are bearing well, the vigour of the plants will be increased by cutting out all weak growth, and much of the old foliage; stop the very strong growths by just taking out the tip instead of cutting off a foot of the wood, and so cause loss by exudation of sap. Syringe the plants freely in the morning, early, whenever the day is likely to be bright, and also at shutting-up time; afford air to the house or pit early in the morning, or when the temperature is at 75°. Remove all fruit which is at all crooked or ill-shaped; top-dress the beds liberally with horse-droppings and fresh loam, and give manure-water when it seems likely to be of use. Those Cucumbers which are in frames will now do without any more additions to or renewals of the linings. Shut up the frames about 3 P.M., damping them down at the time. A mat or two thrown on the lights will keep in the heat during the night. Any spare frames may still be prepared and planted with Cucumbers, or beds may be made up in a sheltered place with a few barrowfuls of grass, leaves, or dung, and some of the hardier kinds of Cucumbers planted out on a ridge, using hand-glasses.

Pine Pits and Houses.—After a few tropical days we have again gone back to cold weather and the inevitable artificial heating. As soon as the fruiting Queens are cut, those not quite coloured may be stood in a vinery, with a somewhat dry airy atmosphere to finish off. Then the old fruiting stools may be cleared out, and the tan or other plunging material turned over and freshened with new material if necessary; the walls, woodwork, and glass cleaned and made ready for those which are to fruit in the ensuing autumn, these having had the necessary rest advised in my last month's directions. The most likely plants to start should be plunged in a genial bottom-heat of 90°, and given generous treatment, maintaining a high temperature, with a moist atmosphere. Plants potted in the spring should be encouraged to grow, damping the paths and walls with manure-water on fine days, filling also the evaporating troughs, with the same, and syringing the plants on fine afternoons at shutting-up time. Close with sun-heat, and keep up a temperature during the night of 70°, air being afforded early on fine days to keep the leaves from being drawn. All fruit now swelling should be treated liberally as regards heat and moisture, and such plants as will fruit late should have a rest for a month, and should, if possible, be chosen from the varieties Smooth Cayenne and Charlotte Rothschild, these making the most progress in the short days of autumn and winter. Pot-up suckers taken from the old fruiting stools, and see that all fruit is properly fastened to stakes in an upright position. *W. Bennett, Rangemore, Burton-on-Trent.*

The Hardy Fruit Garden.

Espalier and Wall Trees.—Pear trees on walls and espaliers should now have all the breast wood shortened back to within a few inches of the base, so that direct sunlight may reach the fruits. In pruning the trees early in the season it is not prudent to shorten back shoots too severely, or a quantity of sappy growths will result. I make it a rule to leave 3 or 4 inches of the young wood at the first time of going over the trees, and six weeks later cut many of the shoots back to within three buds of the older wood.

Young trees should have their leading shoots carefully secured before they get damaged by wind; and in cases where the upper part of a tree is likely to grow with too much vigour, all the tops should be pinched out at reasonable lengths, leaving those on the lower part uncut for the present, so that they may gain strength. Large trees transplanted late will make very little growth this season, but notwithstanding this, all possible care should be taken that they do not suffer for want of water at the roots; and mulching should be applied.

Plum trees on walls should have all forerights shortened back, reserving shoots where needed to replace some of the older branches, and to produce especially fine fruit. Should greenfly be present, prompt measures must be taken to destroy it, or the trees will be checked in growth.

Red and white Currants on walls will be all the better for having their summer growth removed early, fastening in such shoots as may be wanted for extension, which is advisable to lay in to their full length. Also pay attention to any well-placed shoots at the bottom of the bushes, these often being required to replace old fruiting branches when they decline in strength. It is well to remember that much finer fruit is produced on young wood than on old. *H. Markham, Mereworth Castle, Kent.*

× Miltoniopsis Bleui.—Under this name, M. Godefroy makes mention in the *Orchidophile*, and gives a coloured illustration of a hybrid raised out of Miltonia vexillaria by M. Roezlii. The seed was sown in 1884, and the plant flowered in January of the present year; others followed. M. Bleu, the well-known hybridist, asserts that the plants are quite intermediate in character between the parents, but they flower in spring instead of July and August. M. Godefroy proposes the name Miltoniopsis for this hybrid. We await with interest the promised explanation of this extraordinary proposal to make a new genus under these circumstances, but we trust, in any case, that, for the sake of avoiding confusion, he will never write the name without the ×, indicative of hybridity. May better counsels, however, prevail, and no such name be perpetuated. A new generic name for a hybrid between two species of the same genus! M. Godefroy, please don't.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, JUNE 20.—Linnean Society.

SHOWS.

WEDNESDAY, JUNE 19. York Gala (three days). Royal Botanic Society.

FRIDAY, JUNE 21.—Scottish Pansy.

SALES.

WEDNESDAY, JUNE 19. Collection of Orchids in Flower, Imported and Established Orchids, &c., at Stevens' Rooms.

FRIDAY, JUNE 21. Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—61°.3.

A Vegetable Titan.

THE Rafflesia, the Victoria regia, the Welwitschia, each and all these excited in their time the greatest interest among botanists, and a large share of attention among the general public. Although the novelty has gone off, the wonder remains, and increased knowledge does but enhance the interest in them. Our predecessors were keenly interested over the discovery of the gigantic Rafflesia. The first flowering of the Victoria is still fresh in the memory of many; the generation that was roused to a pitch of excitement over that uncouth marvel — the Welwitschia—has not yet passed away. The discoverer, WELWITSCH, rests indeed from his labours; but the historian of the plant—Sir JOSEPH HOOKER—by means of whose splendid monograph the peculiarities of the plant were made known, is happily still among us, and, with him, doubtless, the memories of former enthusiasm are called back by the sight of the latest addition to the rank of vegetable giants.

In November, 1878, it was our privilege, through the kindness of Cavalière FENZI, to lay before our readers an account of an Aroid so gigantic as to render other plants of the same order almost pigmies by comparison. A few weeks later we had the good fortune to publish further particulars and an illustration showing the tuber, spadix, and spathe, as drawn by the discoverer, Dr. BECCARI, in Western Sumatra. Now that this plant is in flower, at Kew, we may summarise what was published in our columns by Dr. BECCARI, at the time of the discovery, for the purpose of comparing the account of the native plant with that now in cultivation.

It was in Western Sumatra, and, curiously enough, side by side with a Rafflesia, that this Amorphophallus, or, as it was first called, Conophallus,* was found. The tuber dug up by Dr. BECCARI measured nearly 5 feet in circumference, and was so heavy that two men could scarcely carry it. From this tuber only one leaf is produced—but what a leaf, to cover an area of 45 feet in circumference! The leaf-stalk was 10 feet high, dividing at the top into three branches, each as large as a man's thigh, and the blade repeatedly sub-divided, forming altogether a leaf nearly 4 yards long. The flower, or rather the inflorescence, for, technically speaking, this is an aggregate of minute flowers on a spike or spadix, encircled by a huge spathe, is thus described by BECCARI (*Gardeners' Chronicle*, December 21, 1878).

The following is a summary description of the flower: — "As I have said above, it looks very much like Amorphophallus campanulatus (see fig. 121), which is generally considered to be a very large flower, but this new kind is ten times larger. The specimen I examined possessed a spadix 1·75 m. long (nearly 6 feet), the height of a rather tall man, and this not including the height of the scape, and measuring the length of the flower from the point whence the spathe expands to the top of the sterile appendix. The scape was not much taller nor thicker than the stalk of some leaves (which I found 50 centimetres long and 8 centimetres thick), of a green colour, marked with small whitish orbicular spots. The largest diameter of the spathe was 83 centimetres (nearly 3 feet), and 70 centimetres deep; it is campanulate in shape, with patent and deeply toothed edges, which are also closely crumpled. The deeper portion of the interior is of a very pale greenish colour, but the limb is of a bright black-purple hue. The outside of the spathe is pale green, smooth in the lower portion, but thickly corrugated and crisp above. The spadix, deprived of the spathe, measured more than 1·50 metre (5 feet); for 20 centimetres of its length only it was covered with pistils underneath and with stamens above them, the sterile organs being entirely wanting. The appendix is in consequence reduced to a total length of 1·30 metre, having at the base a diameter of 18 to 20 centimetres, gradually tapering towards the apex, which is extremely obtuse. The surface of the appendix is nearly smooth, but widely corrugated or sulcate in the sense of its length. Its colour is dirty yellow at the base, becoming nearly livid towards the top. The ovaries are purple-coloured, trilocular, or sometimes bilocular, with a single anatropal ovule in each cell. They are free, globose-conic shaped, tapering into a long style, terminated by a globose externally trilobed yellowish stigma. The stamens are sessile, with globose subdidymous anthers, opening by two narrow fissures or pores at the apex. They are of a pale yellow colour."

The fruits or berries are further described as of the shape of an Olive, bright red, each about 1½ inch in length.

The accompanying illustration (fig. 120) is taken from an original sketch sent by Dr. BECCARI. It will convey a sufficient idea of the general appearance of the plant. It is reduced to about one-thirteenth of the real size.

In order to give some idea of the enormous dimensions of Dr. BECCARI's Aroid, we cite the following measurements of other large Aroids which have come under our notice, and which have been described and figured in our columns.

	Tuber.	Leaf-stalk.	Leaf.	Scape.	Spathe.	Spadix.
Amorphophallus Titanum	5 ft. circ.	10 ft.	45 ft. circ.	19 in.	3 feet. diam.	6 ft. nearly.
Godwinia gigas*	2ft. 2 in. circ.	10 ft.	3 ft. 8 in. long.	4 ft.	1—8 in. diam.	9 in.
Amorphophallus campanulatus†	8—10 lbs.	3 ft. 7 in.	4—5 ft. diam.	...	2 ft. diam.	.....
Corynophallus Afzelii‡	Size of Cheshire cheese.	1—2 ft.	...	...	13 in. by 7½ in.	10 in.
Dracontium asperum§	Size of a Turnip.	5—6 ft.	3—4 ft. diam.	5—6 in.	8—9 in.	2 in.

Such is a brief summary of the most generally interesting features of this remarkable plant as found in Sumatra. Our illustration of the spadix and spathe, as has been stated, was taken from Dr. BECCARI's original sketch; and in the Wood Museum at Kew, placed on the ceiling by reason of its size, is a coloured drawing showing the full size of the plant, and which we venture to recommend all visitors to make a point of seeing. For the last few years the plant has been under cultivation at Kew. Year after year the solitary but gigantic leaf has been thrown up; its appearance is shown in the accompanying figure, drawn by Mr. ALLEN (fig. 119). Occupying the centre of the Victoria tank, it has excited the wonderment of the public, while the botanists have been eagerly anticipating the production of the flower. At length their expectations are realised, and the Director and his staff have the happiness of being able to show the flower of this remarkable plant; the gigantic leaf, however, is not produced simultaneously. Early in the week it presented the appearance of some huge egg set on end, from the top of which the end of the spadix protruded, enveloped at the base by the spathe, which was crumpled into longitudinal folds or plaits. It will probably remain "on view" for some days, so that those interested in plants should lose no time in seeing it. In a future number we hope to give an illustration of the plant as we saw it a few days since, and also in its fully developed state. In the meantime we may be permitted to express the congratulations of the gardening community on this unique event in the history of horticulture.

Mr. Veitch's Lecture on Orchids.

THE Tuesday afternoon lectures at the Royal Horticultural Society must be pronounced decidedly successful. On Tuesday last, Mr. H. J. VEITCH gave a lecture on the culture of Orchids, short, pithy, and to the point. The history of Orchid culture in this country was briefly sketched, the causes of failure were referred to, and the means to be adopted to secure even greater success in the future than has been at present attained were pointed out. The historical retrospect before the days of hot-water pipes and regulation-valves was particularly interesting,

* *Amorphophallus Titanum*, BECCARI, in *Bulletin d. Soc. Toscana di Orticultura* (1879), p. 46; ARCANGELI, *loc. cit.*: ENGLER, in DC. *Mon. Phan. Araceæ* (1879), p. 645; *Gard. Chron.*, October 2, 1886, p. 432.

Conophallus Titanum, BECCARI, in *Bull. Soc. Toscan. di Orticultura* (1878), p. 271; *et* in *Gard. Chron.* (1878), November 9, and December 21, *c. ic.*

* *Gard. Chron.*, 1869, p. 1330; 1873, p. 73, fig. 13.

† *Gard. Chron.*, 1872, p. 1721, figs. 372, 373.

‡ *Gard. Chron.*, 1872, p. 1619, fig. 343.

§ *Gard. Chron.*, 1870, p. 341.

‖ Usually twice as large.



GARDEN-SCENE, TRINITY COLLEGE, CAMBRIDGE.

comprising as it did an account of the successive improvements in the way of regulating temperature, securing drainage, ventilation, and a period of rest. The retrospect did justice to our predecessors from Miller to the Loddiges and Banks; from Lindley and Harrison to Bateman, Paxton, and Beaton; and so on to time present when certain species still prove rebellious under cultivation. The real rebels, however, being the growers who are insufficiently acquainted with the conditions under which the plants grow, and of the adaptations and modifications requisite for success. In the discussion which followed, Sir Trevor Lawrence, Baron Schroder, Sir Charles Strickland, and other growers, gave the results of their experience: and the greatly improved condition of the Orchids at Kew was commented on. Mr. Morris alluded to the interesting fact, that Bletia Tankervilliæ, a native of China, has become perfectly naturalised in Jamaica. Dr. Masters alluded to the minute anatomy of Orchids as affording, in many cases, striking indications of the conditions under which the plants grow naturally, and of the adaptations to varied conditions of light and moisture indicated by their structure. This is a subject which has been before alluded to, with illustrations, in these columns, and we are convinced that no more useful service to horticulture could be undertaken by a young microscopist than a careful comparative study of leaf-and-root-structure in Orchids. This is a work that could readily be undertaken in the Kew laboratory; and the few results already obtained are sufficient to indicate the high degree of probability of most important cultural deductions being arrived at, particularly as to the necessity or otherwise of shading, the amount of, and the time at which water should be given, the amount of rest required, and so forth. Routine practice has achieved wonderful results, but we are firmly convinced, and are glad to find others holding the same opinion, that systematic anatomical, and physiological research and experiment will in the future enable cultivators to succeed in many cases where they now fail, and will in a large measure secure a degree of certainty now only attained by chance.

Mr. Veitch was naturally reticent as to the share which his father and himself had taken in the introduction, cultivation, and hybridisation of Orchids, seconded, as they have been, by an intelligent and efficient staff; but no one capable of distinguishing an oyster from an Orchid will be ignorant of the services of Messrs. Veitch in the directions indicated. The lecture will be published in full in the *Journal* of the Society. Financial difficulties, we are aware, still stand in the way of speedy publication: but we may point out now that it is a point of honour with the gardening press to publish no more than short abstracts of these papers—however greatly the interest, we do not say the value, attaching to these papers is deteriorated by the present slow system of publication. The remedy of course lies with the gardening public, who should be subscribing their guineas by the thousand. The Society in its direst misery managed to do excellent work under great discouragement, and now more than ever it has a claim upon all lovers of gardening, the more so as its subscription rate has been modified, to suit those of limited means.

Gardeners' Royal Benevolent Institution.—The anniversary festival is in progress as these pages are passing through the press, so that we must defer any notice of this function till next week; but we may, however, give currency to the rumour that the whole of the amount required—£3000, if not more—has been obtained; and if this be true, all the unsuccessful candidates at the last election will be placed on the pension list. We own, when we first heard of the proposal, we were taken aghast; but Mr. Cutler does not know the meaning of the words, "It can't be done." All honour to him!

Orchids.—We are requested to publish the following note. As was mentioned in our last issue, many of the plants originally named by the late Professor Reichenbach are still in cultivation, and their possessors would do good service by sending blooms to the Royal Gardens, Kew, properly authenticated for preservation in the herbarium:—

"The Director of the Royal Gardens, Kew, would be greatly obliged to cultivators of Orchids who have plants in their collections named by the late Professor Reichenbach if they would, as opportunity offers, send specimens to him for preservation in the Kew herbarium. A very large proportion of the plants on which Professor Reichenbach founded new species probably exist under cultivation in this country. Specimens from such plants, especially if accompanied by a note stating that they were either the actual individuals which furnished Professor Reichenbach with the materials for the description of a new species, or were identical with them, would substantially have all the authenticity of types. If this suggestion were generally acted upon, it cannot be doubted that in a short time a collection of typical specimens illustrative of Professor Reichenbach's work could be got together, which for all practical purposes would be as valuable as access to his private herbarium. *Kew, June* 10, 1889."

Some of our orchidists, we know, have preserved duplicates of the specimens of which the originals were sent to Hamburgh, and these would be specially valuable at the present juncture. If the suggestions here offered be acted on, the inconvenience caused by Professor Reichenbach's will should be reduced to a minimum.

Professor Reichenbach's Herbarium.—It is rumoured that the authorities at the Imperial Hof Museum at Vienna have accepted the bequest of the late Professor Reichenbach, subject of course to the extraordinary conditions imposed by the testator.

Linnean Society.—At an evening meeting to be held on June 20, at 8 P.M., the following papers will be read:—1. "On the Mammals, Reptiles, and Batrachia of the Mergui Archipelago," by Dr. John Anderson, F.R.S.; 2, "On the Prolonged Vitality in a Fritillary Bulb," by Mr. Chas. Parke, F.L.S.

Gardeners' Orphan Fund.—At a meeting of the Committee held on Friday evening last, Mr. G. Deal presiding, it was announced that, apart from the proceeds of the Covent Garden Floral Fete, the contributions during the past month amounted to £97 3*s.* 10*d.*—namely, £75 from Mr. T. Whillans, of Blenheim; £14 16*s.* 10*d.* from Mr. D. T. Fish, of Hardwicke; and £9 5*s.* collected by Mr. J. Crawford, gardener, Coddington Hall, Newark-on-Trent, which with £1 12*s.* previously sent, entitled him to a life membership, with two votes at elections. The handsome contribution from Blenheim, it may be remembered, was the result of the Duke of Marlborough kindly opening the gardens to visitors during the Oxford Agricultural Show week, on payment, for the benefit of the Fund. The contribution from Mr. Fish was from visitors to Hardwicke on a very wet day, and considering the unpropitious circumstances, the result must be regarded as highly satisfactory and encouraging. Experience proves that much good may be done by the kindly disposed in opening their gardens for a day now and then in the interests of charity, and the inhabitants of adjacent towns are at the same time accorded a privilege which is highly appreciated. The accounts of the Covent Garden Fête were presented to the meeting. The receipts, including £7 9*s.* 9*d.* from money boxes, amounted to £314 11*s.* 3*d.*, and the expenditure to £114 6*s.* 9*d.*, thus the Fund benefits by the substantial amount of £200 4*s.* 6*d.* The chief items of expenditure were for advertising, for canvas erections and furniture, music, and for printing, together with sundry minor payments. The result was considered highly gratifying, and the more so since a letter was read from Mr. J. R. Bourne, the London agent of the Duke of Bedford, expressing the pleasure his grace, as well as the Duchess of Bedford, derived from a visit to the show, and announcing the Duke's intention to give a donation of £500 to the charity. Letters of thanks were directed to be sent to all who had contributed to the success of the Fête, also to those who had in other ways, above indicated, given valuable support to the Institution. At a future meeting the question of life membership to standholders in the Covent Garden Flower Market will be considered, in recognition of their great and successful efforts in the interests of the Fund.

Chiswick Rose Conference.—Rosarians will, as a matter of course, not be behindhand in their contributions of H.P.'s, Teas, and Noisettes, as the season may permit, to the forthcoming show at Chiswick, on July 2 and 3. Such matters need no advocacy; but there is another department of the conference, one which may be made of a most interesting character, and for which we venture to solicit assistance. We extract from the official programme the following details, underlining those to which we now desire to call special attention:

"The object of the Conference is to get together as large and as representative a collection of Roses of all descriptions as possible; to *form an exhibition of all subjects pertaining to the Rose, whether in its botanical, its horticultural, its literary, or its artistic aspects;* and to bring together for the purposes of reciprocal information and fellowship all those interested in the Rose and its culture. *To carry out these ends, the assistance of all lovers of the Rose is invited.*

"*Species.*—Any exhibits relating to the wild species of Rose, to single Roses, to peculiarities of structure, diseases, &c., will be welcome. Persons possessing species of Roses, if only single specimens, are requested to exhibit in this class. Dried specimens are also requested.

"*Miscellaneous.*—Including books on the Rose, and on Rose culture; photographs, drawings, engravings, &c., of wild or cultivated Roses, &c."

Rose growers and others willing to assist the Society in these respects, are requested to communicate with Dr. Masters, at the gardens of the Royal Horticultural Society, Chiswick, W.

Lawes' Trust.—We understand that the first meeting of this body took place on the 6th inst., when Dr. John Evans, treasurer, Royal Society, was elected Chairman, Sir John Thorold, deputy-Chairman; Dr. Hugo Mueller, Treasurer; and Mr. Herbert Rix, Secretary. The first step taken will, we believe, consist in the preparation of a general summary of the work done at Rothamsted during nearly half a century.

"Botanical Magazine."—The June number contains the following plates:—

Smilax ornata, t. 7054.—This is the S. macrophylla var. maculata, and one of the species yielding Sarsaparilla. It is a native of Mexico, and was erroneously referred to S. officinalis by Hanbury.

Sobralia leucoxantha, t. 7058.—A splendid species, with white flowers, the anterior lobe of the lip blotched with orange. A native of Costa Rica.

Enkianthus campanulatus, t. 7059.—A Japanese hardy shrub, with deciduous, ovate, finely serrate leaves, arranged in tufts at the ends of the branches. The racemes are mingled with the leaves, drooping, many-flowered, each flower bell-shaped, ¼ inch in diameter, purplish-brown. Introduced by Messrs. Veitch from Japan through Mr. Maries.

Spathoglottis ixioides, t. 7060..—A graceful terrestrial Orchid, with linear leaves, erect, slender peduncles, bearing two or three yellow flowers about an inch indiameter, with ovate-oblong segments; the lip 3-lobed, with the side-lobes erect, the anterior lobe projecting. Introduced to Kew from Darjeeling by Messrs. Gammie and Elwes.

Angræcum Germinyanum, t. 7061.—A Madagascar species introduced by M. Humblot. The leaves are sessile, cordate-oblong, retuse at the point. The flowers are white, with long linear sepals and petals, 2—3 inches in length. The lip is broadly ovate or roundish, and prolonged into a tail-like process shorter than the sepals.

Solanum pensile, t. 7062.—A scandent species, native of Guiana, with ovate, acute leaves and flowers, like those of S. Dulcamara, but arranged in long, slender, terminal racemes.

Gregory of Rezzio.—A curious discovery has, says the *Athenæum*, been made in the Botanic Garden, Oxford. Dr. Selmar Schönland, the sub-Curator of the Herbarium, has found in a corner, bundles containing a collection of Italian plants, well preserved, with indications of the names of the plants, and the localities whence they were taken, by Gregorius à Reggio (Calabria), a Capuchin, who collected them in 1605. Nothing is known of this Gregorius, who must have been a good botanist, and no trace has yet been found of the person who brought the collection to Oxford. Another bundle contains the mosses brought by Sir John Franklin.

Odontoglossum crispum.—Messrs. Thomson & Sons, Clovenfords, N.B., forward for our inspection a spike of the above, whose flowers measure 4½ inches across. The segments of the flowers are splashed with lilac, and the lip is broad, with brownish-purple blotches. A very fine flower.

Notes from Chiswick.—The Tomatos planted out in the Old Rose House, which it will be remembered formed a remarkable feature last season, promise this year to be equally satisfactory, and some others, in pots, in another house, also promise well. In what is known as the Long Vinery there will be a grand display of Gros Colmar and Alicante Grapes by-and-bye, judging from the present very satisfactory appearances. Ivy-leaved Pelargoniums, in good variety, just now afford a welcome glow of colour. Of Annuals an extensive collection has been planted, and which are likely to be attractive if the summer prove warm.

Mr. W. Fawcett. — This gentleman, the Director of the Botanical Department in the island of Jamaica, was elected a corresponding member of the Royal Horticultural Society on Tuesday last.

The Storms.—The reports which reach us, especially from Middlesex, Kent, and Sussex, show how disastrous have been the recent storms. Some good has been effected by the destruction of caterpillars and aphis, but purchased too often by the annihilation of the young fruit, and often by the rupture of huge boughs and wholesale destruction of trees and bushes.

Jamaica Cog-wood.— The identification of this valuable Jamaica timber has long been a desideratum; at length, through the exertions of Mr. Fawcett, it has been determined that the tree is a kind of Jujube, Zizyphus chloroxylon, a figure and description of which are given in the current number of the *Kew Bulletin*.

Journal of the Japanese Horticultural Society. — We beg to acknowledge the receipt of the April number of this periodical, and to express our great regret that, owing to editorial imperfection and defective education, we are not able to decipher a line of our contemporary, save in the few instances where the Latin names of the plants are given, and in the case of the coloured plate of Aërides japonicum. Do not these circumstances afford one more proof of the inconvenience —we speak gently—of popular names? All correspondence for the Society and the *Journal* should be addressed to Mr. S. Yoshida, 8, Iidamatche, Rokutchome, Tokio, Japan.

North of Scotland Horticultural Association.—The last meeting for the season of this Society was held in the Christian Institute, Aberdeen, on the 7th inst., Mr. Gregor presiding. Mr. Harper, head gardener, Duthie Public Park, Aberdeen, read a very interesting paper on "Flower and Carpet Bedding," illustrating his remarks by carefully drawn designs on the black-board. He also enumerated the plants most suitable for sowing in the different beds. The next paper, "Gardening as a Recreation," was contributed by Mr. G. C. Minty, Canal Road, Aberdeen.

TRINITY COLLEGE GARDEN, CAMBRIDGE.

[See Supplementary Sheet.]

Though the town of Cambridge possesses neither park or public gardens, the inhabitants are far from being destitute in this direction, as several of the College authorities throw the greater portion of their gardens open to the public, so that it is, to a certain extent, well off in this respect, especially if we compare it with other towns having a like population. These several College gardens, together with the Botanic Garden, which is entirely University property, and wholly supported from that source, and which are thrown open to the public free of charge, make Cambridge really rich in open gardens, and doubtless it is owing to this liberality on the part of the University authorities that the town is behind-hand in procuring its own public garden.

Trinity College is the largest of all the colleges in Cambridge, and it has also the most extensive gardens, which, like the college itself, have seen many changes in the past. The principal attractions are its grounds, walks, and the avenue of Limes; but at one time it appears tropical plants were well cultivated, though nothing of the kind is attempted now-a-days. In a book entitled *The Foreigners' Companion through the Universities of Cambridge and Oxford*, by Mr. Salmon, London, 1748, p. 67, we find the following:—

"And tho' there be no public garden belonging to the University, Cambridge is not destitute of exotic plants, the Trinity gardener, Mr. Harrison, having, by the direction of Dr. Walker, the Vice-Master, introduced several species of foreign fruits and flowers, natives of the warmest climates; particularly the Ananas, Pine-apple, the Banana, Coffee Shrub, Logwood tree, the Torch Thistle, the red Jessamine of the West Indies, &c., which are brought to great perfection by the help of a greenhouse and stoves, which Mr. Harrison has erected in the Doctor's garden."

It might be here mentioned that Dr. Richard Walker was the founder of the Cambridge Botanic Garden; he was Vice-Master from 1734 to his death, 1764. This does not refer to the site that the Garden now occupies, but to the old garden which was in the centre of the town, and now nearly covered with Museums, Chemical Laboratory, Botanical Laboratory, &c.

Entering the College by the great gate in Trinity Street, we are reminded of its founder, King Henry VIII., by a statue of that monarch which is placed in a niche above the arch on the exterior of the building, but these architectural points we must leave, grand though they be, and pass on, guided by Mr. Mosely, the head gardener. Having passed the gate, we find ourselves in the Great Court, and this name has not been incorrectly applied, for doubtless if it were used in the superlative sense it would not be far wrong; an idea of its size may be formed when we say that it has an area of 90,180 sq. ft. One remarkable point about this great quadrangle is that though its sides, which are opposite to each other, look equal, we are informed that this is not so, and also that the grand fountain is not exactly in the centre, although it appears to be in that position. This court is laid down with grass, intersected by paths of good width, consisting of York stone and boulders on either side of the slabs; these paths divide the grass into six pieces, which are always kept in a perfect condition. One reason why it is so well kept is that no one is allowed to walk upon it but the fellows of the College; any undergraduate caught there is fined, and the vigilant porters are always on the alert to keep undergraduates and visitors from trespassing. Part of this court has around it a border planted with various things suitable to the position, which adds much to the appearance of the court. At the time of our visit we noticed amongst other plants an excellent strain of Salpiglossus, with an undergrowth of seedling Verbenas, which made a very pleasing combination.

Adjoining this court is the Fellows' bowling-green, a small secluded private spot, shut off on one side by a high wall, and on the opposite by a screen of Limes. On the wall is a fine old specimen of Wistaria sinensis, and Acacia hispida major, the rest being covered with vines. The border contains many fine old herbaceous plants.

Leaving the Old Court, and passing through a passage which separates the kitchens from the large dining-hall, we are fronted by the magnificent library. This grand building was designed by Sir Christopher Wren, and it has been said that "a more noble repository for books it would be hard to find." Passing along the cloisters, we arrive at the New Court, which has a circular lawn; many pretty varieties of Ivy have been planted against the buildings, and on each side of the arch. Clematis montana, Bignonia radicans, were also in flower, together with Jasmins, &c.

Passing out of this court towards the River Cam, we enter a lovely avenue of Limes. That part of the avenue which is nearest to the New Court, or on the east side of the bridge shown in the Supplement, was planted in 1716, and at present these trees are all in good thriving condition. One of these, a fair average specimen, measured 105 ft. in height and 8 feet in girth 4 feet from the ground. The remaining portion of the avenue across the bridge is by far the longer, and the trees are planted on a raised walk. These trees are commencing to suffer, and are losing some of their vitality; they were planted in 1671-72. In 1873 it was determined to plant an avenue of Oriental Planes outside the present Lime avenue, with the view of replacing it at a future time. But we are afraid that the Planes will suffer before they get to any great age, by the existing avenue. At one time of day, looking up through the avenue, a distant village church (Coton) spire could be seen, and this used to be pointed to as a type of a college Fellowship, being a long but not unpleasant road, with a church at the end of it. There are also some fine old Elms, and a row of Horse Chestnuts, which partly separate these gardens from those of St. John's College, and which were planted in 1671.

Following the avenue of Limes, we pass through what is locally known as the "Backs," a piece of ground fenced from the road, and planted with numerous Elms; this is a very popular resort during the hot days of summer. Crossing the road the Fellow's garden is reached; it is only accessible to the Master and Fellows of the College. It comprises some 5 acres, and notwithstanding that the soil is not of the best nature for a garden, it has been made into a very beautiful spot. Amongst the things of particular interest is a Catalpa bignonioides, which fruited during the past two seasons; the strange fruits somewhat resemble in shape a Kidney Bean, and are about 1 foot in length, hanging in pairs. The whole of the gardens are under the direction of a committee of Fellows belonging to the College, who are interested in horticulture. Mr. Mosely is gardener, and the present state of the gardens prove him to be a very efficient servant. *W. Harrow, Botanic Garden, Cambridge.*

HOME CORRESPONDENCE.

VIOLETS IN SMOKY LOCALITIES.—As my old friend, Mr. Heath, has cited me as an authority on Violet growing, and has said that I successfully combated the elements in the neighbourhood of Manchester, he has given me rather more credit than is my due, as, in spite of my endeavours, the fumes and smoke of Cottonopolis were rather too much for my Violets. The soil was unsuitable—a light loam resting on pure sand, but that might have been overcome had the pernicious fumes from the chemical works in our immediate vicinity allowed the plants to live; but in autumn, when the fogs came rolling up laden with the deadly gases, the leaves used to wither up as if they had been scorched. The best situation in which to grow Violets under the above circumstances is in front of a wall, choosing an aspect opposite to that whence the smoke comes. Violets always do best where the sun does not shine on them the whole day, and they prefer an eastern aspect, but if it became necessary to grow them on a south aspect I should put up angled screens of mats or rows of Sweet Peas, Scarlet Runners, &c., to screen the plants from the afternoon sun. As regards manure, I find Thomson's and Bentley's blood manure excellent stimulants, and I use them here alternately about every three weeks. "Nil Desperandum" would doubtless find it an advantage to strike his cuttings of Violets in March on a slight bottom-heat, getting them well hardened off and ready to plant out early in May. In northern manufacturing districts the bad weather comes on by the end of August, and if the plants are placed in their winter quarters by the middle of that month, and the sashes used when the weather is bad, he may probably have some measure of success, but not knowing his circumstances, it is difficult to suggest anything likely to be of much advantage; at the best under unfavourable conditions it must prove to a great extent unsatisfactory. *W. M. Baillie, Luton Hoo.*

MUSHROOM BED FAILING TO PRODUCE PROPER MUSHROOMS.—I send for your opinion a sample of Mushroom taken from a bed which was made of horse droppings, and spawned with what I received as genuine spawn. The Mushrooms came up regularly all over the bed, but all show the same size and appearance as the sample enclosed. *U.* "The fungi growing so abundantly on your Mushroom bed belong to Agaricus semi-globatus. This fungus belongs to the same series as the Mushroom, but is totally distinct from it, and it is looked upon as a dangerous fungus. Like the true Mushroom it grows on places where dung abounds, and its spores are nearly always floating about in the air. Nothing is more common than for stray dung-borne fungi to fix on Mushroom beds, and oust the Mushrooms. As a semi-globatus is a small species, you may get true Mushrooms later on." *W. G. S.*

THE STORM OF JUNE 6.—The damage done by the hail storm on the night of Thursday, June 6, at this place was very great. It broke in this garden about 600 square feet of glass in the greenhouses, the panes of glass being entirely smashed by the hail stones, many of which I picked up eight hours after. Not only was the glass destroyed, but the plants also—a very great loss. I cannot discover how much my neighbours suffered, but I imagine it was not much, the storm of hail seeming to confine itself to a small area. I may also add that my Cherries, Plums, &c., are greatly damaged. *John Odell, Gould's Green, Hillingdon.*

TREATMENT OF CAULIFLOWERS, &C., ON LIGHT LAND.—In the dry summer of 1885, when everything was parched by the great heat, I happened to have a plentiful supply of rank grass. A trench was opened 2 feet wide and 18 inches deep, and the trench was filled level with fresh grass; the soil from the next trench was then turned over on the top, and so on, till the whole brake was similarly treated, when drills were drawn 2 feet 6 inches apart, and 6 inches deep. The plants, which consisted of Veitch's Autumn Giant, and Dickens' Brown, and Tait's Eclipse, were planted 2 feet 6 in. apart, each plant being lifted with a good ball, and planted with a trowel; a good watering was then given the plants, a few evergreen sprays were placed around them, and although no rain to speak of fell during the whole season of growth, they received no other artificial watering than that at first given, and yet they turned out a most satisfactory lot, scarcely any of the heads being under 6 inches, and many of them were more than 9 inches in diameter. *W. M. Baillie.*

DAMAGE BY HAIL.—I send herein a few particulars of the damage done by the terrific hailstorm which swept down upon us on Sunday morning, June 2, at 6.35 A.M. The extent of the loss in these gardens is at least £200, for, although the storm lasted only fifteen minutes, the garden crops and glass-house roofs were quite wrecked. The broken glass will be about 2000 feet square, and which in falling cut the fruit and plants sadly. Some of the hailstones measured 4½ inches in circumference, and were like ice bullets, and lay nearly a foot deep. Another storm of equal violence passed to the northward, about 4 miles from this place, at 3 P.M., which also did enormous damage. *C. Raffill, Summerhill, Kingswinford, Dudley.*

TEA ROSES.—A note by "Rosa," at p. 716, states that it has long been his experience that standard Teas pass much better through the winter than the dwarfs; and he further states that stems between 3 and 6 feet in height seem the more safe. This experience is, I know, not general. In exposed districts Tea Roses, as standards, and dwarfs, are too often killed, down to the point where protection by dry litter ceases. Our soil at Ilford is a heavy clay, and wet in winter even though well drained; it is also exposed to the north and east, from whence come keen, frosty winds in winter and spring. I find that the blooms on standards of many of the Tea-scented Roses degenerate after a certain time, although they do very well if they escape the frosts for a year or two; but except some very few vigorous sorts of the Gloire de Dijon type, they give third rate flowers the third year after planting. Mr. Cant's experience is worth little to gardeners or amateurs, as most of his standards would be yearlings. [No.] In our damp clay soil the best results are got from beds raised I foot above the surrounding level, the sides of the beds being banked up with turf. A large bed planted with the best Tea Roses, budded in the first place on the seedling Brier, has given great satisfaction. The bed was planted six years ago, and now most of the bushes are on their own roots; they have been replanted once during that period of time. Indeed, I greatly approve of lifting and replanting Roses every third year; and when doing it, to trench the ground, furnish some manure, and add a little good loam to the soil round the roots of the plants. This operation gives an opportunity to the grower to remove any suckers from the stocks. The Roses in these beds are now very vigorous, and will flower abundantly, notwithstanding that they have been twice in six years cut down to the protecting material; but then they always broke again strongly. If I were to plant another such bed, the Roses should be raised from cuttings. We know that Tea Roses are so easily raised from cuttings, and therefore no one need for any length of time be without a bed of them on their own roots. The cuttings may be taken off with a heel at any time from the middle to the end of July. Plant them firmly in moderately rich sandy soil, under hand-glasses, and keep them rather close, removing the glass daily, and wiping the moisture away. They do best if the hand-glasses stand on the north side of a wall or fence. The rooted cuttings from the earliest batch will be ready to pot off about the end of the month of September, and may be planted out in April or May of the following year. *J. Douglas, Ilford.*

THE FRUIT CROPS IN THE OPEN.—Presto! be gone! and the promise of plenty has merged into the fear of famine. Seldom or never were Apple prospects more brilliant than a few weeks since; hardly ever more dreary than on this first day of June. The blossoms fell with a rush, and in searching for the promised millions of embryo fruit, we find hosts of maggots, as if last year had repeated itself. The change has been so sudden and so severe that one feels as if it must only be a mocking nightmare, a cruel repetition of last year's history and experience; but no, there are the fruitless trees, the riddled leaves, the green failures, and the pests of 1888, succeeding in a few days to the most brilliant promises of 1889. Nor is it Apples only, but Pears, Plums, and in some cases, Cherries also, that have thus slipped from our hopeful lips; Apricots have already gone, and in many cases the trees or branches have followed the fruit within the same period. Peaches and Nectarines still seem all right, and bush fruit and Strawberries still maintain their promise of plenty. The latter have the finest possible bloom and set, and it seems almost impossible that the Strawberry crop should mock our hopes of plenty. The cause lies neither in frosts so-called, blight, aphis, or even maggots. We have neither of the first three, and the maggots have not devoured the embryo fruits. The flowers never reached that stage. They simply blossomed into rare beauty and profusion, and dropped—as if snuffed or blown off, or let go all of a sudden. One has little heart for theories when the facts are so dismally against one. Still I have a theory. Those tropical days in May wrecked our Apple crop. We dreaded frosts while the midsummer suns in May were shrivelling our fruit blossoms by millions a minute, or scattering them broadcast under the trees. And they are gone, and left as their legacy for 1889 an empty or scantily filled Apple basket. But surely these sweeping clearances will prove local only. It can hardly be that the wreck of our hardy fruit crop will prove general. It assuredly extends over considerable areas in East Anglia, and the sudden destruction seems very general and complete. Amidst our depressing losses one will surely hear of good crops in other districts, through the well-informed columns of the *Gardeners' Chronicle*. It would also prove interesting to have the opinion of the Editor on my semi-tropical theory of failure—specially as to its possibility. So much is certain—the Apple blossom came and went with a rush—in fact, we could hardly say it was here, only it was past—and with the fading blossoms fell, or perished, the embryo fruit—or, to be more exact, the Apple crop never reached that more advanced stage of growth. *D. T. F.*

ORCHID SPECIMENS FOR THE KEW HERBARIUM.—I would like to suggest to readers of the *Gardeners' Chronicle*, that specimens of Orchids sent to Kew might, in some cases, be viewed by the Orchid Committee of the Royal Horticultural Society with advantage to the cause of science, when they would come before a large number of Orchid fanciers before being sent on to Kew. The dates of meetings are given at p. 722. The late Dr. Reichenbach may have made a mistake in the testamentary disposition of his invaluable herbarium, but he may also have had good reasons of his own unknown to the general public for the step he took. It would be well for us to remember only one thing now in connection with the late Professor, viz., the great work that he was able to accomplish in naming and describing so many Orchids in the *Gardeners' Chronicle*; and we seem to have forgotten, too, that he was, with Mr. Seden, the first to be presented with a Veitch Memorial Medal for the great services he had rendered to English cultivators. He was probably of a very sensitive nature, and some of the criticisms of his work published in the English press might have seemed to him to be dictated by a desire to depreciate his work, rather than to get at the truth. He spared no pains to give the most minute descriptions of the specimens that were sent to him, and they were given, too, in that quaint phraseology peculiar to him, that one could not choose but read all he had to say about his favourites. It will be long before Dr. Reichenbach is forgotten by Orchid cultivators; and the younger men amongst us will be able to use his herbarium, if the will cannot be set aside. *J. Douglas.*

SOCIETIES.

MANCHESTER BOTANICAL AND HORTICULTURAL.

GREAT WHITSUN SHOW: *June 7 to* 14.—Manchester has again come to the fore in the matter of holding a high-class horticultural exhibition. Those in the habit of attending these exhibitions, year after year, say that not only has the high averages reached in former years been attained, but that in some features this particular exhibition surpassed any that has gone before. The commodious exhibition house, the spacious glass-roofed annexe, and the large concert hall beyond, were filled to repletion, and not a few contributions had to be placed in side positions, and indeed in any place where they could be accommodated. A wealth of bloom shone out in every part of the exhibition, and all seemed beautiful, fresh, and bright. There were but very few weak spots in the whole arrangement, and these did not obtrude themselves in any way.

Stove and greenhouse plants have been more numerous and perhaps finer, but as it was they were

this year very attractive. Some of the collections of plants contributed by the trade overflowed with Orchids, and in great variety. Foliage plants were unprecedentedly attractive. Roses were a pleasing feature, and the lengths of tables devoted to collections of hardy flowers from several parts of England were surpassingly fine.

Fruit was much more extensive in quantity and of finer quality than had been expected; the sunny weather of the previous few days having had a surprising effect in developing it. Mr. Bruce Findlay, aided by an able band of lieutenants, again displayed to great advantage his skill in arranging the details of a large exhibition, so that it should be seen to the best advantage. And then the weather during Friday, Saturday, and Monday, was gloriously fine, although rain began to fall upon the evening of the last day; and there was consequently a very large attendance. The gardens of the Society were seen to the best advantage, though a terrific storm had swept over them on the previous Sunday, and left its mark upon not a few subjects.

Groups arranged for Effect.—These have now become a leading and very important feature at this exhibition. The amateurs' class for a collection of Orchids, Ferns, Palms, and other decorative plants, arranged for effect, brought two admirably arranged groups, but both differing materially in detail and in general effect. The first prize went to Mr. Samuel Thacker, of Nottingham, an amateur who has for years past made a great reputation as a successful exhibitor in the Midland districts. He laid down a bed of ordinary moss, and in this he placed richly-coloured Crotons, Dracænas, and other handsome-leaved plants, interspersed with elegant Palms, and sufficient of flowering subjects to comply with the letter of the schedule; and he also made an admirable use of glowing, ornamental-leaved plants with skill and effect. There was a boldness and a dash about the conception that won for it the 1st prize from the judges. Mr. A. Craggs, gr. to A. Heine, Esq., Fallowfield, Manchester, was 2nd with one of those pieces of effective grouping for which Manchester is famous; from a dense bed of Maidenhair Fern rose many beautiful Orchids, and above these Crotons, Palms, and such like, all combined with the most charming effect. Not a few thought this group should have been placed 1st; but the general opinion appeared to go with the decision of the judges.

In the class for a group of miscellaneous plants, filling a space of 150 square feet, Mr. George Willers, gr. to S. Baerlin, Esq., Didsbury, was 1st, with an excellent group; Mr. Thomas Elkin, gr. to Mrs. T. Agnew, Fair Hope, Eccles, being 2nd; and Mr. J. McIntyre, gr. to Mrs. Gurney Pease, Darlington, 3rd.

In the nurserymen's division was a class for a group of Orchids answering to that in the amateurs, division, and here Mr. J. Cypher, nurseryman, Cheltenham, was 1st, and Mr. H. James, Castle Hill Nursery, Norwood, 2nd. As these were arranged in broad bands in front of specimen plants, but little scope was given for effective arrangement.

In the class for a group to occupy 250 square feet, Messrs. R. P. Kerr & Co., Aigburth Nursery, Liverpool, were 1st, the coloured Crotons especially telling, in an effective manner. Messrs. W. & J. Birkenhead, of Sale, furnished a group of Ferns, but it bore no comparison to that from Liverpool, and it was awarded the 4th prize.

Orchids.—Mr. A. Heine was 1st, with twelve plants, all large and finely bloomed specimens, consisting of Dendrobium densiflorum, D. thyrsiflorum, D. Dalhousieanum, Lælia purpurata Auroræ, L. p. alba, L. elegans, Cattleya Schroderi, C. Skinneri, and its white variety, C. Mossiæ, Cypripedium Stonei, and Calanthe veratrifolia; 2nd, Mr. A. Cole, gr. to Joseph Broome, Esq., Llandudno, with Dendrobium nobile, D. densiflorum, D. suavissimum, D. Wallichianum, Cattleya Mossiæ in variety, Cypripedium Lawrenceanum, and Masdevallia Harryana; Mr. D. Boardman, gr. to Mrs. Hodgkinson, Higher Lawn, Bowdon, was 3d.

In the class for six plants, Mr. A. Heine was the only exhibitor, having fine examples of Calanthe veratrifolia, C. Mendeli, very fine; C. Skinneri alba, Lælia purpurata, Dendrobium densiflorum, and D. thyrsiflorum.

In the class for ten Orchids, *bonâ fide* specimens, Mr. A. Heine was again 1st, with Vanda suavis Veitchiana, V. teres, Cattleya Skinneri, C. Mendelii, C. Lawrenceanum, Lælia purpurata, L. purpurata alba, Dendrobium thyrsiflorum, and D. suavissimum; 2nd, Mr. J. Broome, with Dendrobium nobile, D. thyrsiflorum, D. suavissimum, Miltonia vexillaria, Cattleya Mossiæ, in variety; C. Lawrenceana, and Saccolabium prætorsum.

Mr. J. Broome was the only exhibitor of ten Cattleyas, staging some very fine plants, grandly bloomed, of C. Mossiæ, C. Sanderiana, and C. Mendelii.

The three best Vandas came from Mr. A. Heine, who had a very fine piece of V. teres with over fifty flowers, and two varieties of V. suavis; and Mr. Broome was 2nd, with similar varieties. In the nurseryman's division, Mr. J. Cypher was 1st with Miltonia vexillaria, Cattleya Mossiæ, two varieties; C. Mendelii, Vanda suavis, Lælia purpurata, Odontoglossum citrosmum, Dendrobium Dalhousieanum, D. Bensoniæ, and D. Jamesianum; 2nd, Mr. H. James with Cymbidium Lowianum, Oncidium crispum, and several Cattleyas.

Stove and Greenhouse Plants.—Mr. Nicholas, gr. to the Earl of Zetland, Upleatham, was 1st with eight very good plants, having Boronia elatior, Epacris miniata, a fine piece of Anthurium Schertzerianum, Ixora Williamsii, Franciscea calycina major, Aphelexis macrantha purpurea, Dracophyllum gracile, and Statice profusa.

Mr. J. Cypher had the best ten in the nurserymen's class, staged Erica affinis, E. ventricosa magnifica, and E. ventricosa hirsuta alba; Hedaroma tulipifera, Bougainvillea glabra, a fine piece of Stephanotis floribunda, Franciscea calycina, Aphelexis spectabilis, Statice profusa, and Anthurium Schertzerianum Wardii. 2nd, Mr. J. F. Mould, nurseryman, Pewsey, Wilts, with Gloriosa superba, Clerodendron Balfourianum, Bougainvillea glabra, and Erica Cavendishiana as his best plants.

The best specimen stove plant in flower was Ixora Pilgrimii, from Mr. Nicholas; Mr. S. Baerlin being 2nd, with Ixora Williamsii. Mr. Nicholas also had the best specimen greenhouse plant in a fine piece of Aphelexis rosea, Mr. Baerlin being 2nd, with Erica Spenceriana.

Azaleas were so indifferently represented that in the amateurs' class for six specimens a 2nd prize only was awarded to Mr. Joseph Broome.

In the nurseryman's class for six Ericas, Mr. J. Cypher was 1st, with some good plants of Cavendishiana, Lindleyana, tricolor elegans, tricolor Wilsoni, ventricosa hirsuta alba, and ventricosa magnifica; 2nd, Mr. H. James, his best plants being Cavendishiana, affinis, ventricosa tricolor, and tricolor rosea.

In the nurserymen's class for eight show Pelargoniums, Messrs. C. Rylance & Co., nurserymen, Ormskirk, were the only exhibitors, but they had very fine plants of Edward Perkins, Corsair, Gaiety, Beauty, Venus, Prince Leopold, Queen Bess, and Duchess of Edinburgh. The same were the only exhibitors of eight fancy Pelargoniums, having Ellen Beck, Henry Bailey, The Shah, Roi des Fantasies, Juliet, Exquisite, and two others.

Gloxinias made a pretty feature shown in collections of ten plants. Mr. George Wilkes, Ashton-on-Mersey, was 1st, with a fine lot of well-grown and flowered plants; Mr. Thomas Grosvenor, gr. to A. W. Radley, Esq., Congleton, being a good 2nd.

Roses were as usual a good feature in the trade classes; but the one collection supplied by an amateur contained indifferent blooms.

Messrs. Paul & Son, Old Nurseries, Cheshunt, were the only exhibitors of 20 and 30 plants, having well-grown and flowered specimens of La France, Merveille de Lyon, Catherine Soupert, Centifolia rosea, Ulrich Brunner, Marguerite de Roman, Madame Lacharme, Celine Forestier, Madame Victor Verdier, Innocente Pirola, Comtesse de Serenye, François Levet, and Niphetos.

Lilium auratum were represented by three fine specimens sent by Mr. W. Plant, gardener to R. P. Gill, Esq., Ashton-on-Mersey. The best eight Calceolarias came from Mr. Geo. Wilkes, well-grown and of fine quality; Mr. A. W. Radley being 2nd. The amateur's class for 6 Clematis, and for 12 Anemones in pots, did not bring any entry.

Hardy, Herbaceous, Bulbous, and Alpine Plants.—These are always a great feature at Manchester, and on this occasion they were both numerous and very good. In the amateurs' division the best thirty plants of hardy, herbaceous, and bulbous, came from Mr. R. P. Gill, who had Hemerocallis flava, Spiræa palmata, and its white variety, S. astilloides, S. aruncus, and S. species; Delphiniums, Campanula Van Houttei, and others; Carnation Mrs. Reynolds Hole, Lilies, Narcissi, &c. 2nd, Mr. James Lamb, Bowdon (Mr. J. Vickers, gr.), who had Lilies, Pæonies, Pyrethrums, Saxifraga pyramidalis, Spiræa palmata, Lupinus polyphyllus, and its white variety, &c.

In the class for the large collection shown by nurserymen, Messrs. Dicksons (Limited), Chester were 1st, with a large and imposing collection, including Lilies in great variety; early Gladioli, fine specimens of Heuchera sanguinea, the double white, Rocket, Carnation Mrs. Reynolds Hole, Iris in variety, Hemerocallis, Cypripedium spectabile, &c.

In the class for sixty hardy herbaceous and bulbous plants, Messrs. Stansfeld Bros., nurserymen, Southport, were 1st, with Saxifragas in great variety, Primula japonica, Pæonies, Thalictrum purpureum, Liliums, Epipactis palustris, Primula obconica, Spiræa palmata, Orchis latifolia var. incarnata, Bellis bellicoides, &c.

In the class for thirty alpines, Mr. R. P. Gill was placed 1st, with an admirable collection, consisting of Saxifraga pyramidalis, S. Hosti, S. McNabiana, S. compacta, S. juniperus, Spiræa species, Ajuga genevensis, Papaver nudicaule in variety, Sempervivum montanum, S. arachnoideum, Silene pusilla, Carex ripara variegata, Dianthus cruentus, Lychnis flos jovis, &c.; 2nd, Mr. J. Blower, the gr. at the Children's Hospital, Pendlebury, who had Saxifraga Wallacei, S. crustata, S. pyramidalis, Onosma taurica, Spergula pilifera, Aster alpinus, Primula farinosa, Dianthus cæsius, &c.

With twelve alpines, Mr. R. P. Gill was again 1st, with Spiræa species, Sempervivum Mogridgii, S. arachnoideum, Saxifraga Aizoon, Arenaria alpina, Saxifraga rotundifolia, Papaver nudicaule, &c.; 2nd, Mr. Robert Tyldesley, Worsley, a working collier, who makes a great specialty of these and hardy Ferns, and who had Saxifragas pyramidalis, intermedia, minor, and Hosti; Sempervivums Laggeri, arachnoideum, montanum, and calcareum.

In the nurserymen's class for forty alpine plants, Messrs. Stansfeld were 1st, with Silene pusilla, S. alpestris, Ophrys apifera, Orchis mascula, Lychnis viscaria splendens, Primula Rusbyi, P. farinosa, very pretty indeed; Thymus lanuginosus, Hippocrepis comosa, Saxifraga Hosti, S. squarrosa, Platycodon ovata, Erodium macrodenium, &c. 2nd, Messrs. Paul & Son, with Saxifraga montevidense, S. lantoscana, S. cochleata, Sempervivum triste, S. penelli, Thymus serphyllum, Omphalodes lucillæ, Cypripedium pubescens, Silene maritima rosea, Armeria cephalotes alba, Arenaria montana, Ramondia pyrenaica, Menziesii polyfolia alba, Lithospermum graminifolium, the Edelweis.

Pansies and Violas in pots, always a pleasing feature, were none the less so on this occasion. In the amateur class for twelve Pansies in pots, the Children's Hospital, Pendlebury, was 1st, with dark self Dr. Hogg, yellow self George Rudd, white ground, seedling.

In the nurserymen's class for twenty Pansies, Mrs. E. Mellor, florist, Chorlton-cum-Hardy, was 1st, with a very effective lot, having yellow grounds: Amy, Lightning, Mrs. Harvey, John Robinson, and Lord Rowton; white ground: Maggie; selfs: Cloth of Gold, George Rudd, Black Sam, Blue Stone, and some fancies.

Mrs. Mellor was the only exhibitor of twenty pots of fancy Pansies, having Dr. Francis, Christine, Mrs. Watts, Mrs. E. H. Ward, Perfection, Walter Dixon, James Donelly, Earl Beaconsfield, Thalia, Walter Shearer, Walter Houldsworth, and Champion.

Mrs. Mellor had the best twenty varieties, having of white varieties: Countess of Hopeton and Seedling; yellow: sulphurea perfecta, Waverley Yellow, and Golden Gem; dark: Acme; blue: Queen of the Blues and Archie Grant, also Countess of Kintore, Picturata, Duchess of Teck, and Dr. Hornby.

Cape Bulbs.—The only exhibitors of a collection of Ixias and Sparaxis in pots came from Messrs. Dicksons (Limited), who had about thirty-six pots, well flowered, and very bright and effective. They were much admired because so rarely seen.

Foliaged Plants.—The best ten fine foliaged plants came from Mr. Nicholas, who had very fine examples of Crotons Queen Victoria, Thompsoni, and Johannis, Davallia fijiensis, Neoptopteris australaica, Kentia Fosteriana, K. Balmoreana, Geonoma gracilis, Daslyrion acrotrichum, and Chamærops Fortunei; 2nd, Mrs. J. Gurney-Pease, Darlington, with Cycas revoluta, C. circinalis, Crotons Andreanus, and Aigburthiensis, Cordyline indivisa, &c. The best eight plants in the Nurserymen's class came from Mr. J. Cypher, who had Kentia Fosteriana, K. australis, K. Belmoreana, Latania borbonica, Croton Disraeli, Cocos Weddelliana, Cordyline indivisa, and Daslyrion acrotrichum. 2nd, Mr. H. James, his chief plants being Latania borbonica, Cycas circinatis, Cocos Weddelliana, and Croton Evansianus.

Ferns.—The best eight specimens of stove and greenhouse varieties came from Mrs. Gurney-Pease,

who had Davallia Mooreana, Adiantum cuneatum, A. gracillimum, A. decorum, Gleicoma rupestris glaucescens, Alsophila excelsa, and Microlepia hirta cristata. Mr. F. Millwood, gardener to R. Goodair, Esq., Didsbury, was 2nd.

Yuccas.—Mr. Millwood had the best four Yuccas, having a pair each of angustifolia and alœfolia. Mr. S. Baerlin being 2nd with the same.

interruptus-aureus, Queen Victoria, Aigburthiensis, ruberrimus, Hawkerii, Baroness Rothschild, Neumannii, Bergmannii, and Mortfontainensis.

Draccenas.—These were represented by good plants, bright and well coloured. The best six in the amateur's class came from Mr. N. T. C. Worsley, Rusholm, who had Shepherdi amabilis, recurva, Regina, Bausei, and Youngi. 2nd, Colonel

soniana, Wilsoni, californica, Swainana, and purpurea. In the nurserymen's class, Mr. H. James was 1st with Nepenthes Williamsiana, Hookeriana, distillatoria, and Mastersiana; Sarracenias, Chelsoni, Stevensii flava maxima, Tolliana, and Swainana; 2nd, Mr. A. J. A. Bruce, Chorlton-cum-Hardy.

Hardy Ferns.—The best twelve plants in the



Fig. 121.—Amorphophallus campanulatus. (see p. 750.)

Palms.—Mr. S. Baerlin had the best four, staging fine examples of Kentia australis, K. Belmoreana, Cocos Weddelliana, and Phœnix rupicola. Mr. T. Agnew was 2nd, with Kentia Canterburyana, Phœnix rupicola, Thrinax elegans, and Latania borbonica.

Crotons.—Mrs. Gurney-Pease had the best six Crotons in the amateur's class. In the nurserymen's, Messrs. R. P. Kerr & Co., were the only exhibitors, but they had large and finely coloured examples of

Wingfield, with some good plants also. In the nurserymen's class, Messrs. R. P. Kerr & Co. had the best twelve, staging very good examples of Lindeni gigantia, Norwoodiensis, picta, Goldiana, Salmonea, speciosa-elegans, pendula, Weismannia, marginata, Leopoldi, and Gladstoneii. 2nd, Mr. H. James.

Pitcher Plants and Sarracenias.—The best collection came from Mr. Joseph Broome, who had Nepenthes Browneana, Mastersiana, Anerleyeasis, and robusta; and Sarracenias, Mitchelliana, Maddi-

amateur class came from Mr. R. Tydesley—a very fine collection, but so staged as to render it impossible to get the names; Mrs. Hodgkinson was 2nd.

The best group of twelve in the nurserymen's class came from Messrs. F. W. & H. Stansfeld, Messrs. W. & J. Birkenhead being 2nd.

Japanese Plants.—The only collection of these came from Messrs. J. Waterer & Sons, Bagshot, who had Maples, Aucubas, Acer negundo variegata, Sciadoptys bracteata, twenty varieties of Retinos-

poras, Taxus japonicus, Thujopsis dolabrata, Skimmia japonica, Ilex furcata, &c.

Hardy Evergreen Shrubs.—Messrs. Waterer & Sons also had the best collection of these, exhibiting Retinosporas, Yews, Hollies, Abies, Thuia, &c., in great variety.

Cut Flowers.—The best stand of twelve Tea-scented roses came from Mr. A. Whitton, Asken, Bedale, who had very good bloom of Souvenir d'un Ami, Madame C. Kuster, Princess of Wales, Madame Cusin, and Comtesse de Nadaillac. 2nd, Mr. S. H. Stott, The Lindens, Fulwood, who had Edith Giffard, Bride, Alba rosea, Grace Darling, and Jean Ducher. Mr. A. Whitton had the best twelve varieties of roses, the best blooms being Princess Beatrice, Mons. Noman, Prince Arthur, Baroness Rothschild, Fisher Holmes, Duchesse de Vallombrosa, and Dupuy Jamin.

In the nurserymen's class for eighteen varieties of Tea-scented roses, Messrs. Harkness & Son, Bedale, had a very fine lot, including Madame Bravy, Catherine Mermet, Rubens, Souvenir d'un Ami, Alba rosea, Comtesse de Nadaillac, Souvenir d'Elise, Maréchal Niel, Edith Giffard, Anna Olivier, Devoniensis, Madame Cusin, Caroline Kuster, François Kruger, and Elise Vardon. 2nd, Mr. H. May, nurseryman, Bedale.

Fruit.—Of this there was a remarkably fine display, the best eight dishes coming from Mr. McIndoe, the Gardens, Hutton Hall, Guisboro', who had Black Hamburgh and Foster's Seedling Grapes, Magdala Peaches, Lord Napier Nectarine, Best of all Melon, Queen Pine, Noble Strawberry, and Brown Turkey Figs. 2nd, Mr. R. Dawes, gr. to Mrs. Meynell Ingram, Temple Newsham, with the same varieties of Grapes, Smooth Cayenne Pines, Early Grosse Mignonne Peaches, Lord Napier Nectarines, Brown Turkey Figs, Black Circassian Cherries, and Reading Hero Melon. The two best bunches of Black Hamburgh Grapes came from Mr. Loudon, gr. to Thomas Barnes, Esq., The Quinta, Chirk, who had finely finished fruit; Mr. Edmonds, Bestwood Gardens, Notts, being 2nd.

Mr. Loudon had the best two bunches of white Grapes, staging admirable Muscat of Alexandria; Mr. J. Grant Morris, Allerton Priory, Liverpool, being 2nd, with Foster's Seedling.

Mr. McIndoe had the best two Pine-apples, staging fine Queens; Mr. Edmonds coming next with a Queen and Smooth Cayenne.

Mr. McIndoe had the best Pine, staging a fine Queen; the Hon. C. H. Wynne being 2nd, with a Smooth Cayenne.

Mr. Upjohn had the best twelve pots of Strawberries, staging Bothwell Park, a variety in the way of President; Colonel Wingfield, Shrewsbury, being 2nd, with La Grosse Sucrè.

Mr. McIndoe had the best dish of Peaches in Galande, very good fruit indeed; Mr. Upjohn being 2nd, with Stirling Castle.

The best dish of Nectarines was Lord Napier, from Mr. Dawes; Mr. McIndoe being 2nd with the same. The best scarlet-fleshed Melons were Blenheim Orange and Scarlet Premier; the best green-fleshed, Hero of Lockinge and Best of All. Mr. Blair had the best dish of Cherries, showing Black Circassian; Elton, from an unknown exhibitor, taking the 2nd prize. President was the best Strawberry, and Hackwood Park the best Tomato; Telegraph being the best Cucumber.

A miscellaneous collection of fruit came from Mr. McIndoe, in all about twenty-one dishes, including Peaches, Nectarines, Oranges, Lemons, Melons, &c.; and Messrs. Dickson, Brown, & Tait, seedsmen, Manchester, had fruit of their Best of All, Prince Albert Victor, and Penrhyn Seedling Melons, and Northern Beauty Tomato.

Examples of Lockie's Perfection Cucumber came from Mr. C. Turner, Royal Nursery, Slough.

Miscellaneous Contributions included a very valuable collection of Orchids and other choice plants, from Mr. F. Sander, St. Albans, to which the Gold Medal of the Society was awarded. A similar one from Mr. B. S. Williams, Victoria Nursery, Holloway; one from the Liverpool Horticultural Company; boxes of choice Orchids from Messrs. H. Low & Co., Clapton Nursery, including plants of Cypripedium bellatulum; a large group of plants, arranged for effect, from Messrs. W. Cutbush & Son, Highgate Nurseries; a group of specimen plants of Clematis from Messrs. R. Smith & Co., Worcester; a very fine group of Maples and other hardy plants from Messrs. Fisher, Son & Sibray, Handsworth Nurseries, Sheffield, together with their new white decorative Pelargonium, Duchess of Teck; very large and interesting collections of hardy flowers in a cut state from Messrs. Kelway & Son, Langport; T. S. Ware of Tottenham; Harkness & Son, of Bedale; and Mr. Clibran & Son, Altrincham; together with samples of their patent flower holder from Messrs. J. Cheal & Son, Crawley.

Certificates of merit were awarded to Taxus grandis and T. adpressa variegata from Messrs. Fisher, Son & Sibray; to Adiantum Versaillesense, Nephrodium pallidum cristatum, and Carludovica elegans, from Mr. B. S. Williams; to Lilium croceum, fl. pl., Pæonia anomalie hybrida, and Papaver Black Queen and Prince of Orange, from Mr. T. S. Ware; to double Pyrethrums Empress Queen, and Pericles, single Pyrethrums Agnes Mary Kelway and Mary Anderson; Pæonies (double) Princess Irene, and single Pæonies Hesperus, Argus, and Autumnus, and to Delphinium, Julia and Robusta, all from Messrs. Kelway & Son.

BATH AND WEST OF ENGLAND SHOW.

Exeter: *June* 5, 6, 7, 8, and 10.—The horticultural department of the above Show ranked as one of its leading attractions. As is well known the Hon. and Rev. J. T. Boscawen personally selects his plants in the various gardens and establishments some time before the show opens, and also superintends their arrangement. Exeter and its neighbourhood possess plant-growing establishments second to none in the kingdom. The material, therefore, at the disposal of Mr. Boscawen was of unusual excellence, and too much cannot be said in admiration of the skilful and artistic effect produced with it. The arrangement aimed at was that of a conservatory, and as carried out huge Palms, Tree Ferns, Dracænas, and other fine foliage plants could be observed from almost every position, intersecting each other, but not crowded, stiff, or formal while beneath these were placed flowering plants of Orchids, Azaleas, grand plants with fine fresh bloom; Pelargoniums, healthy and fresh; Allamandas, Bougainvilleas, Stephanotis, &c., well grown and well flowered plants. The principal contributors of plants were W. B. Cleave, Esq., Newcombe's, Crediton, gr. Mr. Locke, who sent large and handsome Palms, Tree Ferns, and Azaleas, these latter large specimens, excellent for the season, well bloomed and fresh; W. Brock, Esq., Exeter, gr. Mr. Rowland, also sent a collection of Palms, including two monster Seaforthia elegans, a group of very tall and graceful Dracæna indivisa, Tree Ferns, and a good batch of Pelargoniums; Rev. Hamilton Gell, Winslade (gr., Mr. Abbot), contributed also a quantity of very fine Tree Ferns and Anthuriums Schertzerianum; H. B. Mildmay, Esq., Flete, Ivybridge (gr., Mr. Selway), sent a fine lot of Caladiums, Anthurium, &c.

Sir T. Dyke Acland, Killerton (gr., Mr. Garland), sent fine Tree Ferns, Palms, and Orchids.

Colonel Coryton, Pentillie Castle (gr., Mr. Cox), brought some fine varieties of Orchids and Caladiums.

From Lady Hotham, Knightley's, Exeter (gr., Mr. Bartlett), came a nice collection of Ferns.

Mark Farrant, Esq. (gr., Mr. Counter), contributed a collection of well grown Pelargoniums.

From C. R. Collins, Esq., Strathculm Hall, came two grand baskets of Adiantum cuneatum, literally covered like a huge ball, about four feet through—the plants, in perfect health, being marvels of cultural skill. These were suspended about midway in the tent between the stove and greenhouse section, and were the admiration of every one.

From Major Langdon (gr., Mr. Kiel), came a grand specimen Orchid Dendrobium suavissimum.

Messrs. Lucombe, Pince & Co., whose fame for well-grown specimens of all kinds is known were well represented. Especial mention may be made of the grand Bougainvillea glabra, Allamanda Hendersoni, Stephanotis floribunda, Clerodendrons, &c.; Indian Azaleas in variety; and a grand collection of Gloxinias, Orchids, pot-Roses in variety, Heaths, &c. One side of the tent was occupied entirely with beds raised above the level, and filled with Violas, Pansies, &c., which was quite a pretty feature.

Messrs. Smith, of Worcester, exhibited a superb collection of Clematis, including C. Gloire St. Julien, C. Beauty of Worcester, semi-double, dark violet, large centre, a beautiful contrast to the petals; C. Lord Nevill, C. Marie Lefebvre, C. Lawsoniana, large, handsome, lavender colour; C. Grand Duchess, C. Sensation, C. Lady C. Neville, C. Imperatrice Eugénie, C. Marie Van Houtte, large, white, very fine; C. excelsior, broad florets; C. Mrs. G. Jackman; C. Fairy Queen, and C. Princess of Wales, a grand flower. The above were all splendidly flowered, and formed a great attraction to visitors. Mr. B. Brown, florist, St. Thomas, Exeter, staged a fine lot of Pelargoniums, bouquets, wreaths, crosses, &c. Mr. S. Randall, Exe Bridge, showed a very nice collection of stove and greenhouse plants. Messrs. Laing & Sons, Stanstead Park Nursery, Forest Hill, S.E., staged a superb collection of tuberous Begonias. Mr. F. Hooper, Bath, had a number of boards of very fine show and fancy Pansy blossoms: as had also Mr. H. Hooper, from Chippenham. *A Correspondent.*

ROYAL HORTICULTURAL.

June 11.—On Tuesday last exhibits before the committees at Westminster were few, owing no doubt partly to the holiday on the previous day and partly to the cold wet weather of the few previous days. The Orchid growers who made such a fine display in the Temple Gardens, seemed to be resting after their efforts, and only a few plants were shown. This was to be regretted, as Mr. H. Veitch had consented to lecture on Orchids, and which is referred to in another place.

Floral Committee.

Present: W. Marshall, Esq., in the chair, and Messrs. R. Dean, T. Baines, H. Herbst, W. Goldring, J. Walker, E. Mawley, T. W. Girdlestone, W. Holmes, F. Ross, B. Wynne, Shirley Hibberd, J. Laing, L. Castle, and Dr. M. T. Masters.

One side of the Hall was occupied by an extensive display of cut blooms of Pæonies, Pyrethrums, Delphiniums, and Irises of uniformly good quality, bright colours, and large size in many cases, from Messrs. Kelway & Son, Langport, Somerset. The Pæonies, which were shown in twenty boxes, were a conspicuous feature, and contained many varieties of a high order of merit, from which the following are selected:—Princess Christian, double white, tinted with pale yellow, the guard petals large; Cupid, satiny-crimson, single; Princess Irene, double, pale yellow centre, guards pink; Miss Salway was of similar form and colouring, but paler; Mercury, satiny-rose, single; Augenord, double, white centre, and very pale pink guards; Baroness Schroder, double, with pale cream and pink centre, with pink guards, a large-sized flower; Alba maxima is a fine double white; Prince George a rich carmine double; and Lady L. Bramwell deserves mention as a large double pink. Among the Pyrethrums were some very deserving varieties, the most conspicuous being—Melton, very fine, of rich bright carmine colour; Empress Queen, a large white, of good form; King Oscar, rich carmine; Pericles, pale yellow, with white rays — this flower has a smallish centre; Florentine, pinkish-white, large size; and Aphrodite, an almost globular white. All the foregoing are doubles, but there were also some singles of excellent quality, including Clemence, carmine; and Camilla, rose; and others not named. Among the Delphiniums, which were generally remarkable for the length of the spike and clear colour of the flowers—Ardite, blue and purple; Orbit, do., with a white centre; Regalia, purple-blue and a white centre; Faust, metallic purple; and Miss Salway, bright azure-blue, were the finest.

A group of cut flowers, hardy herbaceous plants, and a few pot plants, nearly filled the opposite side of the Hall. Messrs. Barr & Son were the exhibitors, and the group consisted largely of varieties of Xiphion and German Irises, with specimens of various other species, as I. orientalis, and I. juncea, which is of a very pleasing rich yellow. Pæonies and Pyrethrums were plentiful, and so also were Anemones of both the coronaria and fulgens type. Other plants were Campanula Partenschlagiana, richly coloured; Ixias, Richardia hastata, pale yellow spathe; Allium acuminatum, Calochortus in variety; Polygonum sphærostachys, rich red; and Orchis foliosa. A pot plant to be specially noticed was Ononis rotundifolia, a somewhat shrubby plant, attaining a height of about 1½ to 2 feet, and bearing pretty Pea-like, rose-coloured flowers; it is stated to be a hardy plant, and is very effective.

Messrs. Paul & Son, Old Nurseries, Cheshunt, N., also staged a large collection of cut flowers, and a few specimens of small standard Orange trees about 3 feet in height and in full flower, emitting a powerful perfume; also a few plants of Paul's single white Tea Rose, which was flowering freely. Pyrethrums were largely shown, and contained a selection of favourite varieties, as of doubles, Ne Plus Ultra,

flesh colour; fulgens plenissimum, crimson; niveum plenum, white; rubrum plenum, &c., and of singles, the rich crimson of Sherlock was very attractive; Hamlet, rose, was also fine. Roses comprised Lady Mary Fitzwilliam and Lady Alice; and a number of Delphiniums were a good display. Pæonies in this collection were best in the following: Jeanne d'Arc, double, yellow centre, pink guards; Pottsi, double, fine, rich, satiny crimson; and Madame de Guerle, double rosy pink.

One of the most conspicuous objects was a well-grown plant of Verbascum olympicum, sent by W. H. Loder, Esq., High Beeches, Crawley. The plant was about 5 feet high from the pot, with a central erect flowering panicle 4 feet long, with laterals 18 inches in length, having numerous flowers of bright yellow, with orange stamens. The lanceolate leaves were about 2 feet long, and woolly.

Mr. R. Dean, Ealing, contributed cut blooms of a white Brompton Stock, of vigorous habit; Aquilegias, of fine form; and Mimulus moschatus Cloth of Gold, dwarf and compact.

Mr. F. Ross, Pendell Court Gardens, Bletchingley, sent flowering shoots of Buddleia globosa, the bright orange heads of which look extremely pretty in the light; Rhododendron calophyllum, with large white flowers, sweetly scented, was also shown by him.

Begonias were shown by Messrs. J. Laing & Sons, Forest Hill, S.E.; there were only three varieties, viz., Mrs. J. Chamberlain, white with pink flush, almost circular in outline, single—a handsome flower; Lady J. Goldsmid, deep rose, double; and a pale yellow flower named Miss French, but it was not expanded enough for an opinion of its merits to be formed.

Cut flowers of a miscellaneous nature were sent by Mr. E. F. Such, Maidenhead; Pinks were plentiful, Mont Blanc being a good white; other subjects included Gaillardias, Papaver orientale, Hemerocallis flava, and Anchusa italica.

Three plants of seedling Crassulas were contributed by Mr. J. Lansdell, gr. to T. Brooks, Esq., Barkly Hall, Leicester; they were seedlings of coccinea, and bore white and rosy-white flowers not half so decorative as coccinea.

A handsome Fuchsia, named Dorothy Fry, with flowers of white with red calyx lobes, and the flowers freely produced, was sent by Mr. Fry, Lewisham, and gave much satisfaction, he also had a Pansy, Reine d'Or, which was of the colour known as "Old Gold," with a darker brownish eye.

Roses were finely shown by Mr. G. Prince, the Nurseries, Oxford, who had a collection of cut blooms of a high quality. Comtesse de Nadaillac, Princess of Wales, La Boule d'Or, Princess Beatrice, and Catherine Mermet were grand examples and of rich colouring. From the same exhibitor were blooms of a new Tea Rose, Souvenir de S. A. Prince. It is pure white, nicely scented, and has a long shaped bud. The petals are broad and open well.

A type of post-box was sent by Mr. G. Bloxham, Brickhill Manor Gardens, Bletchley, the feature of which consisted in the attachment of the label, and a special screw for fastening.

Orchid Committee.

Present: Dr. M. T. Masters, F.R.S., in the chair; and Messrs. J. O'Brien, L. Castle, J. Douglas, E. Hill, Ballantyne, H. M. Pollett, and H. Veitch.

A group of about a dozen pieces of well-grown and finely-flowered Epidendrum vitellinum majus, from Mr. B. Searing, gr. to C. J. Partington, Esq., Heaton House, Cheshunt, was the most noticeable feature here.

A. H. Smee, Esq., The Grange, Wallington, Surrey (gr., Mr. W. Cummins), had a plant of Cattleya Mossiæ Schroderæ, which is a pale form of Mossiæ; and C. Mendelii Hackbridgensis; the lip is deeply coloured, the rest of the flower white, the apex of each petal being rosy-purple.

A plant of Cattleya Mossiæ, bearing about thirty blooms of medium size and quality, was sent by Mr. T. A. Glover, gr. to E. Ellis, Esq., Manor House, Wallington.

Mr. F. Ross, Pendell Court Gardens, Bletchingley, sent flowers of Dendrobium clavatum, and a plant of D. Farmeri var., with purple peduncles, and purple suffusions through the sepals and petals, the lip being yellow, with a white apex.

Fruit Committee.

Present: Sir C. W. Strickland, Bt., in the chair; and Messrs. J. Cheal, G. W. Cummins, W. Bates, P. Barr, J. Lee, J. Wright, F. O. Lane, G. Wythes, J. Hudson, R. D. Blackmore, and J. Willard.

Mr. C. Ross, Welford Park Gardens, Newbury, sent Melon Standard, a round, well netted fruit, scarlet flesh, and very sweet.

Mr. R. Dean sent Queen Onions. Lettuce Buttercup a Cabbage Lettuce of pale yellow-green colour; and Strawberries Noble, King of the Earlies, and Crescent Seedling, came from the Society's gardens; and Mr. Stapley, Abbey Wood, sent Stapley's Wonder Cucumber, which seemed to resemble Telegraph closely.

Another Melon, a long-fruited sort, large, but of no merit, came from Mr. Doughty, Cranbrook.

The awards had not been made known when we left the Hall.

Chiswick Vegetable Conference.

A meeting of the executive committee of this proposed conference, which is to take place in September next, was held in the Royal Horticultural Society's Offices, Westminster, on Tuesday last. Mr. H. Veitch presided, and there were present the Rev. W. Wilks, and Messrs. Shirley Hibberd, A. F. Barron, Miles, Herbst, Wright, A. Dean, Bates, Hudson, Wythes, P. Barr, and Willard. The committee first agreed that the products exhibited at the conference should comprise all ordinary garden vegetables. The schedule of classes as issued by the Society was then dealt with, and the various subjects taken *seriatim* and arranged, some important alterations being made, and some valuable classes added; one especially for Lettuces, for cutting in the seedling state, as adopted on the Continent, to be shown as grown in pans or boxes, introducing quite a new element in vegetable exhibits. A proposal to group the various classes under the heads of Brassica and leaved vegetables, tubers, tap roots, bulbous roots, or salads, &c., was also agreed to. The arrangements for the literary part of the conference were left over to another meeting, to be held in the same place on the 25th inst.

THE ROYAL NATIONAL TULIP.

The annual exhibition took place in connection with the great Whitsun Show at Old Trafford. Owing to the hot weather the Tulips had suffered to some extent, and it was with difficulty the flowers could be retarded in order to exhibit them. The consequence was a small and somewhat inferior display.

Rectified Tulips.—Two collections only of twelve blooms were staged, two feathered and two flamed in each class. Mr. William Kitchen, Stockport, was 1st with feathered bizarres, Lord Lilford and Typho; flamed, Dr. Hardy and Sir J. Paxton; feathered roses, Alice and Heroine; flamed Mabel and Aglaia. Byblœmens, John Hart and a seedling; flamed, two seedlings. 2nd Mr. Samuel Barlow, J.P., Stakehill House, Castletown, Manchester, with bizarres, feathered, Georges Scholes and Sir J. Paxton; flamed, Dr. Hardy, and Sir J. Paxton; Roses, feathered seedlings, one of them having a very bright character; flamed, Annie McGregor, and Lady C. Gordon; byblœmens, feathered, Tigg's Seedling and Queen of the May; flamed, Nimbus, and Queen of the May.

Mr. Kitchen also had the best six flowers, one feathered and one flamed in each class, having, of bizarres, feathered, Lord Lilford; flamed, Sir J. Paxton; roses, feathered, Alice, and flamed, Mabel; byblœmens, feathered, Violet, Amiable, and flamed seedlings. 2nd, Mr. James Knowles, Stalybridge, with bizarres, feathered, John Radcliffe, and flamed Sir J. Paxton; roses, feathered, Annie McGregor, and flowered, Lady C. Gordon; byblœmens, feathered, Jeanette, and the same flamed. 3rd, Mr. S. Barlow. Then came a class for 6 Tulips for half-guinea subscribers only. 1st, Mr. H. Housley, Stockport, with bizarre feathered Typho; flamed, Sir J. Paxton; roses feathered, Mabel, and flamed, Annie McGregor; byblœmen feathered Violet Amiable; flamed, Duchess of Sutherland. 2nd, Mr. R. Wolfenden, Royton, with bizarres, feathered, Sir J. Paxton; and flamed, the same; roses, feathered, unknown; and flamed, Mabel; byblœmens, feathered, Talisman; and flamed, Duchess of Sutherland.

Mr. W. Kitchen had the best three feathered Tulips, staging byblœmen, Typho; rose, Mrs. Sanders, a flower of decided promise; byblœmen, Violet Amiable. 2nd, Mr. R. Wolfenden, with bizarre, Masterpiece; roses, unnamed; byblœmen, Mrs. Jackson. 3rd, Mr. S. Barlow, with bizarre, Sulphur; rose, Annie McGregor; and byblœmen, Tiggs Seedling. Mr. H. Housley had the three best flamed Tulips, staging bizarre, Sir J. Paxton; rose, Mabel; byblœmen, Queen of May.

The class for two Tulips for maiden growers—a maiden grower being one who has not hitherto won in prizes the amount of his annual subscription, brought two competitors, Mr. C. Needham, Royton, being 1st, and Mr. J. W. Bently, Thornham, 2nd, with unnamed flowers.

In the open class for two blooms, one feathered and one flamed, Mr. S. Barlow was 1st with bizarre flamed, Sir J. Paxton; and byblœmen, feathered, unknown; 2nd, Mr. W. Kitchen, with bizarre, feathered, Lord Lilford; bizarre, flamed, Dr. Hardy.

In the classes for single blooms, the awards went as follows:—Bizarre feathered: 1st, Royal Gem; 2nd, Typho; 3rd, Royal Gem; 4th, Lord Lilford. Bizarre, flamed: 1st and 2nd, Sir J. Paxton; 3rd and 4th, seedlings. Roses, feathered: 1st, Heroine; 2nd, Alice; 3rd and 4th, unnamed. Roses, flamed: 1st, Mabel; 2nd, Henriette; 3rd, Mabel; 4th, Madame de St. Arnaud. Byblœmen, feathered: 1st and 2nd, seedlings; 3rd, Amazon; 4th, Louisby Castle. Byblœmen, flamed: 1st, seedling; 2nd, Queen of May; 3rd and 4th, seedlings.

The Premier feathered Tulip was rose Mrs. Sanders, shown by Mr. Kitchen, raised by Oldfield, of Bollington, pure ground, marked with rosy-red; very correct. The premier flamed Tulip was bizarre Sir J. Paxton, shown also by Mr. W. Kitchen.

Breeder Tulips.—Mr. S. Barlow had the best six, staging bizarres: Dr. Hardy and Seedling; roses: Miss Coutts and Mrs. Barlow; byblœmen: David Jackson and Seedling. 2nd, Mr. W. Kitchen, with bizarres: Sir J. Paxton and Sulphur; roses: Annie McGregor and Rose Hill Seedling; byblœmen: Philip I. and Seedling. Mr. Barlow had also the best three breeders, one in each class. Bizarre: Hepworth Seedling; rose: Hepworth Seedling; and byblœmen: Martin's 117. 2nd, Mr. W. Kitchen, with bizarre: Sir J. Paxton; rose: Annie McGregor; byblœmen: Seedling. The best bizarre breeders were seedlings or unnamed, and the same can be said of the roses and byblœmens.

The premier breeder was a very bright flower of rose: Annie McGregor, shown by Mr. W. Kitchen, and of a soft pinkish rose colour.

THE LONDON AGRICULTURAL SEED TRADE ASSOCIATION.

The annual dinner of the above body was held at the Holborn Restaurant on Monday, June 3, when F. J. Howson, Esq., Huntingdon, occupied the chair. Among those present were W. Neustetel, Esq., vice-chair; Thomas Thornton, Esq., N. Sherwood, Esq., Arnold Mass, Esq., Colonel Dickie, Kilmarnock; Wm. James McHenry, Esq., and Rudolph David, Esq. The usual loyal and patriotic toasts, &c., having been given and responded to, the toast of the evening—that of the prosperity of the London Agricultural Seed Trade Association, was very ably proposed by the Chairman, who said:—

The Association has done very good work during the past year, in having issued a "warning" to Hamburgh and Breslau, as to the adulteration of Clover-seeds, several parcels of "doctored" Clover having reached this country from those places—there can be no doubt that this operates very seriously to the detriment of the English merchant and farmer, and I venture to think more particularly so, as regards the country merchant, as he has to compete against these adulterated seeds, which are mixed with English seeds, and can consequently be sold at a much cheaper rate than pure seed, and are not easy of detection. There is one suggestion I would like to make to the Committee of Direction of this Association which, if it could be carried out, would be a most material benefit to the trade. I consider it has always been a very weak point in the Clover seed business that there are no statistics at all as to the average production and consumption of native seed in this country, of the consumption and production in America, and also on the continent of Europe. I am quite aware that it is a subject fraught with a considerable amount of difficulty, but if only an approximate estimate could be arrived at, it would be an immense advantage. I found during the past season that the estimates of consumption in this country, formed by some of the best informed merchants, have varied to the extent of many hundreds of tons; when I first knew anything of the trade the duty on foreign Clover seed was 20*s.* per cwt., and then it was reduced to 10*s.*, at which it remained for some short time, and it was afterwards entirely repealed. Of course, at that time the quantity in

bond was always known, and the transit being so slow, a fair calculation of the foreign supply for any given year could be made. No doubt the Government of the day would give every facility for any slight alteration that might be necessary in the compilation of the agricultural returns. I merely throw out this hint, and I am sure it will be admitted by all that, if it could be worked out, it would benefit the trade immensely. I know no other trade without its statistics. I think we may congratulate ourselves on having had a very successful year, and it would have been very much more so for many of the country dealers had not a mine been suddenly sprung upon them in the discovery of an enormous speculative quantity of American red Clover in Hamburgh, which entirely upset all calculations, and caused serious losses here. I venture to think if we had had some reliable data to go upon, this might to some extent have been avoided. It has culminated in the usual state of the market. As soon as ever the seed is wanted for consumption, the market begins to droop, and continues lowering till the end of the season. This is so persistently the case, that it is becoming the rule with many to put off their purchases till the last moment, and looking at it very much from a country merchant's point of view, it becomes a very difficult matter to conduct a business profitably when you have to take seed from the farmer, as they bring it to market, and hold it till you get a chance of selling it.

VARIORUM.

BIG VINES.—A correspondent of *Tit Bits* records the following details relating to big Vines:—

"Pliny reports that at his time there existed at Populonium a statue of Jupiter made from one Vine, which, notwithstanding its antiquity, had remained intact. He adds that at Metapontum the temple of Juno was supported by columns made of Vine wood, and that in his day the ascent to the temple of Diana was accomplished by means of a staircase of which every step had been cut from one single Vine. The same author mentions a Vine which alone shaded the whole extent of the Promenade (or public walk) at the Porticoes of Livia, and which produced annually 22 jars, or about 700 quarts of wine.

"Sodenini relates that in his day there existed an enormous Vine, which spread its branches over an extent of 1000 fathoms; and Giovanini Targioni-Tozzetti signalised a Vine which grew wild in the woods, near Montabamboli, the trunk of which two men could not clasp.

"It is a known fact that the doors of the cathedral of Ravenna are made of Vine wood; and in the Botanical Gardens of Pisa may yet be seen the trunk of a Vine which existed in the Maremma, where it had been uprooted by the storm of 1787, and which does not measure less than 5½ feet in circumference.

"Monsieur Joly, of the National Society of Horticulture of Paris, in a pamphlet recently published, speaks of a Vine of which the proportions are truly gigantic. Though but twenty-five years old, this Vine, growing at Montecito, California, already produces annually 6000 pounds of Grapes, and its enormous trunk supports several large branches which do not measure less than 20 to 24 inches in diameter.

"There was to be seen near that same locality, a few years ago, the famous Vine known as 'The Vine of the Mission.' Its branches were supported by an immense trellis-work, which covered a space of 10,000 feet square, and its annual yield rose to 10 and even 12,000 pounds of fruit. Its enormous trunk was cut in 1876, and sent to the Philadelphia Exhibition."

PINUS PONDEROSA.—The flat is about a mile and a half across along the trail, quite level, and composed of rich black soil, which no doubt at some time was a portion of the lake-bed. At the side nearest to the Kootenay River we came for the first time into the region of the Yellow Pine (Pinus ponderosa). These splendid trees grow in open order, the ground underneath them almost clear of everything except grass and small creeping berries. Their trunks, branchless for half their height, are covered with deeply-indented rough bark, of a rich reddish-brown colour, the lines of the dark cracks which score their sides giving them a singularly striking appearance. "*A Ramble in British Columbia*," *by J. A. Lees and W. J. Clutterbuck.*

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending June 10.	Temperature. Accumulated. Above 42°, for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1889.	Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1889.	Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	2 +	74	0	+ 145	+ 4	1 —	114	18.6	44	23
2	1 +	83	0	+ 76	+ 5	2 —	90	10.5	52	28
3	0 av.	88	0	+ 43	+ 6	2 —	84	9.9	45	26
4	1 +	106	0	+ 24	+ 112	13 +	89	11.1	30	27
5	2 +	114	0	+ 31	+ 60	1 —	83	14.0	33	25
6	4 +	131	0	+ 40	+ 75	2 +	85	10.7	31	26
7	2 +	92	0	+ 84	— 23	4 —	97	18.1	60	29
8	1 +	103	0	+ 59	— 1	3 —	90	12.9	51	28
9	2 +	115	0	— 22	+ 88	4 —	85	15.0	49	32
10	1 —	84	0	+ 40	— 53	6 —	106	15.6	61	25
11	1 —	92	0	+ 3	— 14	6 —	96	16.0	61	31
12	1 +	111	0	+ 35	— 16	3 +	93	10.9	21	36

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending June 10, is furnished from the Meteorological Office:—

"The *weather* has been generally fine and dry over Ireland, Scotland, and the western parts of England; over eastern, southern, and central England, however, the fine, bright weather which prevailed during the earlier days of the period was succeeded by very severe thunderstorms and extremely heavy, but local, falls of rain. During the storm of the 6th, the lightning was unusually vivid and frequent.

"The *temperature* was very high during the earlier part of the week, but subsequently fell quickly and became low, especially over our southern and eastern districts. On the 6th the maxima over central, southern, and south-west England varied from 80° to 83°, while in most other parts of the kingdom readings ranging from 75° to 79° were recorded, but on the 10th the thermometer at many of our south-eastern and eastern stations did not exceed 52°. The lowest of the minima, which were registered on the 8th in Ireland and during the early morning of the 10th over Great Britain, ranged from 37° or 38° in most of the western and northern districts to 47° in the 'Midland Counties,' and 'England, S.,' and to 52° in the 'Channel Islands.' Over the central parts of northern Scotland the minima were much lower; at Lairg the sheltered thermometer fell to 29°. The average temperature for the week has again been rather above the mean in Scotland and in nearly all the English districts, while in Ireland a slight deficit is shown.

"The *rainfall* has been greatly in excess of the mean in 'England, E.,' and rather so in 'England, S.' and the 'Channel Islands,' but in all other districts it has been less.

"*Bright sunshine* has been more prevalent than it was last week in most parts of the kingdom, but less over southern, central, and eastern England, as well as in the 'Channel Islands.' The percentage of the possible amount of duration ranged from 44 to 60 in Scotland, and was as high as 61 in Ireland; but over England it ranged from 31 in the south to 51 at the north-west stations. In the 'Channel Islands' the percentage was only 21."

MARKETS.

COVENT GARDEN, June 13.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

MARKET quieter this week; prices unaltered. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, half-sieve...	2 0– 4 0	Lemons, per case ...	12 0– 21 0
— Canada and Nova Scotia, per barrel	10 0– 17 0	Peaches, per doz. ...	6 0–24 0
Gooseberries, ½-sieve	4 6– 5 6	Pine-apples, Eng., lb.	1 6– 2 0
Grapes, per lb. ...	2 0– 4 0	— St. Michael, each	2 0– 8 0
		Strawberries, per lb.	2 0– 5 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English, per 100	6 0– ...	Lettuce, per dozen ...	1 6– ...
— French, bundle	2 0– 8 0	Mushrooms, punnet	1 6– ...
Beans, Jersey French, per lb.	3 6– ...	Mustard and Cress, punnet	0 4– ...
Beet, red, per dozen	1 0– 2 0	Onions, per bunch ...	0 5– ...
Carrots, per bunch...	0 6– ...	Parsley, per lb. ...	0 6– ...
Cauliflowers, each ...	0 6– ...	Peas, French, per qt.	3 0– ...
Celery, per bundle ...	1 6– 2 0	Potatos, new Fr., lb.	0 3– ...
Cucumbers, each ...	0 6– 0 9	Rhubarb, bundle ...	0 6– ...
Endive, per dozen ...	2 6– ...	Shallots, per lb. ...	0 6– ...
Green Mint, bunch...	0 4– ...	Spinach, per bushel...	2 6– ...
Herbs, per bunch ...	0 4– ...	Tomatos, per lb. ...	2 0– ...
Leeks, per bunch ...	0 3– ...	Turnips, per bunch, new	1 0– ...

POTATOS.—Beauty of Hebron, 40*s.* to 50*s.*; Dunbar Magnums, 40*s.* to 60*s.*; Malta almost finished; Cornish, 10*s.* to 12*s.*; Jerseys, 9*s.* to 12*s.* Supply of Potatos short, demand firm, and likely to continue.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Fuchsias, dozen ...	3 0– 8 0
Arum Lilies, p. doz.	6 0–12 0	Hydrangea, per doz.	12 0–18 0
Begonias, dozen ...	4 0–12 0	— paniculata, p. doz.	24 0–36 0
Calceolarias, dozen	6 0– 9 0	Lobelias, dozen ...	3 0– 5 0
Cineraria, per dozen	4 0– 6 0	Marguerites, doz. ...	6 0–12 0
Cyperus, per dozen .	4 0–12 0	Mignonette, doz. ...	4 0– 9 0
Dracæna terminalis, per dozen ...	...30 0–60 0	Musk, dozen ...	2 0– 4 0
— viridis, per doz.	12 0–24 0	Nasturtiums, doz. ...	3 0– 5 0
Erica, various, doz.	12 0–30 0	Palms in var., each	2 6–21 0
Euonymus, in var., per dozen	6 0–18 0	Pelargoniums, per dozen	6 0–15 0
Evergreens, in var., per dozen	6 0–24 0	— Ivy-Leafed, doz.	3 0– 6 0
Ferns, in var., doz.	4 0–18 0	— scarlet, doz. ...	2 6– 6 0
Foliage plants, various, each	2 0–10 0	Roses, H.P., doz. ...	12 0–24 0
Ficus elastica, each .	1 6– 7 0	— Fairy, doz. ...	6 0– 9 0
		Spiræa, doz.... ...	9 0–15 0
		Stocks, dozen ...	4 0– 6 0

BEDDING PLANTS in variety from 1*s.* per doz.; per box, 1*s.* 6*d.* to 2*s.* 6*d.*

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilons, 12 bun. ...	2 0– 4 0	Pansies, 12 bun. ...	1 0– 3 0
Anemone, 12 bun....	1 0– 3 0	Pæonies, bun. ...	0 4– 0 8
Arum Lilies, 12 blooms	2 0– 4 0	Pelargoniums, 12 spr.	0 6– 1 0
Azaleas, 12 sprays ...	0 6– 1 0	— scarlet, 12 spr....	0 4– 0 6
Bouvardias, per bun.	0 6– 0 9	Polyanthus, 12 bun.	2 0– 4 0
Carnations, 12 blms.	1 0– 2 0	Primulas, dbl., 12 sp.	1 0– 1 6
Cornflowers, 12 bun.	2 0– 4 0	Ranunculus, 12 bun.	1 6– 3 0
Eucharis, per dozen	3 0– 6 0	Roses, Tea, per doz.	1 0– 3 0
Gardenias, 12 blooms	2 0– 4 0	— coloured, dozen.	2 0– 4 0
Heliotropes, 12 spr.	0 6– 1 0	— red, per dozen ...	0 9– 2 0
Iris, 12 bunches ...	4 0–12 0	— Safrano, dozen...	0 6– 1 0
Lilac, white Fr., bun.	3 0– 5 0	— Moss, 12 bun. ...	6 0–12 0
Maiden Hair Fern, 12 bun.	4 0– 9 0	Pinks (var.), 12 bun.	3 0– 6 0
Marguerites, 12 bun.	3 0– 6 0	Spiræa, 12 bun. ...	6 0– 8 0
Mignonette, 12 bun.	3 0– 6 0	Stephanotis, 12 spr.	2 0– 4 0
Narcissus, double, 12 bunches... ...	4 0– 6 0	Sweet Sultan, 12 bun.	4 0– 6 0
		Sweet Peas, 12 bun.	3 0– 8 0
		Tuberoses, 12 blms....	1 0– 2 0

SEEDS.

LONDON: *June* 12.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that the seed market to-day, as might be expected, was of quite a holiday character. Just now the consumptive wants are *nil*, whilst of speculation there is a complete absence. Mustard and Rape seed move off slowly on former terms. There is still a good inquiry for large blue Peas. Bird seeds show no quotable variation.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended June 8:—Wheat, 28*s.* 9*d*; Barley, 20*s.* 9*d.*; Oats, 18*s.* 11*d.* For the corresponding week in 1888:—Wheat, 31*s.* 8*d.*; Barley, 24*s.* 8*d.*; Oats, 16*s.* 7*d.*

FRUITS AND VEGETABLES.

Spitalfields, *June* 12.—American Apples 12*s.* to 16*s.* 6*d.* per barrel; Gooseberries, 2*s.* 9*d.* to 3*s.* 3*d.* per half-sieve; Asparagus, 1*s.* to 1*s.* 9*d.* per bundle of 100 heads; Cabbages, 2*s.* to 4*s.* per tally; Radishes, 3*s.* to 4*s.* do.; Cauliflowers, 2*s.* to 6*s.* do.; Greens, 1*s.* to 2*s.* per dozen bunches; Spinach, 9*d.* to 1*s.* per bushel; Turnips, 3*s.* 6*d.* to 4*s.* 6*d.* per dozen bunches; Carrots, 1*s.* 3*d.* to 1*s.* 9*d.* do.; Parsley, 1*s.* 6*d.* to 2*s.* do.; Horseradish, 1*s.* 6*d.* per bundle; Mint, 1*s.* 6*d.* to 2*s.* per dozen bunches; Rhubarb, 1*s.* to 1*s.* 6*d.* per dozen bundles; Peas, 6*s.* to 8*s.* per bushel; Endive, 1*s.* to 1*s.* 6*d.* per dozen; Leeks, 1*s.* to 2*s.* do.; Mustard and Cress, 1*s.* 6*d.* to 2*s.* per dozen baskets; Spring Onions, 1*s.* 6*d.* to 2*s.* per dozen bunches; Spanish Onions, 5*s.* to 6*s.* per case; Bordeaux Onions, 4*s.* to 4*s.* 6*d.* do.; Cucumbers, 1*s.* to 4*s.* per dozen; Beetroots, 1*s.* do.; Coss Lettuce, 10*d.* to 1*s.* 3*d.* per score; Cabbage Lettuce, 4*d.* to 6*d.* per dozen; Carrots, 28*s.* to 32*s.* per ton; Mangolds, 16*s.* to 18*s.* do.; Seakale, 1*s.* 3*d.* to 1*s.* 6*d.* per punnet.

Stratford, *June* 11.—Cabbages, 4*s.* to 4*s.* 6*d.* per tally; Turnips, 4*s.* per dozen bunches; Mangolds, 14*s.* to 15*s.* per ton; Swedes, 14*s.* to 16*s.* do.; Onions, Egyptian, 5*s.* to 6*s.* per bag; Watercress, 6*d.* per dozen bunches; Cherries, 4*s.* 6*d.* per basket; Cucumbers, 2*s.* to 6*s.* per dozen; Beetroots, 6*d.* to 1*s.* per score; Lettuce, 1*s.* to 1*s.* 9*d.* do.; Sage, 4*s.* per dozen; Peas, 6*s.* per bushel; do. 10*s.* per bag; Carrots, 3*s.* per dozen bunches.

POTATOS.

Borough and Spitalfields: *June* 11.— A steady demand and prices fairly supported. Scotch Regents, 80*s.* to 125*s.*; English, 60*s.* to 105*s.*; Magnum Bonums, 65*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.*; other varieties, 60*s.* to 80*s.* per ton.

Spitalfields: *June* 12. — Quotations: — New: Lisbon rounds, 5*s.* to 6*s.* per cwt.; Jersey kidneys, 9*s.* 6*d.* to 11*s.* do.; do., flukes, 10*s.* to 12*s.* do. Old: English Regents, 60*s.* to 100*s.*; do. Magnums, 55*s.* to 75*s.*; Champions, 55*s.* to 65*s.*; Imperators, 65*s.* to 80*s.*; Hebrons, 50*s.* to 60*s.*; Early Rose, 45*s.* to 55*s.* per ton.

Stratford: *June* 11.—Quotations:—Old: Magnums, 50*s.* to 70*s.*; Hebron, 40*s.* to 50*s.*; Imperators, 50*s.* to 60*s.* per ton. New: Lisbons, 6*s.* 6*d.* to 7*s.*; do. Jersey, 10*s.* to 12*s.*; do. Maltese, 7*s.* to 8*s.*; do. Flukes, 9*s.* to 10*s.*; do. St. Malo's, 8*s.* to 9*s.* per cwt.

HAY.

Averages.—The following are the averages of the prices paid at the various metropolitan markets during the past week:—Prime old Clover, 120*s.* to 144*s.*; do., new, 85*s.* to 110*s.*; inferior, 45*s.* to 75*s.*; prime old meadow Hay, 92*s.* to 112*s.*; do., new, 80*s.* to 100*s.*; inferior, 20*s.* to 70*s.*; straw, old, 40*s.* to 45*s.*; do. new, 24*s.* to 40*s.* per load.

NOTICES TO CORRESPONDENTS.

Campanula Portenschlagiana: *L.* Portenschlag was an Austrian botanist, who collected Dalmatian plants, and published a list of them. He died in Vienna about 1820.

Cucumbers and Peas: *St. Johns.*' Your Cucumbers are attacked by the root-worm so often figured and referred to in our columns. Burn the plants, and start again with fresh soil. The outgrowth on the Pea-roots are always found in Peas, Beans, &c., and are not known to do any harm. Their failure must be due to some other cause.

Fungus: *G. P., Knaresboro'.* The name of the fungus is Peziza vesiculosa, common on dungy places, rich soil, &c., in gardens, &c. Correspondents should not follow the example of "G. P.," and send fungi enveloped in wool. It is easy to put fungi into this material, but impossible to get them out. *W. G. S.*

Gardeners' Royal Benevolent.—Received, D. T. F., £1. Many thanks.

Insects: *R. H.* The objects on your trained Rose are females of a coccus, full of eggs. They should be carefully picked off and burnt, and the affected parts washed with weak methylated spirit, to kill the young if already hatched. *I. O. W.* — *J. A. C.* The caterpillar which feeds on your Roses is that of the mottled Umbre moth, Hybernia defoliaria. *I. O. W.*—*Empatorium.* The blotches on the leaves sent are caused by the parenchyma in those spots having been devoured by the minute larvæ of a Dipterous fly. Pick off and burn the worst affected leaves at once, before the fly is developed; and others should be sharply pinched, so as to kill the larvæ. The specimens sent were completely smashed in the post. *I. O. W.*

Names of Plants: *W. T. T.* We cannot name the plants from single leaves. — *G. P.* Calycanthus floridus.—*K.* Calliphruria Hartwegiana.—*B. S.* 1, and 2, Anthurium Scherzerianum; 3, Hemerocallis flava; 4, Allium Moly; 5, Cotoneaster Simonsi.—*G. A.* 1, 2, 3, Cactuses, next week; 4, Orchis pyramidalis.—*J. J. Walton.* Aceras anthropophora. The fungus is Phallus impudicus.—*E. D. L.* 1, Rhododendron triflorum; 2, Orchis foliosa; 3, Viola elatior; 4, Discaria Toumatou; 5, Rhamnus frangula; 6, R. alpinus; 7, Pyrus Aria.—*C. H. H.* Lilium pyrenaicum.—*W. H. E.* Material insufficient for determination.—*A. B.* 1, specimen insufficient; 2, Saxifraga hypnoides; 3, S. cuneifolia.

Daisies, Plantains, and other Plants on Lawns: *Enquirer.* At this season of the year, Watson's lawn sand is the best thing to use. It acts by increasing the closeness and vigour of the grasses, thereby smothering the weeds which are generally in the minority. Large Plantains must be spudded out. If resowing in autumn or spring is objected to, the nexe best plan is to destroy with sulphuric acid the larger daisies, thistles, &c., in the late winter, and give the lawn a dressing of burnt earth, loam, and wood ashes, finely sifted before applying it, and sow a well cleaned mixture of grass seeds, Trifolium minus, and T. repens. The best grasses for the purpose are Festuca duriuscula, 4 lb.; F. tenuifolia, 1½ lb.; Poa nemoralis, 1½ lb., if shaded with trees a little more; the Trifoliums, 2 lb. each.

Pea with Triangular Pods: *C. D. S.* Yes, we should like to see it.

Plumbago Leaves Injured: *W. L.* The work of thrips.

Rose Maréchal Niel: *J. K.* Very good flowers.

Seeds: *W. M.* It is not an unusual thing for the seeds of Melons to germinate within the fruit. Great warmth is the predisposing cause.

CATALOGUE RECEIVED.

E. P. Dixon & Sons, 57, Queen Street, Hull—New Plants, Chrysanthemums, &c.

Communications Received. — R. J. Yorath.—W. R.—H. Allnut.—D. A.—H. W. W.—E. D.—J. S.—I. R. I.—J. E.—W. B. Hartland.—J. Allen.—C. O.—H. J. C.—W. R.—H. W. W.—E. D.—J. S.—J. R. J.—G. W.—W. T.—C. W. D.—P. L. S., next week.—E. C.—M. Temple.—F. R.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquiries in the current week.*

ENQUIRIES.

"He that questioneth much shall learn much."—Bacon.

Wireworm in Asparagus Beds. — I have an amateur friend who has six Asparagus beds, 20 yards long, 5 feet wide, which are very much infested with wireworm; so much so that it appears as if the beds would be ruined. He dressed them last autumn with 3 cwt. of salt and 5 bushels of soot. I suggested that he should draw off the soil as near to the roots as possible, and dress the beds in the spring with 10 cwt. of salt, and increase the amount of soot as well, as it was thought that a great quantity of salt would have the effect of destroying the wireworm. I shall be pleased to have the opinion of any correspondents of the *Gardeners' Chronicle* who may have had a similar case to deal with. *W. R.* [Miss Ormerod, in her book on injurious insects, recommends parafin at the rate of 1 to 15 of water. Ed.].

PASTUPLANTA, the best Artifoial Manure. It enriches the soil with the fertilisers drawn from it by plants; no unpleasant smell; admirably adapted for all pot plants. In bags: 112 lb., 19*s.*; 56 lb., 11*s.* 3*d.*; 28 lb., 6*s.* 9*d.*; 14 lb., 4*s.*; 7 lb., 2*s.* 3*d.* In tins, 1*s.* each. Sole Manufacturers, PHILIP HARRIS and CO. (Limited), 9, Bull Ring, Birmingham.

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PEAT, best black fibrous ... 4*s.* 6*d.* ,, 5 sacks for 20*s.*
PEAT, extra selected Orchid 8*s.* 6*d.* ,, 5 sacks for 40*s.*
LOAM, PREPARED COMPOST } 1*s.* per bush., 3*s.* per sack
LEAF, or PEAT MOULD ... } (sacks included).
SILVER SAND, coarse, 1*s.* 6*d.* per bush., 14*s.* half-ton, 24*s.* ton.
RAFFIA FIBRE, best only ... ... 1*s.* per lb.
TOBACCO CLOTH, or PAPER ... ... 1*s.* lb.; 28 lb., 27*s.*
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CRUSHED BONES, or Bone Dust 1/2 2/- 3/6 6/- 12/-
VIRGIN CORK (Best Quality only) — 3/- 5/6 10/6 17/-
RUSSIAN MATS, BAMBOO CANES, PERUVIAN GUANO, NITRATE of SODA, HORTICULTURAL CHARCOAL, &c.
PEAT MOSS LITTER, cheapest and best Bedding for Horses and Cattle, £2 per ton. Extra large Sample Bales, 6*s.* each. Also prepared for Poultry Pens, Rabbits, &c., in Sacks, 1*s.* 6*d.* each; 10 Sacks, 12*s.* 6*d.*; 20 Sacks, 23*s.*
COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1*s.* 4*d.* each; 10 sacks, 12*s.* 6*d.*; 15 sacks, 17*s.* 6*d.*; 20 sacks, 20*s.*; 25 sacks, 24*s.*; 30 sacks, 27*s.*; 40 sacks, 35*s.*; 50 sacks, 40*s.*; Truck-load, loose, free on rail, 30*s.* Limited quantities of G., special quality granulated, in sacks only, 2*s.* 6*d.* each.
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It contains no needless matter.

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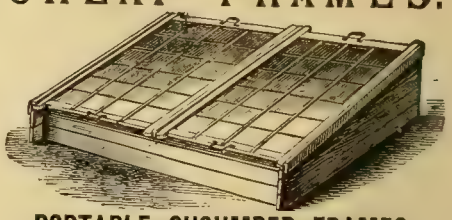
To Nurserymen, Seed Merchants, and Florists.
J. BLACKBURN AND SONS are offering Archangel Mats lower than any other house in the trade; also Petersburg Mats and Mat Bags, Raffia Fibre, Tobacco Paper, and Shading. Prices free.—4 and 5, Wormwood Street, E.C.

HY. VAN & CO.

(The Oldest London House in the Trade, Estd. 1780),
25, Tooley Street, London Bridge, S.E.
PROTECTION for FRUIT and FLOWERS.
GARDEN NETTING, 2 yards wide, 1½d., or per 100 yards, 10s.; ditto, 4 yards wide, 3d., or per 100 yards, 20s.
SCRIM CANVAS, 1 yard wide, 3d., and 2 yards, 6d. per yard.
TIFFANY, 38 inches wide, in 20 yard pieces, 3s. 6d. per piece.
SHADING BLINDS made up any size.
RICK CLOTHS, TARPAULINS, Corn and Potato SACKS, for Sale or Hire.
TENT, MARQUEE, and FLAG Makers.
Illustrated CATALOGUE post-free.
TOBACCO, RAG and PAPER, VIRGIN CORK, RAFFIA, and Garden MATS of all kinds.

TANNED NETTING, 2 yards wide, 1½d. per yard, 10s. per 100 yards; 4 yards wide, 3d. per yard, 20s. per 100. NEW TWINE NETTING, 1 inch mesh, 1 yard wide, 2d.; 2 yards wide, 4d.; 4 yards wide, 8d. per yard. COTTON NETTING, 54 inches wide, 9 meshes to square inch, 7d. per yard—best article to protect Fruit Trees, &c. HEXAGON NETS, 72 meshes to inch, 4½d. per yard.
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PORTABLE CUCUMBER FRAMES.

R. HALLIDAY AND CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.
Prices delivered free to any station in England.

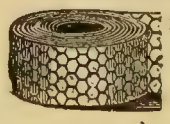
		£	s.	d.
1-light frame, 4 ft. by 6 ft.	Carriage and Packing Cases FREE.	2	0	0
2-light frame, 8 ft. by 6 ft.		3	2	6
3-light frame, 12 ft. by 6 ft.		4	15	0
6-light frame, 24 ft. by 6 ft.		8	10	0

Larger sizes at proportionate prices.

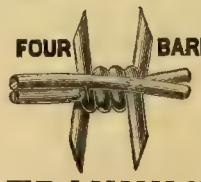
R. HALLIDAY & CO.,
Hothouse Builders and Engineers, Royal Horticultural Works,
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London Agent—Mr. H. SKELTON, Seedsman, &c., 2, Holloway Road, N.

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Greatly reduced prices per roll of 50 yards.
FOR CASH WITH ORDER.



Mesh. in.	2ft. wide. s. d.	3ft. wide. s. d.	4ft. wide. s. d.	6ft. wide. s. d.
3	3 4	5 0	6 8	10 0
2	4 6	6 9	9 0	13 6
1½	6 0	9 0	12 0	18 0
1	8 0	12 0	16 0	24 0



STEEL BARB WIRE.

		s. d.
100 yd. Reels	...	... 6 0
265 ,, ,,	½ cwt.	... 12 6
530 ,, ,,	1 cwt.	... 23 0

SPECIAL QUOTATIONS FOR LARGE QUANTITIES.

TRAINING TRELLISES
No. 81. GALVANISED AFTER MADE.



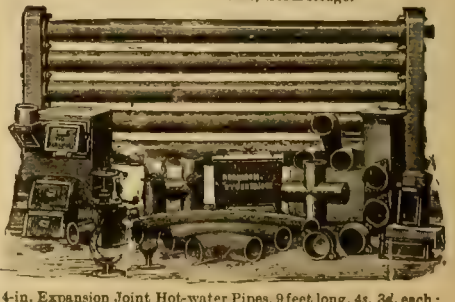
For training Peas instead of sticks. Training plants to walls, &c. IN PANELS.
6 feet by 3 feet ... 2s. each.
6 feet by 4 feet ... 3s. each.
6 feet by 5 feet ... 4s. each.
6 feet by 6 feet ... 5s. each.
Made any size to order at following prices:—

6 in.	4 in.	3 in.	2 in.	1½ in. mesh.
2d.	3d.	3½d.	4d.	4½d. per foot super.

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4-in. Expansion Joint Hot-water Pipes, 9 feet long, 4s. 3d. each; 4-in. Socket Hot-water Pipes, 9 feet long, 4s. 6d. each.
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Has an open steel roller.

A man can work a 24-inch machine.

There is no easier working, no better finished, no stronger, no more durable mower in the market.

The Front Roller, with simple adjustment for regulating height of cut, enables the machine to cut close to the ground, and to do fine work, besides adapting it for verge cutting.

To be obtained through all the leading Ironmongers or Seedsmen, or from the Sole Licensees,

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FOR PACKING PURPOSES.
Samples with Prices post-free on application.
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PROTECT YOUR GARDENS. — Strong NETTING, 35 square yards for 1*s.*, is oiled and dressed, will not rot if kept out in all weathers; sent any width on approval; carriage paid on all orders over 5*s.* COMMON NETTING at 50 square yards for 1*s.* Hundreds of testimonials.
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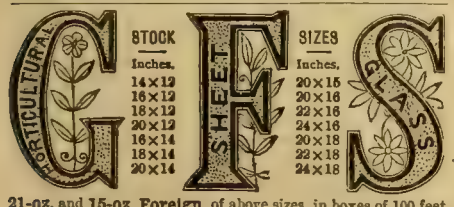
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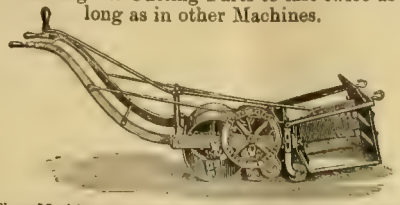
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21-oz. and **15-oz. Foreign,** of above sizes, in boxes of 100 feet and 200 feet super.
English Glass, cut to buyers' sizes, at lowest prices, *delivered free and sound* in the country, in quantity.
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THE ONLY LAWN MOWER FITTED WITH
DOUBLE-EDGED SOLE PLATE,
Enabling the Cutting Parts to last twice as long as in other Machines.



These Machines are strong and substantial, and very easily worked. They make the Lawn like velvet, and are not liable to get out of order.
ILLUSTRATED CIRCULARS, with full particulars of Machines, for Hand, Pony, and Horse power, sent free on application.

NEW LIGHT MACHINE, 1889.



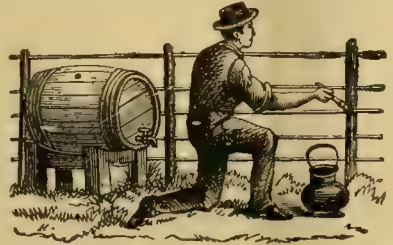
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VERY EASY TO WORK.
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GARDEN ROLLERS OF ALL SIZES.

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A Large Stock of all sizes of Machines always kept in LONDON, where Repairs are also executed by experienced workmen.

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GLASS.—CHEAP GLASS.
8s. 6d. per 100 feet 15 oz. 12×10, 18×12, 18×14, 24×14, 14×12, 20×12, 18×16, 24×16,
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Putty, 6*s.* 6*d.* per cwt.; White Lead, genuine, 21*s.*; Our Specialty, 17*s.* 6*d.* per cwt.; Paints ground in Oil, Stone Ochre, 20*s.*; Oxford Ochre, 24*s.*; Green, 16*s.*; Black, 16*s.* per cwt.; Varnish, from 5*s.* 6*d.* per gal. Paints and Varnish at very low prices. ⅞ Flooring at 7*s.* 3*d.* per square; Matching at 5*s.* 9*d.*; 3×9 at 2½*d.* per foot run; 2×4 at ⅝*d.* Doors, Mouldings, Greenhouse Bars, Ironmongery Goods, &c. Full Price List on application to **THE CHEAP WOOD COMPANY,** 72, Bishopsgate Street Within, London, E.C.

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BLACK VARNISH
for Preserving Ironwork, Wood, or Stone.



(Registered Trade Mark.)
An excellent substitute for oil paint, at one-third the cost. Used in all London Parks, at Windsor, and Kew Gardens, and on every important estate in the Kingdom. Has stood the test of forty years' trial. Requires no mixing; can be applied cold by any ordinary labourer.

Price 1*s.* 6*d.* per gallon at the manufactory, or carriage-paid to any railway station, 1*s.* 8*d.* per gallon in casks of 36, 20, or 10 gallons.

CAUTION.—Every Cask bears the above Registered Trade Mark. Beware of cheap imitations.

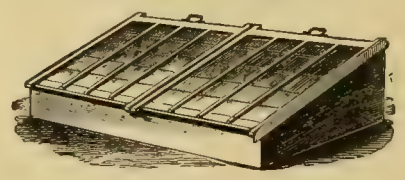
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EXCELSIOR.
STRONG, SIMPLE, EASY TO WORK,
BEAUTIFULLY MADE,
WELL FINISHED.



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MAKES the LAWN look like VELVET. Winner of every FIRST PRIZE in open Competitions for many years.
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BOULTON & PAUL,
HORTICULTURAL BUILDERS, **NORWICH.**

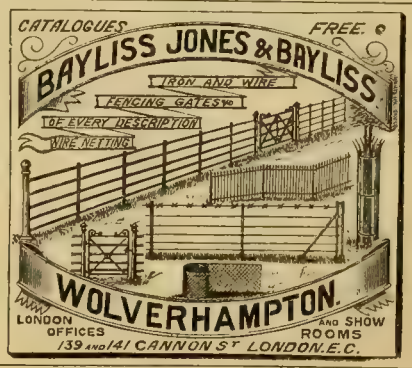


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A large stock of the Frames ready, made of the most durable red deal, and are the best to be had. The Frames are of 1¼ inch boards, 24 inches high at back, and 13 inches high in front, bolted at the corners, easily taken to pieces if required. The Lights are 2 inches thick, with iron bar across, and one handle at the top. Glazed with best English 21-oz. glass, and painted four coats.

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3 " "	12 "	by 6 "		4 5 0
4 " "	16 "	by 6 "		5 10 0
5 " "	20 "	by 6 "		6 15 0
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"FRIGI DOMO"
REGISTERED TRADE MARK
FOR PRICE LIST & PARTICULARS ADDRESS
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THE GARDENERS' CHRONICLE

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8	„ ..	0	5	0	19	„ ..	0	10	6
9	„ ..	0	5	6	20	„ ..	0	11	0
10	„ ..	0	6	0	21	„ ..	0	11	6
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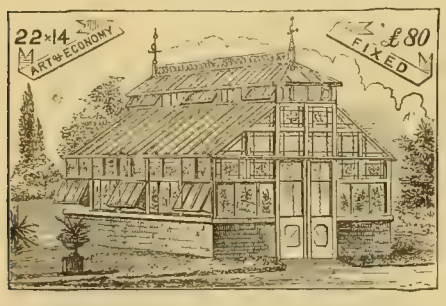
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Glasshouses of every description, in Wood or Iron, erected in any part of the kingdom. First-class workmanship and the very best materials at the lowest possible prices.
Price Lists, Plans, and Estimates Free.

THE BEST REMEDY FOR INDIGESTION.

TRADE NORTON'S MARK.

CAMOMILE PILLS.

Are confidently recommended as a simple but certain remedy for

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See Testimonial, selected from hundreds:—
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"Having been a sufferer from Indigestion for many years, I am happy to say that I have at last not only been relieved but perfectly cured by using Norton's Pills, and confidently recommend them to all suffering from the same.
"J. WILKINSON."

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SOLD EVERYWHERE, price 1*s.* 1½*d.*, 2*s.* 9*d.* and 11*s.*

WILLIAMS' SPECIALTIES. — Patent SUPPORTS for securing all kinds of Flowers and Plants without tying, Patent "METEOR" SYRINGES, TRAINERS for Climbing Plants, FLOWER SHADES, &c. Illustrated Price List post-free.— WILLIAMS, BROTHERS, AND CO., 81, Pershore Street, Birmingham.

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EPPS'S
GRATEFUL—COMFORTING.
COCOA
MADE WITH BOILING MILK.

"The best book on general practical horticulture in the English language."—*Gardeners' Chronicle.*

In One Large Volume, Cloth, price 35s.
THE
GARDENERS' ASSISTANT,
Practical and Scientific.

A Guide to the Formation and Management of the Kitchen, Fruit, and Flower Gardens, and the Cultivation of Conservatory, Greenhouse, and Stove Plants.

By ROBERT THOMPSON,
Of the Royal Horticultural Society's Gardens, Chiswick,
REVISED AND GREATLY EXTENDED BY
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Curator of the Chelsea Botanic Gardens, assisted by several eminent practical Gardeners.
ILLUSTRATED BY NUMEROUS ENGRAVINGS AND COLOURED PLATES.

London: BLACKIE & SON, 49 and 50, Old Bailey;
AND SOLD BY ALL BOOKSELLERS.

YOUNG LADIES who WANT TO BE INDEPENDENT, and make their own way in the world, should write for a Prospectus of the SCIENTIFIC DRESS CUTTING ASSOCIATION, 272, Regent Street, London, W. Situations for all Pupils at good salaries.

TOMATO DISEASE.—Advertiser, who is well up in Horticulture, Building and Repairing Greenhouses, wishes opportunity to demonstrate (at his own expense) cure or preventative of Potato and Tomato Disease.—CARTWRIGHT, Kent Arms, Bexley Heath, Kent.

WANTED, Man and Wife, without family, as GARDENER and COOK, in a Gentleman's family, in the neighbourhood of Dorking. Man must thoroughly understand Kitchen and Flower Gardens, and have some knowledge of Orchids. Board and residence in the house.—State wages required, ages, and references, to VEVEY, 40, Seething Lane, London, E.C.

WANTED, a SECOND GARDENER, where four or five are kept. Must understand highest Culture of Flowers. Good character. £1 per week and bothy.—Apply by letter to W. CATTLEY, Beedingwood, Horsham, Sussex.

WANTED, an UNDER GARDENER, age 23, with good character and experience. Churchman.—State wages, and particulars of last place, to J. PARSONS, Esq., Tubury House, Abingdon.

WANTED, a young Man, as FOREMAN, not under 25 years of age. One that understands his work, and is sober, willing, and obliging. Wages 19*s.* per week, lodging, &c.—Apply to Mr. A. AGER, The Gardens, Fetcham Park, Leatherhead, Surrey.

WANTED, an INDOOR FOREMAN, well up in Growing Plants for Market.—Apply in own handwriting, stating age, wages, &c., to WILLIAM BARRON AND SON, Elvaston Nurseries, Borrowash, Derby.

WANTED, a first-class Out-door FOREMAN. —Must be thoroughly well up in Conifers, Roses, Rhododendrons, and Fruit Trees.—Apply, by letter, with full particulars, to W. BARRON AND SON, Elvaston Nurseries, Borrowash, Derby.

WANTED, a GROWER, where General Stuff is done.—Must be a thoroughly capable man; total abstainer preferred.—Apply at once, stating age, where lately employed, wages expected, &c , to GEO. PHIPPEN, F.R.H.S., Nurseryman and Florist, Reading, Berks.

WANTED AT ONCE, TWO young MEN, as JOURNEYMEN for the Houses, in a large Market Place. Wages, 14*s.* per week, with Bothy, &c. Also, TWO young MEN as IMPROVERS, 12*s.* per week, without Bothy.—J. McPHUN, Sipson, *vid* Slough.

WANTED, a hard working active young MAN, for Outdoor Department (Nursery, North Midland), with a thorough knowledge of Roses, Fruit Trees, Herbaceous Plants, and Flowers, must have had experience in Growing for a Market Nursery. Permanent situation to a suitable man. Wages 24*s.* a week.—Apply, by letter, to P. C., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a young MAN (under the Foreman), who has had experience in Propagation of Hardy Conifers, Rhododendrons, and other Shrubs. A Foreigner not objected to.—Address, with particulars, wages, &c., JNO. CARTER, Nursery, Keighley, Yorks.

WANTED, a young MAN, about 18 or 19. Inside and Outside Work. Total Abstainer. From the country preferred.—Apply by letter to J. TOWNSEND, Florist, &c., Victoria Road, Putney, S.W.

WANTED, good GRAPE THINNERS.—Apply to EDWARD BENNETT, The Vineyard, Potter's Bar, N.

WANTED, for a First-class West End Fruit and Flower Establishment, a thoroughly capable and experienced MAN, to fill the post of responsible Manager. The highest references as to character and ability indispensable.—Address, stating age, present engagement, and salary required to SECRETARY, 1, Clifford's Inn, Fleet Street, London, E.C.

Foreman, in Market Garden.

WANTED, a thoroughly competent and respectable MAN, to Superintend Work, and Packing for Market. Good character indispensable.—E. G., care of Mr. Chambers, Westlake Nursery, Spring Grove, Isleworth.

WANTED, a HANDY MAN, in Garden and Stables. To live in lodge, and Wife to attend Laundry.—H. GARLE, Enfield.

WANTED, a SHOPMAN, to Manage Small Provincial Florist's Business. Must be good Wreath and Bouquet Maker, and capable of Buying.—Apply by letter, stating salary required and references, to A. B., 2, Walbourne Villas, West Brighton.

WANTED, on a large Fruit Growing Establishment in the South of England, an industrious and capable young MAN of good character, who can Paint, Glaze, do Odd Jobs at Carpentering, and otherwise fill up his time. An abstainer preferred. Permanent employment will be given to a suitable person.—Address, stating age, wages required, and giving good references, SECRETARY, 1, Clifford's Inn, Fleet Street, London, E.C.

WANTED, a LADY, thoroughly skilled in the Making-up of First-class Bouquets, Sprays, Wreaths, &c., and of arranging Table and Drawing Room Decorations generally, to take charge of the Flower Department of a high class West-end Establishment in a fashionable neighbourhood. References as to character and ability of the highest order absolutely necessary.—Address, stating age, present position, and salary required, to SECRETARY, 1, Clifford's Inn, Fleet Street, E.C.

GARDENING APPOINTMENTS.

Mr. G. S. NEAL has been engaged as Head Gardener to Sir G. J. E. DASHWOOD, Bart., Kirtlington Park, Oxfordshire.

Mr. JOHN WHENHAM, for fifteen years in the service of the late MOLYNEUX GOLDINGHAM, Esq., of Anningesley Park, Chertsey, has been appointed Head Gardener to JOHN PARSONS, Esq., Ashurst Place, Langton, Tunbridge Wells.

WANT PLACES.

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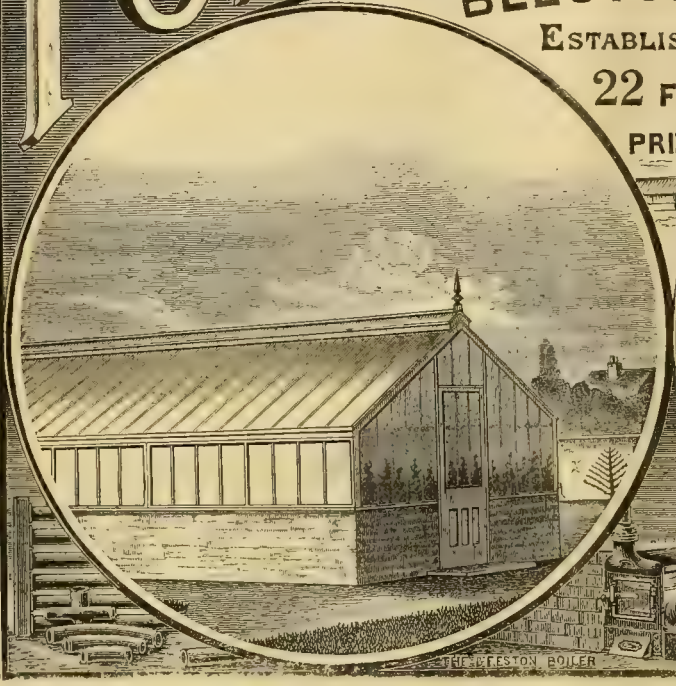
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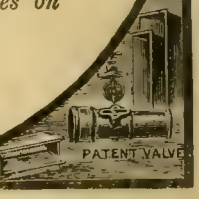
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G. C., June 15, 1889.

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Gardens, Regent's Park, N.W.
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SUTTONS' FLORISTS' FLOWER SEEDS.—Suttons' Perfection Calceolaria, 3*s.* 6*d.* and 5*s.* per packet; Sutton's Superb Cineraria, 2*s.* 6*d.* and 5*s.* per packet; Sutton's Prize Gloxinia, 2*s.* 6*d.* and 5*s.* per packet; Sutton's Prize Cyclamen, 2*s.* 6*d.* and 5*s.* per packet; Sutton's Prize Begonia, 2*s.* 6*d.* and 5*s.* per packet; Sutton's Superb Primula, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet. All Flower Seeds sent free by Post.
SUTTON'S SEEDS GENUINE ONLY DIRECT FROM SUTTON AND SONS, The Queen's Seedsmen, READING.

ORCHIDS, ORCHIDS.—Distinct kinds, selected not for botanical curiosities, but their beauty, either for cutting or house decoration and the best to grow; 6 for 15*s.*, 21*s.*, or 30*s.*; 12 for 30*s.*, 42*s.*, or 60*s.* CATALOGUE of these and all other plants free, for 3 stamps.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

LILY OF THE VALLEY.
First-class German flowering Crowns.
Any quantity.
H. DAMMANN, Jun.,
Breslau.

BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Tubers, Named Singles, from 12*s.* to 42*s.* per doz.; Unnamed Seedlings, 12*s.* to 21*s.* per doz.; Bedding, choicest, 6*s.* and 9*s.* per doz.; choicest Named Doubles, from 42*s.* per doz.; Unnamed, very choice, 24*s.* and 30*s.* per doz.; choicest Mixed, 18*s.* per doz. Order direct from us, to procure our splendid strain. CATALOGUES gratis.
JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

ROMAN HYACINTHS, NARCISSUS, LILIUMS, TUBEROSES, and many other FRENCH BULBS, grown and offered by LOUIS BREMOND, fils, Ollioules, France.
WHOLESALE LIST on application to WILLIAM DENMAN, 7, Catherine Street, Covent Garden, London, W.C.

PRIMULAS, Double White, 5*s.* per doz., 35*s.* per 100. Prices for quantities on application. Terms cash with order.
TAYLOR AND CO.,
Nurserymen, Timperley, Cheshire.

ORCHIDS.—Clean, well-grown plants, at low prices. Specimen Orchids a specialty. Price List free, JAMES CYPHER, Exotic Nurseries, Cheltenham.

PRIMULAS—PRIMULAS—PRIMULAS.—Twentieth year of distribution. Williams' Superb Strain, 1*s.* 6*d.* per dozen, 10*s.* per 100. CINERARIAS, same price; also double white PRIMULAS, 6*d.* each. Carriage free for cash with order.—JOHN STEVENS, The Nurseries, Coventry.

TOMATOS — TOMATOS — TOMATOS.—Very cheap. Plant now. The large red market variety, strong and sturdy Plants, 5*s.* per 100, 40*s.* per 1000. Cash only.
GEO. PHIPPEN, F.R.H.S., Grower, Reading, Berks.

WORTH £1 each. "GARDEN GUIDE," how and when to grow everything. Over 100 Illustrations. 7*d.* free. Best Brown Fibrous PEAT, 2*s.* 6*d.* per sack.
TURNER, Thatto Heath, St. Helens.

MATERIALS FOR SHADING GREENHOUSES, &c.—Tiffany, Scrim Cloth, Cotton Netting, Summer-Cloud, &c. Patterns and Priced List free on application.
DICKSONS (*Limited*), The Royal Seed Warehouse, CHESTER.

NICOTINE SOAP.—An effectual eradicator of all insect pests affecting plants, without injury to foliage. Jars, 1*s.* 6*d.*, 3*s.*, 5*s.* 6*d.*; Tins 15*s.* 6*d.*, 25*s.*, 95*s.*
All Seedsmen and Floriste.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

PASTUPLANTA, the best Artificial Manure. It enriches the soil with the fertilisers drawn from it by plants; no unpleasant smell; admirably adapted for all pot plants. In bags: 112 lb., 19*s.*; 56 lb., 11*s* 3*d.*; 28 lb., 6*s.* 9*d.*; 14 lb., 4*s.*; 7 lb., 2*s.* 3*d.* In tins, 1*s.* each. Sole Manufacturers, PHILIP HARRIS AND CO. (Limited), 9, Bull Ring, Birmingham.

SALES BY AUCTION.

Thursday Next.—(Sale No. 7945).
CHOICE ESTABLISHED and IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 27, at half-past 12 o'Clock precisely, several hundred lots of choice ESTABLISHED ORCHIDS, comprising rare species and fine varieties, many in Flower and Bud, and others that have not yet flowered in this country. Also various IMPORTED ORCHIDS, received direct.

On view morning of Sale, and Catalogues had.

Gunnersbury House, Acton, W.

UNRESERVED SALE of the remaining superior FURNITURE, STOVE and GREENHOUSE PLANTS, GARDEN UTENSILS, Two COWS, HEIFER, and Effects, by order of H. J. Atkinson, Esq., who has disposed of the Estate.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, on the Premises, Gunnersbury House, Acton, W., five minutes' walk from Mill Hill Park Station, District Railway, on TUESDAY, June 25, and following days, at 1 o'Clock each day, the remaining superior and exceptionally well-made FURNITURE; also the whole of the remarkably well-grown STOVE and GREENHOUSE PLANTS, including a very fine lot of Specimen Eucharis amazonica, Pancratiums, Dracænas, Crotons, Aspidistras, Azaleas, Palms, Ferns, Two COWS, HEIFER, POULTRY, One-horse MOWING-MACHINE, Two CARTS, HAYMAKING MACHINE, GARDEN UTENSILS, &c.

On view the Saturday and Monday prior to the Sale. Catalogues had of Mr. HUDSON, the Head Gardener, on the Premises; of Messrs. WARE, HAWES, AND WOOD, Solicitors, 7, Great Winchester Street, E.C.; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Friday Next, June 28,
Instead of Tuesday, June 25, as previously advertised.
ORCHIDS in FLOWER.
IMPORTED and ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, EC., on FRIDAY NEXT, June 28, at half-past 12 o'Clock precisely, a large quantity of ORCHIDS in FLOWER from various Collections; also well-grown ESTABLISHED ORCHIDS.

Imported ORCHIDS for Unreserved Sale, comprising CYPRIPEDIUM GODEFROYÆ and C. LAWRENCEANUM.

On view morning of Sale, and Catalogues had.

TO BE SOLD, by PUBLIC AUCTION, on THURSDAY, June 27, at half-past 10 o'Clock, a large quantity of handsome PALMS; a specimen of double white CAMELLIA; a quantity of Calla æthiopica; good established Araucaria elcelca, and various other plants; and about 30 Calla ethiopia Bulbs.

For further particulars, apply to HENRY LEVY, Floral Hall, Covent Garden, London, W.C.

Tanshelf, Pontefract.
Eligible Investment. By order of the Mortgagees.

MR. STUART LOWDEN is instructed to offer for SALE by AUCTION, at the "Red Lion Hotel," Pontefract, on WEDNESDAY, July 3, at 4 o'Clock in the afternoon, unless previously disposed of by private contract (with regard to which offers are invited, and subject to such conditions as shall be then produced, the valuable FREEHOLD ESTATE fronting to Wakefield Road, Pontefract, and known as "Wright's or Hanks's Nursery," comprising:—

A modern DWELLING HOUSE, containing Drawing and Dining Rooms, four Bed Rooms, Lumber Room, Kitchen, Scullery, Cellars, Outbuildings, &c.

Also Gardener's COTTAGE, two GREENHOUSES (one span-roofed), FORCING HOUSE, and POTTING SHED.

Also the NURSERY GROUNDS, containing in the whole, with the site of the buildings, about 4a. 2r. 27p., more or less.

If not sold as a whole, the property will be offered for Sale in three lots. The property has been used as a Nursery for many years, and will be sold either with or without the Trees, Shrubs, and Plants now growing upon the premises, at the purchaser's option.

Arrangements can be made for early possession, and further particulars obtained from Messrs. SANGSTER AND COLEMAN, or Mr. I. KABERRY, Solicitors, Pontefract.

June 13, 1889.

Ponder's End, Middlesex (8 miles from London).
To NURSERYMEN and FLORISTS.

MESSRS. A. AND G. GUIVER will SELL by AUCTION, at the Mart, Tokenhouse Yard, E.C., on JULY 5 next, several enclosures of rich MEADOW LAND, suitable for Nurseries. Plans and full particulars of A. AND G. GUIVER, Ponder's End.

Piccadilly, on the Sutton Estate.
VALUABLE LEASEHOLD PROPERTY, for occupation or investment.

MESSRS. EDWIN FOX AND BOUSFIELD will SELL, at The Mart, on WEDNESDAY, July 10, at 2 o'Clock, the valuable GROUND LEASES of the commanding modern Residential and Business PREMISES, Nos. 24, 25, and 26, Down Street, one door from Piccadilly, immediately opposite the entrance to Junior Athenæum Club, six storeys in height, with capital suites of Chambers on the upper floors, and Shop, Warehouse, and Counting-house on the ground floor, held for 11 years unexpired, at a moderate ground-rent. Part of the Premises is let on lease to responsible tenants, and possession of the Business Premises and Manager's House can be had. The total annual value of the whole may fairly be taken at £700.

Particulars of Messrs. HURFORD AND TAYLOR, Solicitors, 5, Furnival's Inn, E.C.; J. J. FREEMAN, Esq., Solicitor, 2, Poet's Corner, Westminster, S.W.; at The Mart; and of Messrs. EDWIN FOX AND BOUSFIELD, No. 99, Gresham Street, Bank, E.C.

TO BE LET AT ONCE, the STOCKWELL ROAD NURSERY, Stockwell Road, S.W. Main Road. £ per annum. Miscellaneous Stock.
Terms, &c., by applying to S. BEACH, as above.

Good Chance for Florist and Jobbing Trade.

FOR SALE, a SMALL NURSERY, Main Road, close to Station, consisting of 3 Greenhouses (one 70 by 14 feet, one 18 by 18 feet, and Show House, 18 by 12 feet, all Span-roof), Frames, &c., Furnace, and Hot Water-piping, Stock Inside and Out, Tools, &c., as a going concern. Good suburb, 7 miles from Covent Garden. Must be sold. Owner has appointment.

Address O. G., 41, Wellington Street, Strand, W.C.

West Riding of Yorkshire.

TO BE LET, a most desirable MARKET GARDEN, of about seventy-four acres, including fifteen acres of Grass, all in fine condition, comprising about thirty acres Rhubarb, chiefly Victoria, together with ample Shed Room for Forcing the same, 75,000 strong roots will be ready for forcing end of present season, remainder of Land cropped with Vegetables, &c., all of which command a ready sale. There are also five Houses heated with hot water for growing Cucumbers, Tomatos, &c., Stabling for eight Horses, with all convenient Outbuildings. An excellent Dwelling-house attached with every convenience. The Land is considered by the trade the finest in the district, well supplied with water, near a main line of rails, and close to a station, also near two of the most important towns in the County. The sole reason for letting the above is owing to the ill health of the present occupier, who has been ordered to a warmer climate.

J. S., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

To Nurserymen, Florists, Horticultural Builders, AND OTHERS.

TO BE LET, a large convenient corner HOUSE, with ¾ acre of GROUND, facing Streatham Hill Station. Good opening for the Sale of high-class Fruit and Flowers. For particulars, apply,
WALTER SIMMONDS, 58, Camberwell Road, S.E.

Ponder's End, Middlesex (8 miles from London).
To NURSERYMEN and FLORISTS.

TO BE LET, on Lease, one to twenty acres of rich MEADOW LAND for 21, 60, or 80 years at £10 to £12 per acre, with option of Purchasing the Freehold during the first 9 years.

Apply to A. AND G. GUIVER, Land Agents, Ponder's End, Middlesex.

Crown Lands, Eltham, Kent.
To NURSERYMEN and MARKET GARDENERS.

TO BE LET, from Michaelmas next, about 35 acres of valuable LAND, in the town of Eltham, as a Nursery or Market Garden. For particulars, apply to Mr. JOHN CLUTTON, 9, Whitehall Place, Westminster, S.W.

8 ACRES HERBACEOUS and HARDY PLANTS, true to name, not seedlings (which are generally inferior to the type). Send for a Catalogue of all you want for a garden, free for 3 stamps. It includes over 1000 varieties, selected during 15 years' careful study of this class of plant, and an annual buying in of all that seems good, and a weeding out of the poor kinds, with height, time of blooming, and other useful particulars.

12 Hardy HERBACEOUS PLANTS...	...	£0	4	0
50 ,, ,, ,, ...	...	0	14	0
100 ,, ,, ,, ...	...	1	5	0
500 ,, ,, ,, ...	...	5	5	0

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

16 VARIETIES of STRAWBERRIES, which R. Gilbert considers the cream. They include all the modern varieties, but the good old Standards are not forgotten. In pots for forcing, and ordinary hand layers.

Send for R. G.'s STRAWBERRY LIST, where all are described and priced, with Hints upon Culture. Warranted true to name.

R. GILBERT, High Park, Stamford.

STOVE PLANTS, GREENHOUSE PLANTS, such as ALLAMANDAS, STEPHANOTIS, BOUGAINVILLEAS, CLERODENDRONS, and other fine CLIMBERS.

CROTONS, DRACÆNAS, and other fine foliage varieties; IXORAS, HIBISCUS, POINSETTIAS, and other flowering bush-habited plants, in finest varieties, clean, healthy, all named; 12 distinct kinds, 12s., 18s., 30s. per dozen.

Attention is specially asked to the very fine and rare OCHNA MULTIFLORA, OXERA PULCHELLA, SCHUBERTIA GRANDIFLORA. For Prices and Descriptions see new CATALOGUE.

GREENHOUSE PLANTS, equally well selected, good and healthy; 12 sorts, 9s., 12s., 18s., half at half-price. New CATALOGUE of these and all you want for a garden free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nurseries, Altrincham; 10 and 12, Market Street, Manchester.

CALIFORNIAN BULBS. — Calochortus, Brodiaea, Frittillaria. Orders should now be given for autumn delivery. Price LIST on application.
MYATT-HEXTABLE HORTICULTURAL CO., Swanley, Kent.

PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey, and Flower Market, Covent Garden, W.C.

20,000 CARNATIONS, PICOTEES, PINKS.—All true from layers; grand double well-marked flowers (not seedlings), splendidly rooted, named, for exhibition or borders. All the good varieties of the most noted raisers.

12 fine sorts, CARNATIONS, 6s.; 12 PICOTEES, 6s.; 12 PINKS, 3s. 6d.; 6 of each, 8s. 3d. Fine Border Carnations, 4s. per dozen. See new CATALOGUE of these and all wanted for a garden, free for 3 stamps.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

AZALEAS.—4 Plants, size 3 to 3 feet 6 inches in breadth, in 18-inch pots; colours, 1 pure white, 2 streakey, 1 red. Apply
E. A. P., 2, Alexandra Terrace, Gloucester.

GRAND ROSE SHOW, BATH, THURSDAY, July 4.
1st Prizes, Nurserymen, 72 varieties, £8 8s.; 36 varieties, £4.
1st Prizes, Amateurs, 36 varieties, £5; 24 varieties, £3.
The 2nd and 3rd Prizes in proportion. Several other Classes for Roses, Bouquets, Strawberries, and Plants. 30 Classes in all. Entries close June 28. For Prize Schedules, apply to
BENJ. PEARSON, Sec., 14, Milsom Street, Bath.

SALTERHEBBLE and DISTRICT ROSE SHOW, JULY 18. Schedules may be had on application to the Sec., JNO. E. BROOKS, 4, Savill Park Street, Halifax.

SHREWSBURY GREAT FLORAL FÊTE, WEDNESDAY and THURSDAY, August 21 and 22.—For Twenty Plants, £25, £20, £15. For Grapes, £60. Collection of Fruit, £10, £6, £3. Collection of Vegetables, £5, £3, £2. Messrs. Webb's Prizes for a Collection of Vegetables, £5. £3, £2, £1. Valuable Prizes offered by Messrs. Sutton & Sons. Schedules may be had from
Messrs. ADNITT AND NAUNTON, Hon. Secs., Shrewsbury.

BRADFORD and DISTRICT CHRYSANTHEMUM SOCIETY.
The THIRD ANNUAL SHOW will be held on FRIDAY and SATURDAY, November 15 and 16, 1889. Schedules now ready, post-free, on application to
Mr. G. R. TAYLOR, Hon. Secretary,
102, Godwin Street, Bradford.

INTERNATIONAL CHRYSANTHEMUM CENTENARY EXHIBITION, to be held in Edinburgh, on NOVEMBER 21, 22, and 23, 1889. Prizes offered in Money and Silver Cups, to value over TWO HUNDRED and FIFTY POUNDS, including the "City of Edinburgh" Cup, value £20.
Prize Schedules and Rules to be had on application, to Messrs. MUNRO and FERGUSON (Joint Hon. Secretaries), 6, South Saint Andrew Street, Edinburgh.

CALADIUMS, GLOXINIAS. — Lovely CALADIUMS of the finest sorts, splendid varieties, handsome foliage, clean, easily grown; 12 sorts, 6s., 9s., 12s.
Gorgeous GLOXINIAS, rich colours, pretty foliage, lovely flowers; 12 for 6s., 9s., 12s. New CATALOGUE of these and all other plants, 130 large pages, free for 3 stamps.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

Dutch Bulbs.

HYACINTHS, TULIPS, CROCUSES, &c., all first-class roots. Prices per 1000 on application to
P. VAN TIL Jz., AND CO., Florists, Hillegom, near Haarlem, Holland.

GERANIUMS — PELARGONIUMS — GERANIUMS.—All the finest sorts, from English and Continental raisers, for Pot Culture for Summer or Winter, bought in every spring, tried and inferior kinds discarded. 12 fine Single Zonals, 4s.; 12 fine Doubles, 4s.; 12 beautiful Ivy-leaf varieties, 4s.
PELARGONIUMS, the finest flowers, best habits, most robust growers, 12 fine varieties, 6s.; 12 large Plants, 9s. or 12s. All you want for a Garden may be selected from our new CATALOGUE, free for 3 stamps.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

TRADE OFFER OF PALMS, ETC.

ARECA LUTES.	6s.	0d.	to	24s.	0d.	p. doz.
,, BAUERII	30	0	,,	60	0	,,
,, SANDERII	24	0	,,	60	0	,,
CORYPHA AUS.	18	0	,,	30	0	,,
CHAMÆROPS E.	24	0	,,	15	0	each.
EUTERPE EDULIS	6	0	,,	24	0	,,
GENOMA GRAC.	9	0	,,	60	0	,,
KENTIA BEL.	9	0	,,	60	0	,,
,, FOST.	9	0	,,	60	0	,,
LATANIA BOURB.	6	0	,,	60	0	,,
PHŒNIX REC.	6	0	,,	60	0	,,
,, RUPICOLA	12	0	,,	60	0	,,

DRACÆNAS, OPHIOPOGON, FICUS, PANDANUS VEITCHII.
Prices for larger Plants on application. Inspection invited.
WILLIAM ICETON, Putney Park Lane, Putney, S.W.; and Flower Market, Covent Garden.

ORCHIDS!

Selection of the above, from Borneo, Manilla (Philipines), Bangkok, Java, Rangoon (Burmah), &c., to the extent of £5 and upwards, packed and shipped (at consignee's risk) on receipt of order with remittance. Address,

THE ORCHID NURSERY,
UPPER WILKIE ROAD, SINGAPORE.
Special care given in packing.
NEW VARIETIES ALWAYS ON HAND.

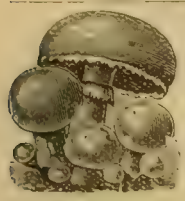
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Now is the time to plant:—

GLADIOLI, of which we grow 20 acres.			
DAHLIAS,	do.	do.	2 ,,
PYRETHRUMS,	do.	do.	3 ,,
DELPHINIUMS,	do.	do.	3 ,,
GAILLARDIAS,	do.	do.	2 ,,

"The largest collection in the world," for which the highest awards of the Royal Horticultural and Royal Botanic Societies of London have been given.
See our MANUAL for 1889, Gratis and Post-free.
LANGPORT, SOMERSET.

FOR SALE, 1500 mixed Scarlet GERANIUMS, 12s. per 100. Autumn struck, turned out 60 pots, nicely packed, put on at Heckington Station, JOHN TINDALL.



CUTBUSH'S MILL-TRACK MUSHROOM SPAWN.—Too well known to require description. Price, 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by parcel post, 1s.

None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.

WM. CUTBUSH AND SON, Nurserymen and Seed Merchants, Highgate Nurseries, N.

PRIZE MEDAL

LAWN GRASS SEED.

SPECIAL MIXTURES

For Lawns, Croquet and Tennis Greens, Cricket Grounds, Ornamental Parks, Cemeteries, &c.

We have pleasure in stating that we were awarded, at the Newcastle Exhibition, 1887, THE ONLY SILVER MEDAL, for the superior and genuine qualities of our Lawn Grass.

Our Special Mixture... ... ... per lb., 1s.; per bush., 20s.
Extra fine, suitable for Tennis Courts and Bowling Greens ... ,, 1s. 4d. ,, 25s.

WILLIAM FELL & CO.,
ROYAL SEED and NURSERY ESTABLISHMENT,
HEXHAM, NORTHUMBERLAND.

THE NORMAL FERTILISER.
For GREENHOUSE or GARDEN.

A highly-concentrated Fertiliser, consisting chiefly of human excrement and blood, which has the following recommendations:—
It is moderate in price.
It is safe to use.
It is not a chemical manure.
It is profitable to the user.
It is clean to handle.
It has high fertilising properties.
It contains no needless matter.

Price:— 7 lb. 14 lb. 28 lb. 56 lb. 1 cwt.
2s. 3s. 6d. 5s. 6d. 9s. 14s.
And in 6d. and 1s. packets.

To be had of Seedsmen and Florists, or the NORMAL MANURE COMPANY, Ltd., 121, Bishopsgate Street Within, E.C., and Farnham Road, Guildford. Usual Trade Discounts. Wholesale of Messrs. HURST AND SON, 152, Houndsditch, London

GARDEN REQUISITES.
TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.)
PEAT, best brown fibrous ... 5s. per sack, 5 sacks for 22s. 6d.
PEAT, best black fibrous ... 4s. 6d. ,, 5 sacks for 20s.
PEAT, extra selected Orchid 8s. 6d. ,, 5 sacks for 40s.
LOAM, PREPARED COMPOST } 1s. per bush., 3s. per sack
LEAF, or PEAT MOULD ... } (sacks included).
SILVER SAND, coarse, 1s. 6d. per bush., 14s. half-ton, 24s. ton.
RAFFIA FIBRE, best only ... ... 1s. per lb.
TOBACCO CLOTH, or PAPER ... ... 1s. lb.; 28 lb., 27s.
SPHAGNUM MOSS, all selected, 3s. per bush., 8s. per sack.

CHUBB'S "PERFECT" FERTILIZER (the Best Food for all kinds of Plants, Flowers, Fruits, Vegetables, &c.) ...	IN BAGS. Tins.	7lb.	14lb.	28lb.	56lb.	1 cwt.
		1/6	3/-	5/-	8/-	14/-	22/-
CRUSHED BONES, or Bone Dust		1/2	2/-	3/6	6/-	12/-	
VIRGIN CORK (Best Quality only)		—	3/-	5/6	10/6	17/-	

RUSSIAN MATS, BAMBOO CANES, PERUVIAN GUANO, NITRATE of SODA, HORTICULTURAL CHARCOAL, &c.

PEAT MOSS LITTER, cheapest and best Bedding for Horses and Cattle, £2 per ton. Extra large Sample Bales, 6s. each. Also prepared for Poultry Pens, Rabbits, &c., in Sacks, 1s. 6d. each; 10 Sacks, 12s. 6d.; 20 Sacks, 23s.

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. 4d. each; 10 sacks, 12s. 6d.; 15 sacks, 17s. 6d.; 20 sacks, 20s.; 25 sacks, 24s.; 30 sacks, 27s.; 40 sacks, 35s.; 50 sacks, 40s.; Truck-load, loose, free on rail, 30s. Limited quantities of G., special quality granulated, in sacks only, 2s. 6d. each.

SPECIAL MANURES, for Farmers, Agriculturists, Market Gardeners, and others (concentrated into a Dry Powder).

CHUBB'S "PRODUCTIVE" MANURE, in bags, £3 per ton (bags included); sample 1 cwt. bag, 4s., producing extraordinary results, and worth four or five times the actual cost. Try it against any other manure, no matter what price.

CHUBB'S "COMPOUND SOOT and SEWAGE" MANURE, in bags, £2 per ton (bags included); sample 1 cwt. bag, 3s., made principally (by special process) from London Soot and Sewage with other fertilizing agents.

Terms strictly Cash with order. Bankers, Union Bank of London.

CHUBB, ROUND & CO., West Ferry Road, Milwall, London, E.

GENUINE GARDEN REQUISITES.

SPECIALITE TOBACCO PAPER.

The most effectual Fumigating Material in the market. 1s. per lb., 28 lbs. for 26s., 90s. per cwt. Sample free. Special Price to the Trade. ORCHID and other PEATS, STICKS, LABELS, BAMBOO CANES, CHEMICAL MANURES, and SUNDRIES of all kinds as usual. Price List free.

W. HERBERT & CO.,
HOP EXCHANGE WAREHOUSES,
SOUTHWARK STREET, LONDON, S.E.

BEESON'S MANURE.—The Best and Cheapest Fertiliser for all purposes. Write for Circular containing the Leading Gardeners' and Market Growers' Reports. Sold in Tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each, or 1 cwt. Bags, sealed, 13s. By all Seedsmen, or apply direct to W. H. BEESON, Carbrook Bone Mills, Sheffield.

HUGHES' Soluble
FIR TREE OIL

FLORISTS & NURSERYMEN SHOULD ALL USE IT

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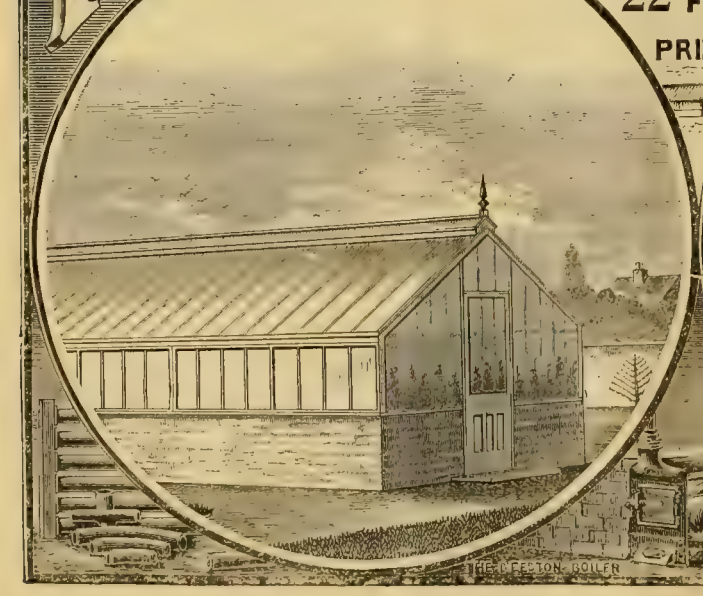
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THE

Gardeners' Chronicle.

SATURDAY, JUNE 22, 1889.

OXFORD BOTANIC GARDENS.

IT is not possible to describe the feelings which one experiences in visiting a favourite spot after an absence of several years. There appears to be a sort of welcome smiling at one from every well-remembered nook and often-thought-of retreat. Men come and men go, but there are associations which prove more conclusively than anything that, in the words of Longfellow, "the thoughts of youth are long long thoughts." Only those who have lived in Oxford, who have been charmed with its associations, and have revelled in its picturesque beauty, know how strong a hold "this faire city," as Spenser calls it, has upon the affections. It was therefore with no ordinary feelings of pleasurable anticipation that the present writer availed himself of an opportunity of revisiting one of the most famous cities of the world, and of going around the botanical garden which has in times gone by proved so irresistibly attractive.

Summer or winter, rain or shine, there is always something of interest to be seen in this famous old garden, and generally that "something of interest" forms a very long list in one's note book. Perhaps just now the most attractive part of the garden is that where a very fine series of Iris are in full flower. There are between sixty and seventy distinct varieties in the meridian of beauty, the most distinct being flavescens, Miltoni, and formosa. Several of the varieties are as beautifully marked as any Orchid, and the only reasons of their being so comparatively little grown is because they are neither particularly difficult to obtain, nor very expensive to purchase! Close to the beds of Iris is a very fine clump of Hemerocallis flava, and here and there in different parts of the garden, Papaver bracteatum, with its enormous brilliant and loosely-arranged flowers, were most

effective in the dull days on which we visited the garden.

The borders are literally filled with old-fashioned favourites, which do not seem to be eclipsed or even replaced by the numerous new introductions. The various merits of three species of Dielytra were plainly distinguishable in juxtaposition, and it was also evident that, beautiful as is spectabilis, both formosa and eximia have been unduly neglected, for each has a gracefulness which the more famous species has not. But more graceful than either is the native "weed," Fumaria officinalis, which, with a little care and looking after, may be grown into an elegance quite rivalling that of Adiantum gracillimum. The present writer has the bad (botanical) taste to admit that he was delighted to observe the old name of Dielytra retained, although in the approaching age of pedantry, no doubt things will be changed. In the borders, also, a plant of especial interest is Lathyrus Sibthorpii, to which reference has already been made in these columns. This is catalogued in the current issue of the *Kew Bulletin* as a new plant, but it has been flourishing in the Oxford Botanic Gardens for nearly a century, having been introduced from Greece by Sibthorp. It is an uncommonly remarkable plant, not because of any striking superiority to other species of the same genus, but from its extraordinary colour. An esteemed friend at Oxford demonstrated to us how, by holding the flower in different positions three or even four tints are distinctly visible, and that, by removing the "keel," the "ring" assumes quite another shade to that which is observable before the warm-coloured "keel" is detached. The plant, indeed, is an interesting "study in colours," and we shall not attempt to describe the various shades.

The borders also contain, among many other good things, a fine variety of Pyrethrum roseum, and not far off were plainly distinguishable the brilliant blue flowers of Tradescantia subaspera, a handsome plant, whose merits do not appear to be at all sufficiently well known. Geranium phæum, with its unique-coloured flowers, formed quite a distinctive "patch" close to the pathway. The Delphiniums are just coming into flower, and promise a fine display for many weeks; D. formosum and D. crassicaule are already bursting into bloom, but the strong winds of the past week or so have completely broken down one or two fine branches.

The walls all around the Botanic Garden are occupied by plants of more or less interest. Lonicera lutea, with its rich creamy-yellow flowers, will attract the perambulating horticulturist; but although it is a "foreigner," we cannot see that it is at all superior, or even as good, as our own native Honeysuckle. Close to it is Philadelphus triflorus, an elegant Himalayan climber, with white flowers, and perfectly hardy; it certainly deserves to be better known. In the immediate vicinity, Deutzia crenata sometimes known as Fortunei, and at others as scabra, is just coming into flower. It is a handsome plant, with slender stems and white flowers disposed in racemose panicles. It is a native of Japan, and appears to be perfectly hardy.

To describe all the interesting plants, shrubs, and trees in the Oxford Botanic Gardens, would need unlimited space and entail a labour of many weeks. Nearly every tree and shrub has a history. Then again some have an adventitious interest, such as the Christ's Thorn (Zizyphus paliurus), and the four distinct trees upon which the Mistleto is known to grow only at Oxford. This most unusual circumstance in connection with the Mistleto deserves something beyond a mere passing allusion. It first attracts the attention of the wanderer, who finds his way to the shade of a large boled flowering Ash (Ornus europæa), and a very fine specimen it is, too. Almost as fine an example may also be seen on the branches of the Italian Hop-Hornbeam (Ostrya vulgaris). Close to this tree the Mistleto may be observed in abundance on the branches of a large, yellow flowering Chestnut (Pavia flava) In other parts of the garden it also occurs plentifully on Thorn and Lime trees. It has spread quite spontaneously: that is to say, the seed has not been sown through any other agency than that of birds. It would be difficult now to eradicate this parasite without destroying the trees upon which it has established itself. As these trees are among the finest in the garden, and as there is no earthly reason why it should be eradicated, we have no doubt that all interested in this native parasitical plant, whose associations carry us back to a prehistoric period, will have for many years to come an opportunity of seeing it here *in situ*.

The aquatic-house and the Cactus-house are also almost too important to be passed over with a mere allusion, but these with many other phases must for the time being be neglected. *W. R.*

New or Noteworthy Plants.

EPIDENDRUM CAMPYLOSTALIX, *Rchb. f.*

This is a striking and remarkable species, belonging to the section Eucyclium. It was described as long ago as 1852 (*Botanische Zeitung*, 1852, p. 730), and five flowers were sent by the author to Dr. Lindley, in whose herbarium they are now preserved, but no specimen ever appears to have reached the General Herbarium, at Kew, until the other day, when Mr. F. W. Moore, of Glasnevin sent a fine raceme for preservation: There are two peculiar points about the plant: one is that the whole inflorescence, including the outside of the sepals, is covered with a delicate, glaucous bloom, just like that on a Plum, Grape, or Cucumber, which comes off on being touched; the other, that the ovary has three strong, undulating wings. The raceme appears to be nearly erect, but gradually arching over upwards, the flowers drooping and all turned on one side. The segments are three quarters of an inch long, and of a peculiar dark, purplish-brown colour, with three narrow, longitudinal lines of pale green, and a narrow margin of the same. The lip is white, slightly three-lobed, and with a narrower basal portion. At the apex of the column is a small, scale-like appendage, of a lurid purple, with a white, apical margin. It is a graceful and interesting little plant, though the colours are not at all brilliant. It is a native of Central America, and a figure may be found at t. 86 of the *Refugium Botanicum*, where, however, the colour is represented as red-brown, with more prominent stripes than in the one now sent. *R. A. Rolfe.*

DENDROBIUM CHRYSOLABRUM, *Rolfe, n. sp.*

A considerable number of Dendrobiums have been described from New Guinea, but I fail to find anything which agrees with one now sent to Kew by Messrs. James Veitch & Sons, of Chelsea, which came from that island some time ago. In general appearance it reminds one of D. bicameratum, Lindl., and evidently stands near this and the D. secundum group. The pseudobulbs are elongate, 6—8 inches long, and covered with white sheaths when mature. The leaves linear-oblong, subcoriaceous, 2¼ inches long by three-quarters of an inch broad. The racemes are lateral, very short, and about eight to ten flowered; bracts lanceolate-oblong, subacute, 6—7 lines long, and closely resembling the sepals both in texture and colour. Sepals lanceolate-oblong, acute, and of a peculiar semipellucid greenish-pink shade, or nearly flesh colour. The lateral sepals are extended in a narrow obtuse spur, quarter of an inch long. Petals a little broader than the sepals, but similar in other respects, half an inch long. Lip half equalling other segments, oblong, acute, entire, deep-orange yellow, becoming pale-green at the extreme base; crest wholly absent. Column short, the small rounded wings deep orange-yellow. It seems to be very floriferous, for one pseudobulb had four old racemes from near the base upwards, and a fresh one near the apex. It is not showy enough to be of more than botanical interest. The name is given in allusion to the deep orange yellow lip, which, small as it is, contrasts curiously with the peculiar shade of the sepals, petals, and bracts. *R. A. Rolfe.*

MAXILLARIA MARGINATA, *Fenzl.*

This interesting little plant is very seldom seen in gardens, but a flower has just been sent to Kew by Mr. F. W. Moore, Curator of the Glasnevin Botanic Garden, in which collection a number of interesting rarities find a home. Of course Maxillarias cannot be called showy plants, and the present one is no exception, though it is pretty enough for those who like Maxillarias. The segments are light yellow in colour, all distinctly margined with dull crimson, the lip three-lobed, similar in colour, but the margin very broad and inclining to blackish-crimson at the apex of each of the lobes. On each of the sepals, too, which are just under an inch long, extends a light crimson, but not very prominent keel. A good figure of the plant may be found at t. 1530 of the *Botanical Register*, under the name of Cymbidium marginatum, Lindl. In the *Genera and Species of Orchidaceous Plants*, Lindley doubtfully refers Maxillaria gracilis, Lodd. (*Botanical Cabinet*, t. 1837), to the same, but judging from the figure, that is a smaller, more slender plant, with a differently coloured lip, though of course nearly allied to the present one. *R. A. Rolfe.*

FRUIT CANDYING IN ITALY.

A good deal of interest has been drawn of late years in fruit-producing countries, especially in some of our colonies, as to the best mode of preserving fruits for exportation. That of preserving them in syrup in hermetically sealed tins has been found to answer well, and has become very generally adopted; but the process of candying with sugar is felt in some countries, and with some fruits, to be preferable, consequently enquiries are frequently made as to the *modus operandi* adopted in fruit candying countries on the continent, about which little seems to have been known out of the country where it is practised.

The following account of this industry, which has just been drawn up by the British Consul at Leghorn, will, therefore, we doubt not, be of considerable interest to our readers, especially to those in sugar-producing countries. Mr. O'Neill says, "It would be a mistake to suppose that Leghorn is a great centre for this industry in all its branches. The candying of fruits, whole or cut, is carried on at many other places to a larger extent. At Genoa, and westward along the French Riviera, at such places as Grasse, this industry is carried on, and we know that in Spain and Portugal fruits are also candied, Madeira being especially noted amongst the possessions of the latter for this manufacture.

Moreover, upon inquiry, I find that in this city of over 100,000 inhabitants only seven establishments are occupied in the manufacture, and that these seven, when in full working, only employ about 200 hands. Leghorn can hardly, therefore, be considered a great centre of the fruit candying industry.

It does, however, I believe, occupy the first place in Italy, and, perhaps, throughout the Mediterranean for the preparation of the candied Citron and Orange peel so largely used in all branches of confectionery; for the Citron is brought to us for this purpose from Corsica, from Sicily, from Calabria, and other southern provinces of Italy, from Tunis and Tripoli, and even from Morocco, and the

candied peel of the fruit is exported hence to North America, to the United Kingdom, and to Hamburg, for distribution throughout Germany. Sugar also is imported for the purpose of the manufacture from Egypt. The wood of the boxes in which the candied peel is packed reaches us from Trieste, and the immense earthenware vessels necessary for the saturation of the fruit in Sugar syrup are made in the neighbourhood of Florence. On all sides, I hear that Corsica produces the Citron of the finest quality, those of Sicily and Calabria are regarded as slightly inferior, whilst that which comes from the African coast is held in still lower repute, and, indeed, appears to be of a different variety, being larger, and having a smooth instead of the rough, granulated surface generally characteristic of the Citron. The African Citron is probably somewhat deficient in the essential oil which forms the medical property, and gives the flavour to the rind. The Oranges imported into Leghorn, whether for consumption or for candying, are nearly all brought from the islands of Sicily, Sardinia, and Corsica.

I shall, perhaps, convey the clearest impression of the treatment of the fruit, and the processes through which it passes, if I follow it through the various stages of its preparation, from its arrival at this port to the moment of its departure hence in cases filled with boxes neatly packed with the cut candied peel.

In all the countries I have mentioned above as contributing the raw fruit for this industry, it is treated in the same manner for the over-sea passage. The fruit is simply halved, and placed in hogsheads or large casks filled with a fairly strong solution of brine, the fruit being halved merely to ensure thorough preservation of the rind by an equal saturation of the interior as well as the exterior surface. In these casks it arrives at the doors of the manufactory.

The first process to which it is then subjected is the separation of the fruit from the rind. This is done by women who, seated round a large vessel, take out the fruit, skilfully gouge out the inside with a few rapid motions of the forefinger and thumb, and, throwing this aside, place the rind unbroken in a vessel alongside them.

The rind is next carried to large casks filled with fresh cold water, in which it is immersed for between two and three days to rid it of the salt it has absorbed. When taken out of these casks, the rinds are boiled, with the double object of making them tender, and of completely driving out any trace of salt that may still be left in them. For this purpose they are boiled in a large copper cauldron for a time varying from one to two hours, according to the quality of the fruit and the number of days it has been immersed in brine. When removed from this cauldron, the peel should be quite free from any flavour of salt, and at the same time be sufficiently soft to absorb the sugar readily from the syrup, in which it is now ready to be immersed.

The next process to which the rind is subjected is that of a slow absorption of sugar, and this occupies no less than eight days. Needless to say that the absorption of sugar by fresh fruit in order to be thorough it must be slow, and not only slow but it must also be gradual—that is to say, the fruit should at first be treated with a weak solution of sugar, which may then be gradually strengthened, for the power of absorption is one that grows by feeding. The fruit (and this holds good more especially with the rind) would absorb with difficulty, and more slowly and unequally if plunged at once into a thick syrup, than if gradually treated with weak solution, easier of absorption, and by which it has been thoroughly permeated first. It is a knowledge of this fact that governs the process I now describe.

The fruit has now passed into what I may call the saturating room, where on every side are to be seen long rows of immense earthenware vessels about 4 feet high and 2½ feet in extreme diameter, in outline roughly resembling the famed Etruscan jar, but with a girth altogether out of proportion to their height, and with very short necks and large open mouths. All the vessels are filled to their brims with Citron and Orange peel in every stage of absorption, *i.e.*, steeped in sugar syrup of, roughly speaking, eight different degrees of strength. I said before that this is a process that occupies almost always eight days, and as the syrup in each jar is changed every day, we may divide the mass of vessels before us into groups of eight. Take one group of this number, and we are able to follow the fruit completely through this stage of its treatment. With vessels of such great size and weight, holding at least half a ton of fruit and syrup, it is clearly easier to deal with the syrup than with the fruit. To take the fruit out of one solution, and to place it into the next stronger, and so on, throughout the series, would be a toilsome process, and one, moreover, injurious to the fruit. In each of these jars, therefore, is fixed a wooden well, into which a simple hand suction-pump being introduced, the syrup is pumped from each jar daily into the adjoining one.

"How is the relative strength of the syrup in each jar regulated?" is the next question.

"The fruit itself does that," is the foreman's reply; and this becomes clear from the following explanation:—Number your group of jars from 1 to 8 respectively, and assume No. 1 to be that which has just been filled with peel brought straight from the boiler, in which it has been deprived of the last trace of salt, and No. 8 to contain that which, having passed through every stage of absorption but the last, is now steeped in the freshly prepared and therefore the strongest solution of syrup used in this stage. "We prepare daily a syrup of the strength of 30°, measured by the 'provino,' a graduated test for measuring the density of the syrup," continued the foreman, "and that is poured upon the fruit in jar No. 8. To-morrow the syrup from this jar weakened by the absorption from it, by the fruit, of a certain proportion of sugar, will be pumped into jar No. 7, and so on daily through the series. Thus, No. 1 containing the fruit itself regulates the strength of the syrup, as I said." "But if the syrup has lost all its strength before the seventh day, or arrival at jar No. 1?" we ask. "Care must be taken to prevent that, by constant testing with the 'provino,'" is the reply; "and if that is found to be the case, a little stronger syrup must be added to the jar."

A slight fermentation next takes place in most of the jars, but this, so far from being harmful, is regarded as necessary, but of course it must not be allowed to go too far.

There is yet another stage, and that, perhaps, the most important, through which the peel has to pass before it can be pronounced sufficiently saturated with sugar. It is now boiled in a still stronger syrup, of a density of 40° by the testing-tube, and this is done in large copper vessels over a slow coke fire, care being taken to prevent the peel adhering to the side of the vessel by gentle stirring with a long paddle-shaped ladle. The second boiling will occupy about an hour.

Taken off the fire, the vessels are carried to a large wooden trough, over which is spread a coarse, open wire netting. The contents are poured over this, and the peel distributed over the surface of the netting, so that the syrup—now thickened to the consistency of treacle—may drain off the surface of the peel into the trough below. The peel has now taken up as much sugar as is necessary.

Now comes the final process, the true candying of the covering of the surface of the peel with the layer of sugar-crystals which is seen upon all candied fruits. To effect this a quantity of crystallised sugar—at Leghorn the same quality of sugar is used as is employed in the preparation of the syrup—is just dissolved in a little water, and in this the now dried peel, taken off the wire netting, is immersed. The same copper vessels are used, and the mixture is again boiled over a slow fire. A short boiling will suffice for this, the last process, for the little water will quickly be driven off, and the sugar upon cooling will form its natural crystals over the surface of the fruit. Poured off from these vessels, it is again dried upon the surface of the wire netting, as before described. The candying is now complete, and the candied-peel is ready for the packing-room, to which it is carried off in shallow baskets.

In the packing-room may be seen hundreds of boxes of oval shape, or, if I may so speak, of rectangular shape, with rounded corners, and of different sizes, for each country prefers its boxes to be of a particular weight, Hamburg taking the largest, of 15 and 30 kilos., the United States of America preferring smaller, of 10 and 12 kilos., whilst England takes the smallest, of 5 kilos., and one containing about 7 English pounds. The wood of which the tops and bottoms of these boxes are made comes to us in thin planks from Trieste, and a skilful packing is generally done by women, and the boxes are lined with white paper. They are then packed in cases of 100 kilos., 10 of the smaller American boxes filling a case. The candied peel is now ready for export.

I think I have now spoken of all that need be noticed in the actual manufacture of candied Citron, and Orange peel at Leghorn. There are, however, a few reflections upon the very existence of this industry here which seem to me suggestive and instructive ones. In my inquiries into the course of the industry I find that the fruit itself, and every ingredient and article necessary to the preparation of the candied-peel comes to us from abroad. The fruit of the best quality is from Corsica; Egypt furnishes the sugar. England provides the fuel, distant provinces of Italy contribute a portion of the raw product and the wood for the boxes in which the peel is exported. The province of Leghorn provides nothing but the labour necessary to the manufacture. Nor is this industry one that has fallen into Livornese hands from any specially acquired local handicraft or skill. How, then, does this industry exist here in these days of keen international competition? No doubt it is mainly supported by the large drawback granted by the Italian Government upon the duty paid on the chief and dearest ingredient in manufacture—sugar. The Customs tariff in force imposes a duty of 75·75 lire upon 100 kilos. of the sugar used (classed in the tariff as of second class), but grants a drawback of 60·50 lire upon 100 kilos. of the exported article. Without this large measure of support there can be no doubt this industry would immediately and wholly collapse. With it even, it finds it difficult to hold its ground. Exporters tell me that the United Kingdom is beginning to call for the fruit to be sent to it direct from the countries of production in the same condition that it reaches Leghorn, viz., steeped in brine, and the manager of one of the factories I visited confirmed this with an air of very natural chagrin by telling me that he had himself seen 600 hogsheads of fruit shipped in brine in one vessel last year from Bastia for England.

BAMBOOS.

CONSIDERING the ornamental character of these plants, the wonder is that they are not more grown in gardens, as in certain positions, on lawns or on elevated banks, or mounds near to water, they give an effect quite unattainable by anything else. The most elegant and graceful, perhaps, of all the species, is the one known as Arundinaria falcata (the Himalayan Bamboo), which forms very long attenuated rods that arch over in an easy manner. These rods are very firm and hard, and at every joint send out a number of small twiggy shoots, furnished with light foliage, which in colour and tint as that of a Maidenhair Fern. Unfortunately, this Bamboo is one the most tender, but it succeeds in most parts of England, if favoured with a sheltered spot, and the plants have a mulch of bracken or two of brakes or leaves packed around their bases, as the hard mature canes can take care of themselves. The one next resembling Arundinaria falcata is Bambusa aurea (the Golden Bamboo), which has yellow stems, and of more erect habit

than A. falcata. The freest growing and hardiest of of all, is Bambusa metake. The stems of this come up in dense masses, and grow about 10 feet high, branching freely most of the way up, but more towards the top, where most of the foliage is produced; the leaves are about 4 to 6 inches long, lance shaped, and thick. This Bamboo forms creeping rhizomes that travel along some distance under ground, and come up freely all around, in which way it increases in size quickly, especially where the soil is light. B. aurea also sends up suckers, but not so freely as B. metake, and the way to propagate it and B. falcata is by cuttings or by divisions of the crowns. This latter can be effected with most safety early in spring, when the plants are starting into growth. Cuttings put in at the end of August, made from the small firm canes, will also root, but they must be a foot or so long, and inserted deeply in the ground to keep them fresh till they callus. *J. S.* [At Shrubland Park, near Ipswich, a dell has been planted, under the direction of Mr. Blair, comprising numerous species and constituting one of the most remarkable features of that noted garden. Ed.]

Plant Notes.

MELIA AZEDARACH VAR. FLORIBUNDA.

This is a very free-flowering plant, and is useful for greenhouse or other decorative purposes. It is known under a number of names, loud-sounding ones, too, such as the Pride of India, Holy Tree, &c. The flowers are borne in panicles at the ends of the branches, in the axils of bipinnate leaves; they are of a pinkish hue, the filaments being united into a tube, which is of a purple colour, and which changes to a much deeper shade when old. It may be either raised from seeds or cuttings, and if the first method be followed, and the seedlings allowed to grow up with a single stem, at their time of flowering they will be from 2 to 3 feet in height. After the flowering period is passed, the plants should be cut back. It is spoken of as being hardy in the warmer parts of the country, and Hanbury says, "I have planted it in an open cold expanse, in a naturally damp to moist soil, where it has flourished for more than seven years, and displayed its foliage every summer, to the great pleasure of all beholders."

Should any reader of the *Gardeners' Chroicle* have had experience with this in the open, I should be glad to learn with what results, and under what conditions. *W. Harrow, Botanic Garden, Cambrige.*

Clematis montana.

Compared with many of the members of this family, the individual flowers are small, but that they lack in size is amply compensated for in numbers; indeed, on old-established plants they are frequently one sheet of white when in flower, and, flowering as it does in advance of most of the larger species, it is on that account a very desirable plant; moreover, its constitution and character fit it for positions altogether unsuited for the dwarfer and tenderer sorts. Indeed, it quite rivals in growth our native C. vitalba, or Traveller's Joy, as it is called, mounting to a great height in a few years, the old stems assuming quite a woody, thick, rope-like character. It is thus eminently suited for covering high buildings, or for trailing over any object where a luxuriant growth is desirable. When once established it requires little in the way of training, merely keeping the old stems in position—and occasionally trimming it in with the hedge shears. This induces numerous short spurs, which flower profusely. It is easily increased in the usual way, and also from seeds, which are freely produced in most seasons. *F. R.*

Xanthosia rotundifolia.

This is a neat and chaste flowering, shrubby umbellifer from Western Australia, and a desirable subject to include where New Holland plants are appreciated. The inflorescence is of the compound umbel type, produced both terminally and axillary towards the ends of the branches. The peduncles are about four inches long, with a central sessile umbellule, and four, rarely five, others having shortly pedicillate flowers, about twenty in number; each umbellule has several white and petal-like involucral bracts, which add much to the beauty of the inflorescence. The individual flowers are small and white, but have the appearance of being crimson tipped when opening, owing to the red anthers which appear at the mouth of the corolla.

The plant is of easy culture in a greenhouse, given the peaty compost usually employed for such plants, and plenty of water at the root when growing. We have found it to succeed admirably when planted out in a border of peat along with similar things, but when so treated it somewhat belies the specific name. In a young state the leaves are truly nearly round, but under this mode of treatment they are more nearly heart-shaped, deeply and sharply toothed, and twice the size that they are in their round condition. About 2 feet seems to be the height that the shrub will grow to, and the branches being slender they are naturally pendulous, giving the plant a graceful appearance. The flowering period extends from about six to eight weeks in perfection, but flowers are produced more or less intermittently for several months. There is a figure of the plant in the *Botanical Magazine*, t. 3582, but I think that it scarcely does it justice. If the plant is grown in a pot, and a light airy house cannot be afforded it after flowering, it is much better to turn it out-of-doors, taking precaution to house it again before the approach of frost. Thus treated, the amount of growth made will be rather less than in a house, and it will be matured and more likely to produce flowering growths next May and June than if huddled up indoors. *F. R.*

Polemonium pauciflorum.

With the exception of P. flavum, this is probably the only yellow-flowered species in cultivation, the tendency of the flower colouring seems to be purple, and as the above species is a good clear yellow, its distribution will be eagerly watched by all interested in hardy plants. The specific name is not, however, very inviting, but the plants flowering just now in the alpine-house at Kew show a vigour and profuseness of flower almost equal to any of the others. The curious point about P. pauciflorum is the length of the flower tube, which is fully 1½ inches in length, while the others show hardly any lengthening at all; the only exception being that of P. reptans, which, by-the-by, has not creeping stems; the tube is not more than one-third the length of the above. It is a true perennial, increasing rapidly by offsets, and, though a native of Mexico, it passed the winter well in a cold frame, and, no doubt, would thrive in a sheltered spot in the open.

It grows from 1 to 2 feet in height, branching profusely, is very leafy, and densely covered with viscid glandular pubescence, leaves bipinnate with 8—12 pairs of narrow lanceolate acute leaflets about an inch long, and less than half as broad. Flowers few or many at the ends of the branches, drooping, the pedicels about an inch long or so. The flowers clear yellow tinged with red on the outside, funnel shaped, the rather broad tube only slightly dilated above. The funnel or tube from 1 to 1¾ inch long, the lobes broad, pointed, and flat. On shaded ledges in the Sierra Madre, Chihuahua, Mexico, where it was found by C. G. Pringle, in October, 1887, and described by S. Watson in the *Proceed. of the Amer. Acad.*, vol. xxiii., p. 280. It seems an easy plant to grow, ripening seed freely, and will probably soon be better known in this country. *D.*

Clintonia Andrewsiana.

This species is said to be the most beautiful of the New World Clintonias, now nicely in flower in the rock garden at Kew, probably for the first time. This class of plants seem to be at a discount in English gardens at the present, though it would be hard to find more graceful or more beautiful subjects amongst North American Liliaceæ. They are comparatively easy to establish, and grow freely in half-shady spots in peaty soil. The north side of American shrubberies would be a suitable position, as they do not require an overabundance of moisture. C. Andrewsiana is very remarkable, in bearing one or more few flowered umbels besides the principal terminal one; in other respects it closely resembles C. umbellata, but this species has only a single pair of ovules in each cell, while the above plant has several pairs in each cell. The flowers in both are similarly arranged, but in C. Andrewsiana they are considerably larger, and subcampanulate, suberect, and of a deep rose colour. The segments oblanceolate, gibbous at the base, exceeding both the stamens and style; leaves, five or six to each plant, broadly oblong, 6—12 inches long, and half as broad. Hill sides, Tamal Pass, and along the Redwood (Sequoia sempervivens) ravines of Costa County to Pablo Bay, California. Dr. Andrews, in whose honour it was named, found it not far from San Francisco. It flowers in May and June. See Pacific Railway Report 4, p. 150.

C. borealis.

This is a very old plant, having been figured by Aiton in *Hortus Kewensis* i., 454, t. 5, under the name of Dracæna borealis, under which name it was also figured in Andr. *Bot. Rep.*, t. 206; as Smilacina borealis, in *Bot. Mag.*, t. 1403, &c. It was introduced about 1778, by Dr. Solander, from Newfoundland and the neighbourhood of Halifax, Nova Scotia, since which time it has been grown in botanic gardens chiefly, though a handsome plant when well established. The flowers are numerous, and of a greenish yellow colour. The leaves ovate, or oblong.

GERBERA JAMESONI.

This handsome Composite is a native of Natal, and is destined to become a useful plant for greenhouses, and the decoration of gardens in summer. Its general appearance is given in the accompanying figure (fig. 122), taken by Mr. Allen from a plant now in flower in the alpine-house at Kew. The colour of the flower is a pale creamy-orange. A coloured figure, with full description, will, we believe, shortly be given in the *Botanical Magazine*, till the publication of which, we defer giving further particulars, merely adding that it is likely to be very serviceable for the purposes indicated.

CONIFERS AT ORWELL PARK.

Pinus insignis has been planted at this place along the side of the approach road, and the trees have now got to a good height. Most of them during the summer look remarkably healthy, and contrast finely with other Conifers and the surrounding trees, of so rich a green is their foliage; but at the present time it is somewhat seared and discoloured, showing plainly that this Conifer is only suitable for certain situations, that is, such as are well sheltered, and then it becomes an effective object in the landscape.

Abies Douglasii, likewise, need some protection, at least in the Eastern Counties, and plants of this in groups, distributed about among the nurse trees in the pinetum at Orwell Park, are fine specimens just now, when they are making their young shoots, the delicate golden-green of these showing up against the silvery-grey of the older foliage. Most of the specimens referred to are quite 50 feet high, and all are symmetrical in contour, and the branches sweeping the earth. They mostly cone freely. Mr. Wallis finds that the cones, when the seasons are favourable, yield fertile seeds, and I saw many seedlings from last year's seeds; but unless they are in the open soil, so that the tap-roots can descend, they seem to go off soon after they appear. As soon as this Conifer becomes cheap, and its value for timber better known, it will no doubt be largely planted, as



Fig. 122.—Gerbera Jamesoni: colour of the flowers orange. (see p. 772.)

the wood is full of resin, close-grained, and heavy, and therefore very lasting when employed in buildings. It is a tree, however, which has need of shelter, and where it has this, and the soil is suitable, its growth is rapid, often rivalling that of the Larch.

In the same plantation at Orwell, I noticed numbers of Wellingtonias and Cupressus Lambertiana, towering to a height of between 50 feet and 60 feet. Most of the latter were raised from cuttings by Mr. Wallis within the last twenty-two years, which shows the rate of growth of these plants; but then their stations were all carefully prepared beforehand, large holes being dug out, and a layer of clay put over the bottom. This at the time seemed necessary, the natural soil being very light and shallow; but the roots have evidently taken to it, and must have gone beneath the clay and ran out far and wide, or the trees would not look as they do. Be that as it may, Mr. Wallis has every reason to be proud of his nurslings, and must have watched them with much interest since they left the cutting-pot; but when the thinning comes what a pang it will cause to cut some of them down, and yet this must be done to give the others the room they will require.

To see Cupressus Lawsoniana in full beauty [and variety. Ed.] one has only to visit this place, where it is very extensively planted, and where the trees have attained a large size; but what is the more remarkable is, that out of the great number found there, no two among them are exactly alike, all appearing to vary in form or in habit, and in colour. Some trees are very graceful, with Fern-like foliage and a pendulous habit, whilst others are close in growth, and decidedly erect in habit, but all of them assume more or less the columnar form. The soil at Orwell evidently suits the variety, every tree being the picture of health. These trees were raised from seed, but the gardener strikes them readily from cuttings as well; it is, therefore, no wonder that Colonel Tomline has such fine specimens of this Cypress. *J. S.*

FRUIT AND VEGETABLE CULTURE IN FLORIDA.

In Florida, which must be a veritable land of Goshen, as almost every fruit and vegetable that is good for anything is said to flourish there, the Sugar-cane is reported as one of the useful introductions, but grown mostly for retail purposes, being stripped and eaten mostly by children and the coloured race as a sweetmeat, and the sale for such is immense, realising about 2½*d.* for each stalk. Some little Sugar and syrup are manufactured on a small scale, but the cane is said to lack much of the rich, juicy saccharine matter of the Sugar-cane of the West Indian Islands, so that its quality and yield would never equal those of the West Indies. Florida, then, could not compete with these islands in the extended cultivation of the Sugar-cane for commercial purposes.

Sweet Potatos grow well in Florida, are very largely grown, and are of much importance as a food product. The English Pea is largely cultivated, and does well; also a hardy Pea, called Cow-pea, is extensively grown. It is said not to be of a very delicate flavour, but highly nutritious, and produces a yield of 10 to 15 bushels per acre. The Cow-pea, put up in sacks and other packages, is quite an article of trade in some of the American markets.

The Ground-nut, or Pea-nut as it is called in America (Arachis hypogæa), is very largely grown in Florida. The plant thrives well in almost any soil, the cultivation is very simple, and the yield very productive, averaging about 100 bushels to the acre. The Spanish Pea-nut is now very extensively used in Georgia for feeding hogs; the average crop is about 125 bushels per acre. The hogs do all the harvesting, and they generally eat the stems of the plant as well as the seeds. It is estimated that an acre of Spanish Pea-nuts will furnish four times as

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much hog food as an acre of corn. The Peccan-nut belonging to the genus Carya, the species of which, however, is not given, is said to be receiving much attention at present in Florida; it thrives so readily, and is so easy of growth, that it is suggested that it might flourish in many warm and tropical climates, such as the West Indies. The nut itself is planted and, grows readily in any moderately good mixed soil of sand and clay. It is very hardy, and attains height, strength, and body from year to year, until it reaches a great size. The tree begins bearing at about eight or ten years, and the yield annually increases in quantity till the full growth of the tree is attained. The nut is a favourite one, and sells at about *5d.* per pound.

Notwithstanding that nearly all our best-known fruits are cultivated in Florida, the Orange of course occupies the greatest amount of attention. The Orange groves in all parts of the State are rapidly multiplying and the bearing trees are now numbered by tens of thousands, while the young groves, which are being constantly started, comprise millions of trees. The Orange from the seed produces fruit in from seven to ten years, depending upon situation, culture, &c. Groves are made from wild stocks, usually cut off at a height of 3 to 4 feet from the ground, and the new shoots budded, generally produce fruit in three years. The number of Oranges produced from a single tree varies from 100 to 10,000, according to the age, situation, and treatment of the tree. The trees are usually set 20 feet apart, and an acre will contain about 100 trees. At the present time a demand exists for twenty times the quantity supplied at 15 to 20 dollars per 1000 as they hang on the trees.

PARIS.

GARDENING AT THE PARIS EXHIBITION.

IF there is one thing more than another interesting and attractive about the Paris Exhibition, it is the abundance of trees and flowers to enchant the visitors, independent of the floral and horticultural special shows held in the gardens of the Trocadero. The separate pavilions and buildings scattered over the grounds of the Champ de Mars are, for the most part, surrounded with living specimens of their indigenous arboriculture and floriculture, which are valuable for study by those who have not the facilities of seeing them in other quarters.

Around the Mexican building is shown on two sides a very large and fine collection of the various species of the Cactus family, all named, and about 18 fine plants of Agave americana, with the flowering stalk removed, showing the hollow cup from which the sap has been drawn to form the pulque or popular beverage of the country, which is obtained in such large quantities from the vast fields of Agave. Other varieties of the family, yielding the Sisal Hemp and Mexican Grass of commerce, &c., are also planted.

The small grounds around the pavilions of Venezuela, Bolivia and Salvador also abound in displays of their native vegetation. The latter has especially an horticultural annexe, in which, besides fine Coffee plants, there are many other specimens of Ferns, Palms, &c., among others, fine plants of Attalea maripas, Cibotium Schiedei, and large collections of wood, medicinal plants, models of fruits, &c.

But Brazil has done more to illustrate its native flora than any of the other countries, for it has commissioned Mr. Lucien Linden of the Leopold Park, Brussels, the Director of the International Horticultural Company, to illustrate its interesting flora; and this has been done well, although on a limited scale, in gardens, grottos, and greenhouse.

The outside gardens contain Acacis, Cannas, Musas, and some of the Coniferæ; and in a pond artificially heated are to be shown living plants of the Victoria regia.

In a very pretty little greenhouse attached to the Brazilian pavilion is a choice collection of plants, among which are fine specimens of Ceroxylon niveum, Artocarpus Vanoni, Anthurium Schertzerianum crystallinum, Coccolobium pubescens, Tallandsia hieroglyphica and Vriesia hieroglyphica, Microlepia hirta cristata, Dracæna Lindeni, Philodendron Melinoni, Dieffenbachia Bausei, Artanthe magnifica, Philotænium Lindeni, and many other rare foliage plants. Besides the various Palms, Tree Ferns, and beds of Rhododendrons, and other flowers in the gardens, the French authorities have tried to relieve the effect of the white marble statues in the statuary courts by placing round the principal ones grass turf and plants; and the various restaurants are, of course, as usual, bordered with Laurels, Oleanders, Olives, and other plants.

The Brazilian building was only thrown open to the public on Saturday the 15th. From a hasty glance at its products, its contents are full of interest, especially its woods and forest products, among which are the useful Palms, and textile fibres, raw, prepared, and dyed. One of the most curious utilization of various Palm leaves and grasses is in the manufacture of hats, in which much skill and ingenuity is displayed—one in the Brazilian Court made from the Paulinia pinnata, weighs only 80 grammes; another shown in the Venezuelan Court, by Gerrard Alvarez, a species of Panama, is excessively fine, and these are valued at fancy prices, from £20 to £30, from the exceptional labour bestowed on them. In the Sandwich Islands Pavilion are many curious hats made of Ferns and Grasses, and womens' bonnets formed of the ends of Desmanthus virgatus sown together.

There is much information to be gained in a popular point of view from the models of fruits, drawings and photos, and scenery—the collections of woods and fibres shown by the several States of Central and South America, and the Pacific Islands, and the various French colonies, which have not had an opportunity since 1878 of showing the progress they have made in advancing cultures, and utilising their natural products.

The French, who revel in shade-trees, and have such an intense admiration for flowers, have had the advantage of retaining all the trees along the banks of the Seine on the Quai D'Orsai, the Place des Invalides, the Trocadero, and the Champ de Mars, but in addition to these they have drawn from their own horticulturists around Paris, as well as those of the South of France, and Belgium, large quantities of Palms, Agaves, and other tropical plants. Much pains has also been taken in laying out lawns and beds of flowers, and although these suffer greatly from being trampled on by the millions of visitors who have frequented the Exhibition since its opening, especially on Sundays and *fête* days, yet great pains is taken to repair the damage as soon as possible. *From one of Our Special Correspondents.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS IN FLOWER AT MESSRS. BACKHOUSE.

AMONGST the numerous Orchids now in bloom at the York Nurseries are some of great rarity and exceptional beauty, particularly two Cattleyas, which are, I believe, seldom seen by any but well-travelled orchidists. These are Mossiæ alba and C. Reineckiana. The former is noteworthy for its large, deeply-fringed lip, and broad, well-spread sepals and petals, all which are of a pure ivory-white; the centre portion of the lip has a patch of orange colour, that is well set back into the throat. C. Reineckiana has large pure snow-white sepals and petals, and a prominent, well-fringed lip of the same, the central portions of it being beautifully pencilled with irregular lines of a purplish-crimson shade, the anterior part being of an orange shade. There were several plants in bloom, and one or two more in bud. I also noticed a very fine lot of Cattleyas, consisting of Warneri, Mendelii, gigas, Imperial, Skinneri, and Mossiæ, all of which were very good, and some exceptionally so, notably a fine piece of Mossiæ in an 8-inch pot. The thirty flowers on it were fine ones both in colour and size, and measured fully 2 inches across the lip.

It says much for the great increase in Orchid culture in the country to see the large stocks now held by trade growers; for instance, the houses devoted to the cool section in this nursery have been doubled during the past year or two, and, as is well known, the firm has long been noted for their cool Orchids. There was a fine show of bloom in the principal house, and amongst the plants were some splendid varieties. At the warm end was a fine group of Miltonia vexillaria in flower, all of the "Frontino" variety. Upwards of 400 spikes of bloom were open, and opening, on various species and varieties of Miltonias and Odontoglossums. *H. J. C.*

ORCHIDS AT GOODRICH COURT.

Goodrich is well known locally for its Orchids, and it was lately my good fortune to be there when many plants were in blossom. The collection does not comprise many large specimens, but nice plants that can be arranged when in blossom to make an effective display. I noted some of the most attractive that were flowering, and of these Lælia purpurata was represented in many forms, one plant possessing forty-four flowers; but the best variety, which has wide pure white sepals and petals, and a broad unusually dark purple lip, carried fifteen blossoms. One beautiful variety of Lælia elegans had finely developed blossoms. Cattleya Mossiæ was to be seen in many shades of colour, one plant having upwards of thirty expanded flowers. A variety of C. Mendelii, here named C. M. superba, is a great beauty, while a vigorous plant of C. Skinneri had twenty-six flowers, and added much beauty to the groups amongst which it stood. Amongst other Cattleyas in flower, forms of C. intermedia and C. speciossima were conspicuous; and I noticed that a fine plant of C. Leopoldi promised to blossom very freely. Mr. Spencer grows Cattleyas and Lælias in a lean-to house, and raises the plants so that they stand near to the glass. At the same time he employs shading discreetly, and ventilates on every favourable occasion. The plants consequently produce firm thick bulbs, and flower abundantly.

Several Oncidiums were in good condition, and of these O. divaricatum made a good show, one plant of this variety having a spike 6 feet in length, carrying 950 blossoms. The dwarf O. concolor was also flowering well, and a grand variety of O. crispum, suspended from the roof, had a beautiful spike of its chestnut-coloured flowers. A fine plant of Zygopetalum rostratum, growing upon a piece of Tree Fern stem, was well-flowered and perfectly healthy. Burlingtonia candida had seventeen spikes with twelve blossoms each. Pilumna fragrans, and several Cypripediums, were also flowering freely; Cypripedium spectabile formed a pretty group at the end of a cool Peach-house, where the plants remain throughout the year.

I have never before seen this old plant so well grown or flowered, and Mr. Spencer said that the plants had not been repotted for three years. Saccolabiums grown in suspended baskets were in perfect health, and promising to make a fine show. Vandas, Aërides, and Epidendrums, were likewise showing their flower-spikes, while a large plant of Dendrobium Dalhousianum had several large spikes with their blossoms expanded. *Thomas Coomber.*

EULOPHIA MACROSTACHYS.

This curious and rarely seen Cingalese Orchid is in flower here just now. The flowers, four in number, are produced with the young growth from the side of the apex of the new bulb. They are erect, on short stalks, like open sacks; colour golden-yellow round the mouth, with reddish stripes; whitish on the outside of the flower. *W. T. Ogilvy, Ardean, Dollar, N.B.*

Cattleya Bluntii.

For brevity's sake this is the garden name of what might be called C. Mendelii alba. A fine spike of the true pure white variety, showing no colour save the chrome-yellow of the base of the labellum, comes from the collection of R. B. White, Esq., Ardarroch, Garelochead.

Cattleya Mendelii Venus

comes also from Mr. White's garden. It is a charming variety, with clear white sepals and petals, its rosy-crimson labellum being also broadly margined with white. Accompanying it was one flower of a grand form of C. gigas, which has nearly oval petals in breadth fully 3 inches,—the broadest we have seen, the total expanse of the flower being 8 inches.

Other C. gigas and C. Mendelii were included, all superb flowers, but nearer to the other fine forms seen in collections than those we have noted. *J.*

Foreign Correspondence.

RAMONDIA PYRENAICA.

Permit me to add a few remarks to the note on Ramondia, p. 747, in your issue for June 15. For several years I have grown the old Ramondia pyrenaica and its white-flowered variety, and R. serbica together. All are at present growing well, but I am not pleased with R. pyrenaica, on account of its being rather a shy bloomer. R. p. alba grows as well as pyrenaica, but blooms more freely. R. serbica is the best of all, growing luxuriantly, and flowering abundantly. "Wonderful! I never saw so fine a plant," said Mr. Nicholson, of Kew, to me a fortnight ago; and he was quite right.

I grow my Ramondias in turfy peat in a rockery facing north, where they are shaded from the rays of the sun from 6 A.M. till 4 P.M. I keep them always pretty moist, never allowing them to become dry. Mr. Vetter, of Wilhelmshöhe, the well-known imperial park, three miles from here, grows the same species of Ramondia in almost the same manner that I do, except that they have more sun. His plants are not quite so good as mine, but even there R. serbica is by far the better. R. Nathaliæ, also grown by Mr. Vetter, appears to be the most unsatisfactory of all, and has not as yet shown flowers. *C. Wissenbach, Friedhof's Inspector, Cassel, Germany.*

POPPIES.

Poets may be allowed considerable latitude in their writings, but had the immortal "Burns" written his tale of "Tam O' Shanter" in 1889, I venture to say that his lines "But pleasures are like Poppies spread, You seize the flower, its bloom is shed," would in all probability not have passed unchallenged. Indeed, it is not too much to say, that within the last few years Poppies have become important garden decorative plants, and are useful for the exhibition table, the cut-flower basket, even to the extent of being grown for market purposes. The secret of using them in a cut state is to cut before they are too fully expanded, and place them in water immediately, allowing them to stand for some hours before transmitting them to their destination. Of course, for home use there is no difficulty, as they can be placed in position at once. Indeed, when plucked in the bud stage and opened out, I have had the large oriental poppies keep quite fresh lying on my table for a whole day. In garden parlance, there are many kinds of Poppies, as oriental, Opium, Alpine or Iceland, Corn, Welsh, horned, prickly, Himalayan, also Californian (Eschscholtzia and Platystemon), and plume (Bocconia). All Poppies are easily raised from seeds, which in ordinary seasons are produced abundantly. The seeds may be sown at almost any season, provided the soil be in a suitable condition; the annual species, if sown in autumn, will flower early the following summer, and if another sowing be made about April or May, a succession of bloom will be obtained which will endure through the summer. May or June is a capital time to sow the perennial species, and they may be sown either where they will remain, or, as in the case of alpinum or nudicaule, sow them in a frame and transplant afterwards, which is an excellent practice. Early in June, Poppies begin to be at their best, and one of the earliest and showiest is the great oriental Poppy—P. orientale—with its huge orange scarlet flowers, with generally a large black blotch at the base of the petals; there are several varieties of this species, including a darker one than the type, as well as several blush and salmon coloured hybrids; and a semi-double form, in which the flowers are of the colour of the type, but smaller in size, and without the dark blotch. P. bracteatum is very similar to orientale, but it is much darker in colour, being of a deep blood-red. Its distinct colour and leafy bracts, render it quite dissimilar from orientale, but it is well known that both are very frequently raised from the same seed capsule, and must therefore be of the same species. Both have deeply cut pinnatifid leaves, thickly covered with rather long white hairs. These Poppies have a splendid effect when grown in large masses, especially if there be a dark background of shrubs to relieve the glare of colour. Another useful perennial species is P. nudicaule, Iceland Poppies, of which there are three distinct colours, orange, white, and yellow. They are neat border plants, preferring a free soil and a moist situation, or a cool nook on the rockery. The plant rarely exceeds 5 or 6 inches in height, and forms dense tufts of glaucous, fern-like foliage, out of which the flower scapes rise in great numbers to a height of 6 or more inches. The individual flowers are from 1 to 1½ inch across, compact, regular, cup-shaped, and well adapted for cutting, and probably this Poppy yields a more continuous succession of bloom than any other species.

On a flat border, the plant sometimes goes off in winter, but it is so easily raised from seeds, that one need never to be without a large breadth of it, and in most seasons it will sow itself quite freely. For practical purposes alpine Poppies may be classed amongst Iceland Poppies, although it is generally considered that the former are rather the dwarfer strain.

Of annual species the common Corn Poppy, P. Rhœas, is perhaps the best known, at least, in the south of England, where it is such a troublesome weed in the arable fields; but for garden purposes a very beautiful strain of it has been raised by the Rev. W. Wilks, of Shirley, Croydon, and which has this year been distributed under the name of Shirley Poppies. They are much larger than the type, and the colours are blended and distributed in a remarkable manner. Should they prove constant in character, a desirable acquisition will have been made.

Another pretty variety is P. umbrosum, a beautiful free-flowering plant about 2 feet in height, producing its deep red flowers, with a black shiny blotch on the base of the petals in great profusion. The flowers are more cup-shaped than in the Shirley Poppies, and although botanists regard them as being of the same species, to the florist or gardener they appear to be quite distinct. We always get the finest bloom from seeds sown in autumn. P. somniferum (Opium Poppy).—The colours and forms of this species are almost infinite, ranging from white to nearly black, and from single to very double, and with petals almost entirely even, to others very deeply cut.

Double Poppies are catalogued as in various strains—French, Carnation-flowered, and Pæony-flowered. All these double forms are well adapted for cutting, and are effective plants along the margins of shrubberies or similar places.

P. S. Danebrog is a distinct single red variety, with petals rather fringed, and with a white blotch in form of a Maltese cross in the centre. Another annual species of great merit, recently introduced by Mr. Thompson, of Ipswich, is the Peacock Poppy, P. pavoninum, a moderately vigorous grower, with much pinnatifid divided leaves; the flowers, which are freely produced, are of a rich shade of scarlet, lighter in shade at the base of the petals, and with the characteristic black horse-shoe-shaped blotch between, forming a continuous zone in the flower. Mephisto and Mikado are two distinct annual sorts; the former has a white cross in the centre of its purplish-rose-coloured flowers; Mikado is a dwarf grower, with large white, much fringed, sometimes deeply laciniate petals, prettily marked along the edges with various shades of red. *F. R.*

(*To be continued.*)

Cultural Memoranda.

POTTING CHRYSANTHEMUMS.

Where this is not already done, and whether the plants are grown for large blooms or as bushes for decoration, they should now be put into the pots (9-inch) in which they are to flower. A large potsherd sufficiently curved to allow the water to pass away forms sufficient drainage; if this be covered with smaller pieces to the thickness of 2 inches—less rather than more—finishing off with a sprinkling of fresh soot, and a layer of thin turf. The pots, as well as the drainage materials, should be made use of in a clean and dry condition, and the potting soil may consist of three parts sound fibry loam and one of horse-droppings and leaf-mould, with a sprinkle of small bits of charcoal and soot. The compost should be thoroughly mixed together before being used. A little of this should be placed under the plant, and made firm, before putting the plant in the pot. The ball should stand at about the same depth in the soil as it did in the pot out of which it was taken, and the soil should be dry enough to allow of its being rammed in the pot without its sticking to the rammer; and the plant should be, as in the case of the preceding shiftings, put into its flowering pot before the roots become matted together at the sides. The growths should be supported with sticks, and the repotted plants stood on a bed of coal-ashes or gravel, or on boards in a sunny spot, giving them water to settle the soil. After the roots push into the new soil, liberal supplies of water (followed occasionally by surface-dressings of Beeson's manure) should be given. *H. W. Ward.*

Celsia cretica.

The merits of C. arcturus as a decorative plant are well recognised by gardeners, also by those cottagers who appreciate something more than the ordinary Pelargonium for their window plants; but the first mentioned is of little use as a window plant on account of its tall growing habit, but it might find a corner in their flower borders. It is a hardy biennial, and just now it is very attractive. The flowers are borne on long, terminal, erect racemes, the plants attaining some 4 to 6 feet in height. The flowers are yellow, with a couple of spots of reddish-brown near the base of the upper portion of the flowers, which are hairy. The two shortest of the four filaments are much bearded, so as to almost hide the anthers. The flowers are from 1½ to 2 inches in diameter, and a little longer lengthways. For greenhouse or conservatory decoration, if seeds are sown in a little heat during the month of January, plants may be expected to flower about April and May. As soon as the plants are large enough prick them off in the usual way into pans or pots, removing them to the cool frame as soon as possible. At the time of potting pot off singly, and use good strong turfy loam, with a little leaf-mould and sand as a compost. For conservatories and show-houses three plants put into an 8-inch, or four into a 10-inch pot, will be found quite sufficient; and for smaller establishments they may be grown singly, using 24's or 32's in which to flower them, allowing them from seedlings to take their own upward

course without interruption. This is a plant which is also interesting to the botanical student on account of its declinate style. *W. Harrow, Botanic Garden, Cambridge.*

DESTRUCTION OF FORESTS.

We read a good deal of the reckless way in which the great American forests are treated, and of the danger that exists of the extermination not only of trees of great interest, but of the greatest commercial value. Next to being an actual witness of the havoc, a good illustration affords the best testimony, and this is offered by the sketch (fig. 123) we now reproduce from a photograph originally published in the report of the Michigan Forestry report. Comment is needless after this exposition of the manner in which "the lumberman has taken what he wanted."

NURSERY NOTES.

MESSRS. F. HORSMAN & CO.

In their healthy quarters at Mark's Tey, near Colchester, Orchids have been established for several years, and the number of fine Odontoglossum Harryanum which have been introduced and distributed by this firm indicate it as being one of the leading Orchid centres in the counties, and one, moreover, on whose correctness of description special varieties they offer customers may rely.

Cattleya, Lælia, and Odontoglossum, are the specialties here, but there appears also a leaning towards a complete collection of the smaller growing species of Orchids, and a selection of rare things. This is shown markedly in the collection of Masdevallias, which contains some of the handsomest of the showy species, as well as the rarest of the more botanical curiosities. In flower at present are some brillant M. Harryana, the rare purple M. calura, the beetle-like M. triaristella, M. gemmata, M. ionocharis, M. leontoglossa (true), and others, both curious and handsome, their beauties being enhanced by the frequent occurrence in the houses of the rosy flowers of Pinguicula caudata, the brilliant orange spikes of Epidendrum vitellinum majus, and the numerous sprays of that fine strain of Odontoglossom crispum, which Mr. Horsman's personal experience as a collector enables him to import.

In one shady lean-to house were arranged a collection of Cattleyas in bloom, chiefly Mossiæ and Gaskellianas. Of these the most beautiful by far is one named C. M. Taylori, which has flowers of bright colour, their beauty being increased by the heavy purple marking of their petals. Another variety, known as "Dr. Dukes' variety," is as perfect in shape as the first-named, but it has but little colour either on petals or lip, and whose broadly frilled front lobe is the most remarkable feature. Cattleya Bluntii, too (the white Mendelii), is here in bloom, and a most beautiful form of Odontoglossum citrosmum with very large flowers, the lip large and pure white, with an orange-coloured crest; the sepals and petals being of a remarkable tint, which may be designated yellowish buff. The variety, from its distinctness and beauty, is highly prized. In flower in the same house were numbers of excellent Odontoglossum Pescatorei, and quite a show of the neat and pretty Odontoglossum crispum Lehmanni, which seems to be intermediate between O. crispum and O. Pescatorei. In bloom were plants of the richest of crimson Orchids—Broughtonia sanguinea, the neat Oncidium longipes, a superb form of Odontoglossum Skinnerii, many extra good Lycaste Deppei, the rare Angræcum Scottianum, and a curious Promenæa, whose flowers open of a pale yellow colour, and turn soon after white.

The larger of the houses are spans, consisting of several divisions each, and joined together at the ends by a warm house, in which are grown the new Angræcum pallidum; and other presumably new species are waiting to be proved. In these varieties the Cattleya eldorado thrive and produce freely their fragrant flowers.

In a shady corner, too, a case of Anœctochili were observed in perfectly healthy condition; the batches of the various fine Cypripedium were doing well, many being in flower or bud.

Some noticeable features in the cool range were the large and healthy stock of Odontoglossum of all kinds, many of the rare-named varieties being among them; Miltonia vexillaria is in quantity and of the best large-flowered type, the variety Cobbianum in flower among them; Oncidium macranthum were numerous, and although not long imported, they are vigorous enough to show flower spikes. The strain of Odontoglossum nebulosum is, as shown by the flowers, an exceptional one. Disa grandiflora was thriving well in a corner, and the lesser Masdevallias and Pleiones, mostly suspended overhead, were in good order.

The chief Cattleya-house contained the specimen plants, and better could not be desired; and as quality is the object aimed at, no indifferent forms are retained after the flowers have been seen. The varieties of C. Mendelii are those which now make the best display, and among them may be observed some curious and novel forms, which, on flowering the next time, may prove valuable additions. The C. Dowiana and C. gigas were sound and strong in this house, and the varieties of Lælia elegans, a few of which were in flower, were good; the new Cattleya porphyroglossa, introduced by Messrs. Horsman, and which is considered intermediate between C. velutina and C. bicolor was seen to be sheathing well, and the large and varied stock of white varieties of Lælia anceps, which are here judiciously kept in a different house to the stock of coloured varieties so as to prevent errors in name by the stock becoming mixed, were promising well for bloom.

In the next intermediate house the true Anguloa eburnea was in bud; many Odontoglossum Schlieperianum, and likewise O. citrosmum were in flower; Oncidium incurvum was covered with flower-spikes; Odontoglossum bictonense album was in bud; Ionopsis utricularioides, and several other rare and small growing species were in flower, and all in fine health.

In the coolest house on the place—a sunken house, devoted to the smaller or rarer Odontoglossums, &c.—is an instance of the manner in which that beautiful Oncidium, O. Forbesii, may be grown cool and moist like an Odontoglossum. Many plants of it were here found luxuriating so grown, while bushels of freshly imported plants of the variety have been killed in other places by heat. The same remarks will apply to O. concolor, and all the others of that section of Oncidiums.

In the Dendrobium-house the plants were in fine condition; one compact mass of D. Wardianum was noticed with some twenty strong young growths, and others were proportionately good. In this range the greater part of a house is occupied by large healthy specimens of Lælia purpurata, which must have formed a grand sight awhile ago. Here was explained the secret of the successful culture of the stately Schomburgkia tibicinis at this nursery, the plants although of large size stand on a shelf fixed close up to the roof glass, getting here the maximum of light, heat, and air, and they never fail to produce spikes, which those who grow them on stages in the ordinary way, fail to get. In another tolerably cool corner a fine lot of Vandas were at home. A selection of rare bulbs and Lilies is also grown here, and at present the Calochorti are finely in bloom, as well as other curious and pretty bulbs, among those in the house last-mentioned being the neat white-flowered Plagiolirion Horsmanii.



Fig. 123.—A Michigan forest after the lumberman's visit.

Eremurus Bungii.—Rev. H. Ewbank writes that in his garden at Ryde, this noble plant is most striking at the present time.

Plants and Their Culture.

Present Treatment of Cyclamens.—In some private gardens these popular plants do not get the right kind of treatment, besides being at times much neglected after they have flowered but the plants will always well repay any attention given to them. For anyone possessing a frame or greenhouse their culture is very easy. Seeds should be sown in August or September, so as to get good plants for the next winter, allowing the plants fifteen months from the time of sowing the seeds. These may be sown in pans or small pots. We sow ours in 60's, half-a-dozen seeds in a pot, making the soil firm, and placing the seed round the sides of the pot. By adopting this plan the young seedlings are easily removed singly to small pots when large enough, without the roots getting injured, as is sometimes the case where a lot of seedlings are altogether in a pan. Place the seed pots in a cold frame on a coal-ash bottom, keep the frame close till the seedlings appear, when it is essential that the seed pots be kept close to the glass. We use a raised platform in a small pit, covering it with coal-ashes, and as the plants increase in size we give them more and more space. Cyclamens should never receive a check, and it is good to get them transferred from the seed-pans or pots as soon as possible, and grow on steadily, keeping the plants always free from aphis by fumigating or dipping them, as may be required. Thrips are often allowed to establish themselves on the young leaves; this is very detrimental. For the final shift 48's is a useful size of pot. As potting compost, a good fibry yellow loam, some dried cow manure, a little leaf-mould, and coarse silver-sand will be found as good as any. The loam should not be freshly dug, but should have been stacked for some months, and the leaf-mould may not be used if it has not been obtained from a clean source—all sweepings or shrubbery refuse being avoided. Good strong plants will be obtained if the seedlings are grown as above directed.

Old Cyclamen tubers when the bloom is past should get a place in a cool frame or pit, and be watered only just as often as may be necessary to keep them alive. Let the position be a sunny one, give no shade, but plenty of air whenever the weather permits it being given; and keep the foliage free of aphis. The tubers will, with this kind of treatment, mature properly, and may be shaken out of the soil and repotted as soon as signs of renewal of growth are visible; and the method of culture advised for the seedlings pursued with these. Slight shade should be given them when the sun is hot, and the watering must be done with care.

When the pots fill with roots, manure-water made with some approved fertiliser, or diluted farmyard manure-water may be afforded the plants with advantage. Their vigour will be much increased by a slight dewing over with a fine rose pot or the syringe at the end of the day when the weather has been bright. Seeds should be saved from the finest flowers, and only one or two pods allowed to perfect seeds on a plant. *G. Wythes, Sion House, Brentford.*

Fruits Under Glass.

The Earlier Peaches.—As soon as the fruit is gathered, the trees should be treated as was recommended in earlier Calendars, that is, the old bearing-wood should be cut down so far as the young shoot at its base, and the latter tied in its place, not too thickly, but about 3 inches apart; the trees should be then well washed with an engine or a syringe, and syringing may also be performed on fine days thrice weekly, night and morning. Gross-growing shoots should be stopped, and straggling ones tied in. The ventilators should now be constantly open, except on nights which are cold, when those in the front of the house should be closed.

In houses where the fruit is ripening, air should be afforded the trees in abundance, and a dry atmosphere. The fruit can be retarded if necessary by sprinkling a little water thickened with whitening on the roof. Examine the trees at regular intervals, picking any fruit which is ripe, or nearly so, and place it in a cool room; it will keep in good condition longer, especially if it will have to be sent to any places at a long distance. Very little fire-heat will now be required, unless in the case of fruit being required for any especial purpose, and before its ordinary ripening period. Attend to the watering of the borders, and in the case of old trees give some manure-water; but young, strong-growing trees will be afforded a better chance of ripening their wood if they be not stimulated with manures in any form, clear water being sufficient for these. Remove laterals; leave a fruit to every square of 10 or 12 inches; syringe the trees night and morning; close the house at 3 P.M. at 85° for a time, maintaining a night temperature of 65° to 70°. Should fumigation be needed, get this operation done before the fruit begins to colour, and syringe frequently any portion of the trees close to the hot-water pipes to prevent an attack of red-spider. After stoning, the fruit should be well exposed to the light and sun, choosing a dull day for taking off leaves, &c. *W. Bennett, Rangemore, Burton-on-Trent.*

The Hardy Fruit Garden.

The Wall Fruits.—Peach and Nectarine trees which have set heavily should now be freely thinned, the quantity to be left on each tree at the final thinning depending on the vigour of the tree and the size of the fruit. As a general rule, but one that requires modifying to suit particular cases, from 10 to 12 inches is about the distance at which I leave the fruits at the last thinning; and this thinning should take place before the stoning of the fruit is completed. Heavy cropping should be avoided, as it is always attended with present or future evils. Examine the borders if no rain has fallen for some time, and water if necessary, doing this abundantly instead of little and often, and mulch afterwards if the soil be light. Keep down red-spider by daily syringings, using only clear water; but should the attack be formidable, mix a little flowers-of-sulphur with the water. For black aphis, &c., I would here mention that it is not advisable to use quassia-water, Gishurst compound soap, &c., in solution, after the fruit has stoned, otherwise a disagreeable taste will be imparted to the fruit.

Strawberries.—As the fruits begin to colour the nets should be placed over the beds, to protect them from birds, and, if necessary, weeding the beds first. Afford the beds a good soaking of water, after which put down some kind of framework, to keep the nets clear of the plants; a good plan is to drive in a few stakes, and stretch a wire across at intervals of a few yards.

Sweet Cherries.—These trees should have nets placed over them early, or as soon as colouring begins. Fish netting neatly secured to the top of the wall, and pegged to the ground at 4 feet from the bottom of the wall, is an excellent plan, as the gathering of the fruit can be done without much disturbing of the net. *H. Markham, Mereworth Castle, Kent.*

The Kitchen Garden.

The Mushroom Shed.—The beds which may have been made in sheds and out-of-doors will now be in full bearing. The surface should be covered with a thickness of one foot of dry straw, in order to maintain, as far as is possible, an equable temperature on the surface, as well as to husband the moisture and warmth of the bed itself. Whenever the beds show signs of a declining in bearing, a slight application of weak dung-water from a stable at a temperature a few degrees in excess of the atmosphere may be given, removing the covering previously, and replacing it again immediately after the watering. Continue to make beds in sheds, and on northern aspects for the present.

Tomatos planted against walls will require to be regularly thinned of side shoots, and the remaining shoots stopped. I prefer to confine the plant to one main stem, and to remove all the laterals and sub-laterals as fast as they appear. During dry, warm weather, the plants will be much benefited by occasional syringings, and frequent applications of weak manure-water. The plant is sometimes attacked with greenfly, and when this is the case syringe the plants thoroughly with a weak solution of tobacco-water—one part tobacco-water to sixteen parts water.

Peas.—In many districts the time is past for sowing Peas in the open; but in warmer localities Peas may be sown so late as the second week in July. The varieties to sow should be the early ones, and the last sowing should be made on a warm border. If the ground be dry at the time of sowing, a soaking with water should be afforded it, and when it is again in a workable state, the seed should be put in, and afterwards a mulch of short grass or dung should be laid on each side of the rows for a width of 18 inches. Stake successional crops, not allowing them to fall over before doing so. Any which have grown beyond the sticks should have the tops removed, which will cause them to branch out afresh, especially if a good mulching can be laid down, and a free application of manure-water afforded them.

Broad Beans.—A small sowing of these may yet be made, and advancing crops should have their tops removed as soon as a good set of pods has been secured; on light land, a few inches in depth of short grass placed between the rows will preserve the Beans longer in a useable state.

Broccoli will now be ready for planting, putting in the plants according to habit and size, at 2 to 3 feet apart—a lesser space is sometimes adopted between the rows. As a rule the larger distances are best, as free admission of air amongst the plants is conducive to hardiness.

Brussels Sprouts, Cabbage and Successional Plantings of Cauliflower should be made as soon as the plants are in a fit state to be put out, for if allowed to stand long in the seed or nursing bed they suffer greatly from overcrowding.

Leeks.—The main crop of these should now be got in. The ground should be liberally dressed with manure and deeply worked. In planting Leeks, draw drills about 18 inches apart, and with a hand dibber make holes 6 inches deep at 12 inches apart; into each hole drop a plant, and run a little water into each hole at the same time, but no soil, and little further attention will be required for some considerable time to come.

French and Runner Beans.—Make another sowing of these, and where the Scarlet Runner Beans have suffered loss by slugs no time should be lost in making it good. Where Bean sticks are scarce, Runner Beans may be grown as dwarfs by frequently pinching the running shoots. The plants continue to flower long if afforded occasional doses of manure-water.

Cucumbers in frames will require to have the shoots stopped, trained, and all spent foliage removed. The plants should not carry too many fruit at once; and whenever the roots appear on the surface of the bed a top-dressing of rich light soil, and a dusting of Thomson's Vine Manure should be placed over the roots. In dry weather water liberally with tepid water, and in dull weather be careful that the temperature does not decline to a too low point; and if there is any danger of this occurring the limings should be renewed wholly or in part.

General Remarks.—Parsnips, Beet, &c., must have timely attention paid to thinning them; Parsnips will not have too much room at 12 inches apart in the row; Beet may be left at about 8 to 9 inches, the roots not being liked when they are large. If slugs have ruined the crop of Carrots, no time should be lost in re-sowing the ground with Horn varieties. Keep the hoe plied amongst all kinds of young crops until the tops have covered the ground, when it will no longer be needed; and give no quarter to weeds. *W. M. Baillie, Luton Hoo.*

Carnations.—The display of Souvenir de la Malmaison at Tring Park this year is remarkable. Mr. Hill has excelled his previous efforts, and there are now to be seen thousands of superb blossoms of very large size and faultless shape, while the delicious perfume pervades a very large portion of the gardens, wherein the houses are situate. It is difficult to imagine the appearance of a large house entirely filled with splendid plants in full blossom of this superb variety. What a gain it would be to horticulture if we had a great many such places as Tring Park, where everything attempted is well done. Lord Rothschild is also a great lover of Orchids, and owns a special lot of well-grown, clean specimens. The plants of Vanda teres and V. Hookeri entirely fill one house, where they grow vigorously, and flower in profusion. The Lælias, Cattleyas, Odontoglossums, and Phalænopsis, are superb.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

TUESDAY, JUNE 25—Royal Horticultural Society: Fruit, Floral, and Scientific Committees, at Westminster.

SHOWS.

MONDAY, JUNE 24—Ryde.

WEDNESDAY, JUNE 26—Richmond (Surrey).

THURSDAY, JUNE 27—Royal Horticultural of Ireland. Farningham. Winchester.

SATURDAY, JUNE 29—Reigate.

SALES.

TUESDAY, JUNE 25—Clearance of Stove and Greenhouse Plants, &c., at Gunnersbury House, Acton, W., by Protheroe & Morris.

THURSDAY, JUNE 27—Imported and Established Orchids, at Stevens' Rooms.

FRIDAY, JUNE 28—Orchids in Flower, Established and Imported Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—62°.2.

The Vegetable Conference.

Of the three Conferences which the Royal Horticultural Society has arranged to hold at Chiswick this year, probably that devoted to the Rose, which takes place on the 2nd and 3rd of July, will prove the gayest, the most attractive, and the most scientifically valuable, whilst the vegetable conference will doubtless possess the chief interest for gardeners generally; the Chrysanthemum conference having a more limited range of interest, because so many exhibitions of that popular flower will be taking place at the same time.

Vegetables invariably attract much attention because of their appearance, and of their essentially utilitarian character. We have seen during past years not merely a remarkable development of fine form and comparative beauty in many of our popular vegetables, but growers of these have exhibited unwonted taste in displaying their products, especially as collections to the public gaze. Hence even Onions, Carrots, Beans, Cauliflowers, and other somewhat lumpy-looking products have compelled notice by reason of the effective manner in which they have been displayed. The Vegetable Conference, which will fall at a time when autumn and winter vegetables should be in profusion, will, of course, be to some extent an exhibition. The various fruit conferences were necessarily fruit shows, but whilst we have so far failed to make collections of Apples and Pears other than somewhat flat and formal in appearance, let the fruits be ever so good, we have, because of the variety of form and character found in diverse vegetables, been enabled to present them to the public gaze in attractive shape, and so far as the means at the disposal of growers who may take part in the conference will admit of, no doubt we shall see the various illustrative products presented in an attractive way.

The gathering together of a big lot of vegetables, let them be ever so good and so varied, as well as representative, would of itself fail to meet the desires of the promoters. A conference proper signifies interchange of knowledge and of opinion, and the ordinary course is to invite some competent persons to read papers on certain topics connected with the subject-matter of the conference. That method of conducting the proceedings is occasionally somewhat monotonous, leading to the production of dreary, prosy papers, which are often badly read, and too commonly cover no new ground; whilst they too often also prove discursive, and lead away from the subject specially needing consideration. Still farther they tend to limit debate, in other words repress that full expression of opinion from the many, which is after all much more important to elicit than is the single view of the reader. In relation to this particular Vegetable Conference, we learn that suggestions have been made that paper-readers instead of presenting long essays on every imaginable topic, should be invited to answer briefly some one or two set questions, each with the object of saving time, eliciting useful information, and checking the too common tendency to verbosity. What these questions shall be, it will be for the Council of the Royal Horticultural Society and the executive committee, having charge of the conference, to determine; but it is obvious that they should be very practical, and should be placed for discussion into the hands of thoroughly competent persons. Very important is it that in the work of approval or classification of the vegetables presented, the fullest impartiality should prevail. Those to whom may be committed the responsibility of determining to what particular section this or that kind of vegetable may belong, or in what way unsuitable and improper nomenclature may be corrected, will have important work to discharge, and need strong wills to do that work thoroughly. In the matter of trade complications, vegetables enter very largely, and if the conference can be made in any way to clear the air of those complications, especially in respect to nomenclature, great good may be done.

There is considerable need for getting vegetables classified into early, mid-season, and late, or into recognised sections, selecting the very best forms in each. It would be well indeed could the judges or committee of the conference be authorised to make some kind of award, even if it be but a certificate of merit to those generally selected varieties in the diverse kinds of vegetables, which shall be held to be the best. If the Society in getting together a fine collection of all the best vegetables of the kingdom, as we trust it may do, should not indicate plainly which are the very best of their respective kinds, it will appreciably have failed of its purpose. How far vegetable growers may care to respond to the invitation of the committee is yet problematical; there will be no other inducements held out than purely honorary ones; but these sufficed for Apples and Pears, and practically for Orchids and Primroses, the exhibitions and conferences relating to which have been far more interesting and much more useful than the ordinary flower-show, which too often fosters vanity and greed at the expense of real knowledge. So much, however, depends in the case of vegetables, upon gardeners, that their earnest co-operation is specially solicited. We trust also the market garden element will be well represented, and every means taken to consider how far vegetable culture may be extended as a source of revenue to small farmers and others suffering from the depressed state of agriculture.

Lastly, we may congratulate the Council on their effort to make Chiswick better known, and to develop to the full its capabilities as an experimental garden. Such work is far more important to the progress of horticulture than are mere flower-shows, which partake of the nature of trade bazaars.

THE ROSE CONFERENCE AND DINNER. — It is requested that specimens of the species of Rosa, living or dried, together with drawings, photographs, books, and any other matters relating to the Rose in its botanical, literary, and artistic phases, may be sent to Dr. MASTERS, at the gardens of the Society at Chiswick, before July 1, in order that they may be exhibited at the Conference.

It has also been determined to take advantage of the Rose Conference, which meets at Chiswick on July 2 and 3, to hold a Royal Horticultural Society Dinner, at the Hôtel Métropole, Northumberland Avenue, Charing Cross, at 7 P.M., on Tuesday, July 2. Sir TREVOR LAWRENCE, Bart., M.P., President of the Society, will take the Chair, and the Foreign Rosarians who are expected to be in England for the Conference will be the guests of the Society. It is hoped that many garden lovers and rosarians will support the President on this occasion, and it would be a great convenience if gentlemen intending to be present would apply for a ticket beforehand to Rev. W. WILKS, R.H.S., 117, Victoria Street, in order that we may have some idea of the number to be expected. The tickets are priced at half a guinea, and we shall be happy to send one to those who apply.

THE HORTICULTURAL CLUB. — The usual monthly dinner and *conversazione* took place on Tuesday, 11th inst., at the rooms, Hotel Windsor, Victoria Street, Westminster, Mr. JOHN LEE in the chair. There were present also the Rev. F. H. GALL, Rev. EDWARD HANDLEY, Messrs. HARRY J. VEITCH and A. G. VEITCH, DRUERY, H. G. PEARSON, C. E. PEARSON, W. B. MAY, JAMES WALKER, &c. A very interesting paper was read by Mr. C. T. DRUERY, entitled "Floral Notes During a Recent Visit to Mexico," but in truth it touched on many subjects connected with the country.

GARDENERS' ORPHAN FUND.—The following intimation has been sent for publication by Mr. G. DEAL, Chairman of the Institution:—"Will you allow me, through the medium of your columns, to remind the friends and subscribers of the Gardeners' Orphan Fund that the annual dinner and gathering of gardeners will take place on July 19 next, at the Cannon Street Hotel, City, E.C., on which occasion the President, Sir JULIAN GOLDSMID, Bart., M.P., will take the chair, supported by several well-known friends of horticulture. The dinner will be preceded by the annual election, at which five children will be elected to the benefits of the Fund. Those subscribers (numbering about 250) whose subscriptions are not yet paid, are reminded that, in order to secure their votes, this should be done at once, as voting-papers can in no case be sent where subscriptions are in arrear."

—— A special meeting of the Committee took place at the Caledonian Hotel, on the 14th inst., Mr. GEORGE DEAL presiding. The Duke of BEDFORD'S handsome donation to the fund of the sum of £500 having been announced, it was unanimously resolved to purchase another £500 worth of "Goschens," in addition to a similar sum invested a short time ago. The Hon. Secretary

announced a third donation of £5 from Mr. James McIntosh, of Oatlands Park, and reported that the sum of £125 8s. had been received as special donations since July 1 and up to the 13th inst., but this amount did not include the contents of money-boxes and some small sums. The amount of subscriptions paid during the same period amounted to £295 3s., still leaving a number unpaid, and this sum also does not include interest from invested monies, nor amounts sent in by local secretaries. A letter of thanks to the standholders in the Wholesale Flower Market was read and approved, and a copy ordered to be sent to each. An important discussion took place on a request made by some of the standholders to the effect that the sum of £200, the nett proceeds of the recent floral *fête*, should be regarded as a donation from that body, and be apportioned among a number of them as life subscriptions of £5 each. The committee came to the conclusion that they had no power to do this under the existing regulations; and it was resolved that a sub-committee be appointed to consider the expediency of making an alteration in the rules to meet such cases, and report at the next monthly meeting of the committee; such sub-committee to consist of Messrs. Deal, Asbee, R. Dean, Roupell, Wright, Wynne, and A. F. Barron. A vote of thanks to the Chairman closed the proceedings.

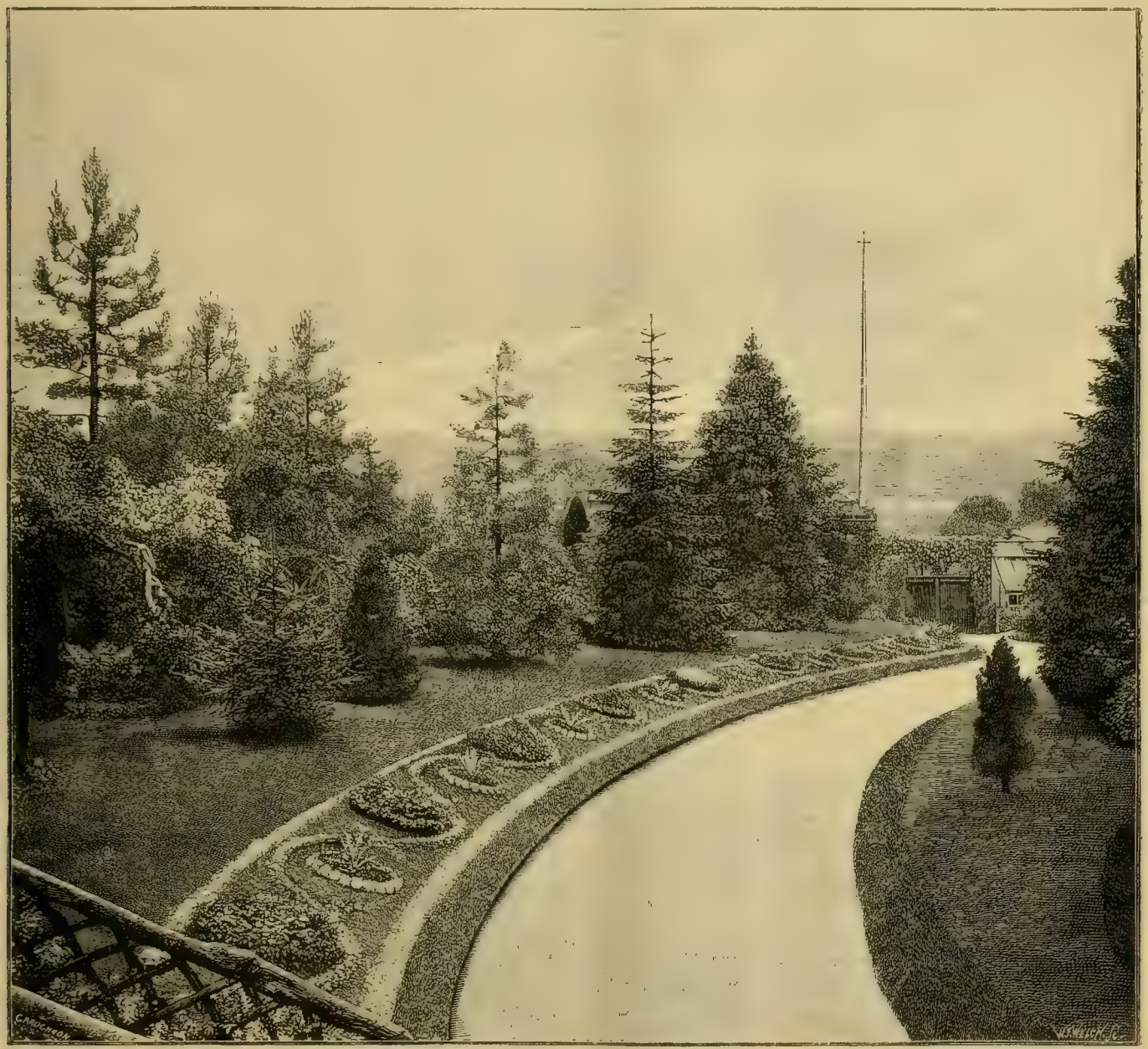


Fig. 124.—Garden scene at the "Ivies," Winchmore Hill. (see p. 781.)

Proposed Exhibition of Farm Fruit, Fruit Packing, &c.—Under the auspices of the Maidstone Chrysanthemum and Fruit Society, a public meeting was held at the Town Hall, Maidstone, on Wednesday afternoon, 12th inst., to consider the advisability of holding, in connection with the Chrysanthemum Society, an exhibition of farm fruit, methods of fruit packing, preserving, &c. The President (Mr. H. A. Brassey) presided, amongst those present being Mr. C. Whitehead, J.P. (adviser to the Agricultural Department of the Privy Council), Mr. F. S. W. Cornwallis, M.P., and Mr. C. de Laune Faunce de Laune (Chairman of the Kent Fruit Society). After an interesting discussion on the subjects of fruit growing, preservation, carriage, and other cognate matters, by Mr. C. Whitehead, Mr. Faunce de Laune, F. S. W. Cornwallis, M.P., Mr. Monckton, and others, Mr. de Laune proposed: That a committee be appointed to collect subscriptions, and draw up a schedule of prizes.

Land at South Kensington.—The Metropolitan Public Gardens Association, through their President, Lord Meath, have addressed to the Prince

of Wales, as President of Her Majesty's Commissioners for the Exhibition of 1851, a memorial, in which attention was called to the fact that the land at Kensington, acquired with the surplus profits of that Exhibition for the erection of public institutions, and generally to benefit the country's arts, sciences, manufactures, and commerce, was being leased for the erection of private houses and mansions. This, the memorialists pointed out, is in conflict with the last public announcement of the future of the estate which the late Prince Consort made, and they asked that the unallotted portions may be preserved intact, to be placed to the great public uses for which the estate was destined by Her Majesty's Commissioners and their President, the late Prince Consort. The Commissioners, in replying to the memorial, enumerate the public institutions they have provided with sites on the Kensington-gore estate, and contend that their charter gives them power to sell, lease, and dispose of the estate as they think fit. Of late years a feeling has been manifested against the further aggregation of public institutions in one locality, and the inhabitants of other quarters of London have called for the establishment of museums and cognate buildings in their own neighbourhood. Moved by these considerations the Commissioners resolved to raise, by disposing of portions of the estate, a fund to be applied in the promotion of the objects of their charter. In 1879 they announced their intention of applying a portion of this fund to the establishment of scholarships, and to the assistance of technical institutions of science and art, and connect them with the larger schools in the metropolis. They will not be able to effect this purpose until the mortgaged debt, which is now £134,000, is further reduced. The profits of the Exhibition of 1851 were derived from national and not simply metropolitan co-operation, and the Commissioners believe they carry out the wishes of the Royal founder when they propose to realise part of their money for national purposes. — *Times June* 6.

Lindenia.—The last number is entirely devoted to the illustration of varieties of Odontoglossum, among which we find :—

Odontoglossum Bleichröderianum, Linden.—This is a new species named by MM. Linden, who described it as allied to O. Ruckerianum. According to the figure, it has large stellate flowers with oblong-acute cream-coloured segments, blotched with reddish purple spots, the lip is broad at the base, tongue shaped, white, with a central blotch, t. 177.

Odontoglossum Pescatorei var. Lindeniana, differs from the type in the outer segments being striped with rose, the petals dotted with carmine, the crests of the lip yellow, and the lateral lobes purplish, t. 178.

Odontoglossum Rossi var. Mommianum.—Distinguished by its sepals densely blotched with red-purple spots, the side petals white, barred and blotched in a similar manner, the lip whitish, with rose-coloured lines, t. 179.

Odontoglossum Warocqueanum, Linden.—One of the Andersonianum type, with star-like flowers, outer segments lanceolate, side petals ovate-lanceolate, creamy-white, with reddish-purple blotches; lip rhomboid, and yellow at the base, prolonged into a long narrow white anterior lobe, with a reddish spot at the base, t. 180.

The National Rose Society.—His Majesty the Shah of Persia and their Royal Highnesses the Prince and Princess of Wales will visit the Crystal Palace on the occasion of the above Society's show on July 6. The Secretary informs us that the entry list closes on July 2.

Rhododendron Taylori.—This pretty variety, raised by Messrs. Jas. Veitch & Son, appears in great beauty now in many gardens, its pure pink flowers with white tubes making it as attractive even as some of the newer varieties. It is well-flowered in Captain Edwards' gardens at Haydon Hall, Eastcote. The greenhouse in which it is, is rendered very attractive by the rafters being covered with various Abutilons, now in flower, beside other greenhouse climbers and Roses.

Caterpillar Pest in Cheshire.—It is many years since the "blight" was so bad in Cheshire as at the present time. The leaves of thousands of trees are literally riddled by caterpillars. The blight has got into the Damson trees, and the crop will be a complete failure in most parts, entailing very heavy losses on fruit-growers. The advent of the pest is attributed by a daily contemporary to the hot weather, of which Londoners, at all events, have not experienced much lately.

Leek, Staffordshire.—The Municipality of Leek, having resolved to improve the town cemetery, advertised in these columns for competitive plans. In response to this advertisement numerous plans were sent in, and eventually, the plan which was accepted was that furnished by the firm of William Sugden & Sons, architects of that town.

Great Crop of Strawberries. — Strawberry growers who cultivate many acres of fruit on the banks of the Dee about Farndon, Cheshire, report an extraordinary crop, the season being the best experienced for the past five years. The berries are of great size, and of luscious quality. This will account for the great quantity which is being hawked about the streets of London in costermongers' barrows, at prices unusually low for the time of the year.

Glasgow Botanic Garden.—On Monday last the rich collections at Glasgow were opened to the public at the low rate of 1*d.* for admission. We shall take another opportunity of speaking of this fine garden, the affairs of which are a scandal under existing circumstances.

South African Orchids.—Mr. Bolus publishes in the last number of the *Journal of the Linnean Society*, a revised list of the Orchids found wild in the extra-tropical portions of South Africa—including the numerous Disas, and other fine terrestrial species.

Honours to a "British" Botanist.—The University of Oxford, in Convocation, has conferred the honorary degree of M.A. on Mr. George Claridge Druce, in acknowledgment of his valuable services to botany. Mr. Druce is the author of *The Flora of Oxfordshire*. It is not often that the Universities rise to the level of their duties in such matters.

Linnean Society: June 6.—Mr. Carruthers, F.R.S., President, in the chair. Dr. John Anderson, Mr. J. G. Baker, Dr. Braithwaite, and Mr. F. Crisp, were nominated Vice-Presidents. Mr. Digby S. W. Nicholl was admitted a Fellow, and the following were elected :—The Rt. Hon. the Marquis of Lothian, Messrs. W. Williams, C. S. Wild, and W. Schaus. Mr. Narracott exhibited a singular fasciated growth of Ranunculus acris found at Castlebar Hill, Ealing. Dr. Cogswell showed some examples of Jerusalem Artichoke and Potato to illustrate the spiral development of the shoots from right to left. Mr. D. Morris exhibited specimens of the fruit of Sideroxylon dulciferum, the so-called "miraculous berry" of West Africa, belonging to the Sapotaceæ. Covered externally with a soft sweet pulp, it imparts to the palate a sensation which renders it possible to partake of sour substances, and even of tartaric acid, lime-juice, and vinegar, and to give them a flavour of absolute sweetness. The fruit of Thaumatococcus (Phrynium Danielli), possessing similar properties, was also shown, and living plants of both had lately been received at Kew from Lagos, through Governor Moloney. Mr. Thomas Christy exhibited growing plants of Antiaris toxicaria (the Upas tree) and Strophanthus Kombe, both of them poisonous, to show the similarity of the foliage. On behalf of Dr. Buchanan White, a paper was then read by Mr. B. D. Jackson, entitled a "Revision of the British Willows." The meeting adjourned to June 20.

Brighton and Hove International Exhibition.—It is proposed to hold an International Exhibition of Arts, Sciences, Manufactures, and Trades at Brighton, during the months of October, November, and December next. Greenhouses, conservatories, lawn mowers, tools, engine and hose, wire-netting, seats, gates, railings, and agricultural implements are to be exhibited. Applications for space should be addressed to the General Manager, Mr. Philip Shrapnel, 14, Pavilion Buildings, Brighton; or 20, Bucklersbury, London, E.C., from whom all particulars may be obtained.

Small Farms in Ireland.—We have received an important communication from Mr. W. H. Bullock Hall, which we hope to publish in our next issue.

The Titan at Kew.—The gigantic Aroid, to which we drew attention last week, is progressing. It has doubled in height in a week, and when we saw it a few days since was more than 6 feet in height. It is well worth seeing even in its present state, and may be found in the Victoria-house in the centre of the T-range. It affords an opportunity for various experiments, which we trust will not be neglected by the physiologists.

Gardeners' Benevolent.—As will be seen in another column, the large sum (£3000) required as a Jubilee offering to place all the unsuccessful candidates at the last election on the fund was not only obtained, but considerably more. We congratulate every one concerned, and are almost lost in admiration at the unquenchable zeal of the Secretary, Mr. Cutler, by whose energy in a large measure this sum has been collected.

Railway and Canal Traffic Act.—The Board of Trade has issued a circular in reply to the objections made by the Nursery and Seed Trade Association. The objections raised are classified by the Board (in a circular to the Railway Companies) as follows :—

"1. Objections on principle, such as to the allowance of Station and Service Terminals, to the Short Distance charges and to Maximum Rates by passenger trains.

"2. Objections on matters of detail mainly arising on the classification, and in general relating to the separate interests of each objector."

It is pointed out that the first class of objections can only be dealt with by the Board of Trade, but as regards the second class the Board suggests that time may be saved by an interchange of views between the several Companies and the Traders and Associations who have lodged objections, with a view, if possible, of arranging the differences that have arisen. The following is a copy of the circular referred to :—

"Board of Trade (Railway Department),
"London, S.W., June 10th, 1889.

"*The Railway and Canal Traffic Act*, 1888 (*Section* 24. *Classification of Merchandise and Schedule of Maximum Rates and Charges*).

"With reference to the objection which has been lodged by you under the above Act, I am directed by the Board of Trade to state that they consider that an attempt should now be made, in compliance with the provisions of subsection 3, section 24, to arrange the differences which have arisen.

"I am accordingly to request that you will place yourself in communication with the railway company or companies concerned, with a view to arranging, where possible, the differences arising upon the classification, reserving for future consideration by the Board of Trade those differences which relate to

the proposed schedule of maximum rates, and to the general conditions.

"If any arrangement be arrived at, the Board of Trade will be glad to receive particulars of such arrangement. If, on the other hand, no arrangement can be effected, the Board of Trade would wish a concise statement of the points at issue to be prepared by the company or companies and the objectors.

"The particulars of the arrangement arrived at, or the statement of the points at issue, as the case may be, should be forwarded to the Board of Trade not later than the 1st day of August next. The Board of Trade will then consider the objections which have not been satisfactorily dealt with, and will, where necessary, arrange for a formal hearing, of which due notice will be given.

"A similar communication, of which a copy is annexed hereto, has been addressed to the railway companies; and I am to point out that they have been requested to arrange for an interview in your own locality, between you and an authorised representative on their behalf. Courtenay Boyle."

Proposed Railway Classification and Maximum Rates.—We have received the following from the Railway and Canal Traders' Association:—

"The Board of Trade have issued a Circular, dated June 10, requesting objectors to place themselves 'in communication with the railway company or companies concerned, with a view to arranging, where possible, the differences arising upon the classification, reserving for future consideration by the Board of Trade those differences which relate to the proposed schedule of maximum rates and to the general conditions.'

"The Association desire to record their very strong conviction that it is not at all advisable to allow objections to be dealt with piecemeal.

"The classification as proposed is so inseparably connected with questions of maximum rates and compulsory terminals, that it is difficult to see the advantage of attempting to deal with it as though it were a preliminary question. Moreover, it must not be forgotten that, while individual traders might possibly be satisfied by the companies upon the question of classification, there still would remain the all-important general points, the collective interest in which would be considerably weakened by any apparent concessions in individual cases. Furthermore, exception has been generally taken to the proposed classification as being incongruous and incomplete, and framed on no recognisable principles.

"It is the general hope that the present opportunity should be taken to classify merchandise in a manner which will be satisfactory and exhaustive, and the suggested mode of procedure does not, it is submitted, appear to assist the furtherance of this object.

"It must not be forgotten that in entering into negotiations with respect to the classification, traders are placed at a great disadvantage by the omission on the part of the railway companies, to make any proposals with reference to truck and train rates.

"In the opinion of the Association it is only by securing and preserving concerted and fully organised action on the part of traders and agriculturists that the large questions of principle can be satisfactorily dealt with. The Association is naturally unwilling to set its face against *bonâ fide* attempts at negotiation, provided that such negotiation be for the common good. But individual negotiations may lead to fruitless promises on the part of the Companies, possibly to undue preference, and in all probability to general disappointment. The Association, therefore, strongly advises objectors against conducting any negotiations without competent advice and guidance, and recommends that intimation should at once be given to the Secretary of all communications received from the railway companies."

The Association intends to convene at an early date a conference of parties who have lodged objections. Edwin Clements, *Secretary, Eastcheap Buildings, E.C.*

THE "IVIES," WINCHMORE HILL.

As an instance of what good taste, united to an intimate knowledge of hardy plants, and the possession of the needful means, can do to render a small garden attractive all the year round, we have not seen any place that can excel the "Ivies," Winchmore Hill, N., the residence of H. K. Mayor, Esq. When we say that it is one of a row of villas whose average width of frontage will not exceed in any instance 30 yards, and is often much less, with a depth of sometimes 100 yards, it will be seen that the space is much circumscribed, and it is one that must be dealt with carefully, if pleasurable effects are to be produced. The land slopes rapidly down to grass fields at the rear—that is, northward—and the horizon is bounded by distant wooded heights, the intervening country being of that semi-pastoral, partially wooded character, and boldly undulated, met with in the clayey districts of the north of the county of Middlesex.

This sudden declivity it is which lends an air of deception to some of the garden views, giving ideas of extent that do not in reality exist. This will be seen in fig. 124, which shows a sloping border on the left hand as one leaves the dwelling to go to the houses and rockery. The path is sunk to secure an easy gradient, so that the patch of lawn has a general level of perhaps 3 feet above it. On this stand some handsome specimen Conifers, Abies Pinsapo, Sequoia gigantea, Abies Nordmanniana, Abies Douglassi, Thuia gigantea, and Cupressus Lawsoniana erecta viridis; and behind these, skirting the little lawn on that side, is a hedgerow of own-root Roses, which are loosely fastened to an iron fence of about 2 feet high. The slope from this Rose hedge, down to the walk, which is the back way to the garden, is roughly covered with burrs, between which, Ferns, rock plants, Ivies, and Roses, ramble in regulated disorder. This walk is crossed at short intervals by arches made of peeled Oak, and not made hideously proper with varnish. Over these ramble the better varieties of Ivy, as Hedera palmata, H. p. variegata, H. Regnieriana, H. algierensis, H. amurensis, H. rhomboidea, H. poetica, &c. In a border skirting the next door neighbour's hedge is a little collection of perennials—all hardy, of course. All these plants and tasteful devices lend a charm and interest to the place, which we miss very often in places of far more pretentions. Going back to the border, we may here say that it is of the kind called "scroll," and, being small as regards its width, it is a matter of some difficulty to find each year the right kinds of plants wherewith to plant it, so as to produce a change, for it is a rule not to have it two years alike. Last year, when the view was taken, the bounding lines at the back and the front were of Sedum glaucum, the inner serpentine line Pyrethreum aureum; and the larger groups were alternately filled with Lobelia pumila magnifica Emperor William, and Coleus Verschaffeltii. The Lobelia is a strong grower of compact habit, and the Coleus, as is well known, is the only one which may be depended on for outdoor effects in this country. The small circles were of Alternanthera, and in the middle of each stood a single Fish-bone Thistle; the rest of the pattern being furnished with Herniaria glabra. This year it is altered very much—we found a back line of dwarf French Marigolds, Golden Feather had given place to Echeveria, and Pelargoniums took the place of Coleus and Lobelia. The Pelargoniums employed, which we noted for their brightness and other good qualities, were:—Mrs. Leavers, deep pink; Mrs. Hetley, orange-scarlet; Lord Chesterfield, crimson, the truss very large, and the colour bright; Queen of Whites, and Henri Jacoby.

On the other hand, going past this border, was another small lawn, somewhat overburdened with fine Conifers, amongst them being a fine Cedrus Deodara and a Thujopsis dolabrata. Before leaving this part we must mention the corridor skirting the north side of the dwelling, and which is planted with a very fine variety of Lapageria rosea. At the present season this verandah is open at the side, but in winter it is closed with a glass wall, and there are means of warming it. The gardener, Mr. Duffield, who has been in Mr. Mayor's service for thirteen years, was full of praise of this arrangement, which he said just suited the Lapageria, for it grew strongly and flowered abundantly. There did not seem to be much of an attempt made at severely regulating the plant by wires and ties, and so much the better. The other feature to be alluded to is the Ivies on the dwelling, and which give it its name. These have been planted eleven years, and are now up to the eaves, giving the outside a very warm, furnished look. These and all the other Ivies are shaven every year, in April, so that the growth is always smooth and fresh looking, and care is taken that the shoots do not get behind the guttering, or the rain would run down the wall, causing damp to enter the rooms probably. Given this amount of attention, Ivy will in time dry all the moisture out of any damp wall at the same time that it shields it from rain.

Lower down the grounds we found a little rockery, *à la* Pulham, and where the water supply is so tiny that it is regulated with a tap. Round the winding streamlet, full of gold fish, were many interesting plants. We noticed a Sciadopitys verticilata, Chamærops humilis, always out-of-doors; the white-flowered Spanish Broom, the cut-leaved Birch, purple Beech, Veronica rupestris, a dense mass of low growth, covered with dark blue flower-spikes. In the neighbourhood of this rockery were borders of choice herbaceous plants, a little Rose house, now getting its summer rest; a small greenhouse, full of bright Pelargoniums, chiefly of novelties of Ivy-leaved varieties. Beyond were a fruit garden, and further off still the kitchen garden. The "Ivies" is a pattern place, and as a retreat for a busy City gentleman it must have many charms, which are yearly being added to under Mr. Duffield's praiseworthy direction.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The Jubilee festival of the Gardeners' Royal Benevolent Institution was held at the "Albion" Hotel, Aldersgate Street, on Thursday evening, under the presidency of Leopold de Rothschild, Esq. There was a very numerous company, including Baron Schroder, Sir Trevor Lawrence, Bart., and many well-known horticulturists.

The Chairman proposed the toast of the evening, "Prosperity to the Gardeners' Royal Benevolent Institution." To-day, he said, they were celebrating its fiftieth anniversary, and in looking back over those years they might see the greatest progress in every branch of horticulture. It was now about fifty years since the late lamented mother of the worthy President of the Royal Horticultural Society, Mrs. Lawrence, was one of the first to grow Orchids on a large scale in England. These flowers were very celebrated, and drew crowds of admiring persons, from Royalty downwards. And after alluding to the more general cultivation of flowers in these days, including Orchids, he said that the Gardeners' Benevolent Institution was established in 1839. For some years it languished, but in 1842 it appeared to have struck upon fertile soil. The number of pensioners on the list on January 31 last was 134—76 women, and 58 men—who were maintained at a yearly expenditure of £2396. This was defrayed by annual subscriptions, interest on funded property, and donations received at the annual dinner. This being the jubilee year of the Institution, they were determined to place on the pension list the unsuccessful candidates

at the last election. For this purpose a sum of £3000 was required. He was delighted to be able to inform them that this sum had been received. Even more than this sum had been received. Their worthy Secretary had thrown broadcast a circular which he had taken the liberty of signing. The ground had been well cultivated, and the crop had been abundant. Weeds had been received in the shape of two letters, which he would read for their amusement. The first was as follows: "Sir,—I think you could more easily pay the £3000 than I, a poor clergyman, could pay 5*s.* or 10*s.* or 21*s.* towards the Gardeners' Royal Benevolent Institution, and I am surprised that one so wealthy as you are should try to support the society by the doles of the poor and half-starved clergy, instead of generously paying the £3000 out of your own pocket. I think it would redound much more to the honour of your chairmanship. (Signed) A Cleric." He did not think that letter was written by a clergyman, for the grammar, to say the least, was strained. The second letter, which the Chairman also read, and flatly contradicted, was of a scurrilous nature.

Mr. John Lee responded.

Mr. H. Veitch (the Treasurer), who also replied, referred to the munificent contributions of the Chairman and his family. Fifteen years ago the annual subscriptions amounted to £720, now it was £1360; the amount of donations was £700, now it was £1165; and the amount paid in pensions was £930, as against £2100 at the present time. During that time the expenses of the institution had decreased from 25·1 to 16·8. The funded stock in 1874 was £10,400, now it was £21,100. In 1844 there was one pensioner, now there were 134 pensioners, which they hope to raise to 150. They had no expensive buildings to keep up, and no commissions were paid for donations. Their staff consisted of one old man, with a boy, and an odd man whenever necessary.

Baron Schroder proposed the health of the Chairman, observing that the family of the Rothschilds was known all over the world for liberality to all charitable institutions.

The Chairman, in acknowledging the compliment, proposed the health of the "old boy." He made a humorous allusion to Mr. Cutler once falling through the ice at Gunnersbury, and being rescued by a member of his family. In conclusion he had much pleasure in announcing that Mr. Harry Veitch would take the chair next year.

Mr. Cutler stated that the subscription list amounted to £3469, the Chairman's list being £1500, and gardeners themselves subscribing over £900.

SAXE-GOTHÆA, MALE FLOWERS OF.

We have at various times given illustrations of this fine hardy Conifer (see p. 684, December 3, 1887), and now avail ourselves of the opportunity of showing the male inflorescence (fig. 125), a specimen of which has been forwarded to us by Mr. Croucher from Crieff. The catkins are cylindrical, of a light creamy-brown colour, each raised on a short axillary stalk, the whole, including the stalk, being somewhat shorter than the adjacent leaf. The anthers are two-celled, dehiscing lengthwise on the under-surface. The pollen-grains are globular.

HOME CORRESPONDENCE.

MELON GROWING AT ORWELL PARK. — The system of Melon growing here is simplicity itself, as the gardener, not having the convenience of special Melon-houses or pits in which to cultivate the fruits, utilises the back walls of the Pine-stoves, along which a pathway runs, close to the wall, the structures being lean-to's. Over these pathways temporary trellises are made by resting narrow strips of deal on which to turn and train the plants. These are planted in common drain-pipes, measuring about a foot across, and the pipes are placed on sods of turf, which lie on the bed of leaves in which the Pines are plunged. The pipes are filled with ordinary stiff loam, and a Melon plant is planted in each, and these are run up with single stems till they reach the trellis over the pathway, when they are allowed to branch at once. The Melons so treated set from four to five Melons each, which swell to a good size, and finish off perfectly. As might be supposed, the full sunlight they obtain, and the ventilation both above and below the foliage are points of great importance, the leaves remaining green and healthy till the Melons are cut. As to varieties of Melons, Mr. Wallis grows several, but his favourites are hybrids which have originated in the garden, some from crosses naturally effected, and others from intentional hybridisation. The seeds are invariably saved from the handsomest and best flavoured fruits, Mr. Wallis being a firm believer in selections, and no doubt much may be done in securing improved types of most things by exercising care and discretion in that way. *J. Sheppard.*

PRIMULA RUSBYI.—A pan of this pretty species formed one of a collection of forty alpine plants exhibited by Messrs. Stansfeld Bros., of Southport, in the nurserymen's division at the recent Whitsun Show at Manchester. The pan contained five or six plants, and whether it was owing to the age of the flowers, or some other reason, there appeared to be a greater depth of colour in some of the blossoms than in others. It is a deciduous species, and as far as my experience goes, requires some care in its culture. Pretty as it is, I doubt if it can be more popular for the reason just stated. But it is very attractive indeed. *R. D.*



Fig. 125.—Flowers of Saxe-Gothæa, real size and magnified. Pollen grains mag. 200 diameters.

FRUITS AT HAYDON HALL, EASTCOTE.—Good fruits of one kind or another are to be found in most gardens, but it is seldom that such a fine show and good succession as that which Mr. Fry has in Captain Edwards' gardens just now, can be witnessed in one place at one time. The Melon houses are well cropped, the Grapes in all stages, the early Peaches and Nectarines are perfection, with a great quantity in all stages to carry on until, and indeed after, the outdoor fruits come in. One of the best innovations in these gardens has been the rearrangement of the unheated fruit house (180ft. long). In it at present is great promise of a valuable lot of fruits of all kinds—Grapes, Plums, Peaches, Nectarines, &c., and a fine lot of Tomatos trained to single stakes, Pines, Figs, Strawberries, and other things, both fruit and flowers, proclaim that there is purpose in the gardening at Haydon Hall. *J. O'B.*

PARSLEY.—There has been a good deal of writing in the *Gardeners' Chronicle* respecting the loss of Parsley, and the way to protect it during the winter. Now Parsley, like other things, has its enemies, one of them being the true wireworm, which I guard against by sowing nitrate of soda and agricultural salt broadcast, in the same manner as I do on Oats, Onions, Carrots, and other crops, that are infested by the same pest, for by no other cause do I lose my Parsley. I have now twenty-one long rows, and not a blank in them. I grow two sorts—Sutton's Giant Curled for culinary use, and Selected Fern-leaf, which samples I have sent you, the Fern-leaf being a selection of my own. The establishment I have to supply contains about 2200 children, and 160 officers and servants, so that a good quantity of Parsley is required to supply all wants, and I am glad to say I am very seldom short of it. I make one good sowing in March in drills in different parts of the ground, and when it is ready to transplant I select the Fern-leaf, and plant a large bed of it in rows on good ground, and do not use that bed before the winter arrives—thus I have a good supply. The ravages of wire-worm may not be known to all growers, but if some of them would examine the roots just below the crown, I think they would find them nibbled round, and all the vitality taken from the outer skin, as in the case of Carrots. I, for one, shall still continue to grow the double varieties. *C. Osman, South Metropolitan Schools, Sutton.*

GENTIANA ACAULIS NATURALISED. — How seldom one meets with this gem amongst herbaceous plants in a flourishing condition. I have never seen it so fine as at Glenstall Castle, and as it occupied a somewhat novel position it was all the more striking, although I know it likes stones to creep about amongst. At some little distance from the Castle is an old stone quarry that has been turned into a rustic flower garden by carting soil to it, the Gentian at the time of my visit being worth a journey to see. It seemed thoroughly at home, growing through the grass in elevated positions or on ledges of the rocks as left by the quarrymen which have since had a little earth put on them, but surprising little of that, in fact very little more than the common Stonecrop requires. Some of the patches on these ledges were 4 feet long by about 2 feet in depth, the larger ones, however, had more earth than is stated above, and it must be borne in mind that the walls of rock are nearly perpendicular, and as these patches are dotted about in all sorts of places and sizes, I leave the reader to imagine what it looks like; at the same time he must bear in mind that everything in the quarry is in a semi-wild state. *E. D.*

STEPHANOTIS FLORIBUNDA. — Your foot note to my letter in a recent number in reference to the Elvaston variety, in part agrees with my own opinion about it. You say that there is no difference in the flowers, nor in the shoots of the mature plant. This also agreed with the opinion of a friend of mine who planted a lot of the Elvaston variety, but could perceive no difference between them and those of the older variety. If shoots of the old sort set with flower buds are put in as cuttings under a skilful propagator, almost every one will strike, and could be got to flower as a young plant. Treated in this way, could you say wherein there is any difference? *R. M., June* 8.

—— The subject of this note is so well known and largely grown, that it seems scarcely worth occupying space in your journal. It may not be out of place to mention what can be done in a short space of time with it, if one only has space, and a healthy growing plant to start with. About two years ago I noticed a plant covering a space of about 2 feet wide on the roof of a stove at Glenstal Castle, Limerick, but I was not prepared to see the same plant now covering 14 feet in width, about 12 feet in length, and tied out evenly over the roof, showing finely for flower; in fact, many of its trusses had already been cut. The plant referred to is planted out. Although I have not referred to the other occupants of the stove and other houses, everything, both indoors and out, shows painstaking care on the part of the gardener, Mr. Weller. *E. Dumper, Limerick.*

DOUBLE WORKED MARÉCHAL NIEL ROSE.—"Rosa" seems to have grave doubts as to the merit of double working, as I advocated, for Maréchal Niel, which has long been practised in our great nurseries. Very interesting and valuable results have flowed from the working of some strong grower on to a stock first, and then working a weaker grower of the same kind on to that; indeed, it is doubtful whether we have made half so much of the practice as it deserves. No doubt it requires the keeping of stocks a year longer in the nurseries, as the first scion must have a full year's growth upon it ere that can be budded or grafted as the stock was before; but that objection by no means vitiates the practice, which is, without doubt, a good one. It may seem odd that the insertion of a germinator stem of some strong-growing variety should so materially influence both stock and graft or bud, but such is the case. In my own practice with Maréchal Niel, those which I have worked direct on to the briar, and on to the briar also through the intervention as primary stocks of Madame Berard and Lamartine, it should be under-

stood that these strong growers had created the stock, practically long before they were budded with Maréchal Niel, and so far from these presenting a mere disc of wood in the stocks, they have stout branches of some 1, 2, or 3 feet in length, on to which the Maréchal is worked. Now, whilst in the case of the Maréchal worked direct on to the briar, the stock has been but little swollen; the branch of the Maréchal, just above the junction, is treble the size, and very cracked or gouty. In the case of the double worked Maréchals, upon which the growth is always very robust, the original budded kinds swelled up the stocks thoroughly, and the whole growth, from stock to top, has grown simultaneously without cankering since the secondary budding of Maréchal Niel took place. *A. D.*

TRANSMITTING STRAWBERRIES.—Although I have had much to do in the way of sending garden produce long distances by railway, sea, and parcel post, I feel that every bit of information likely to aid us, and make the transit of the various items less risky is valuable. We always give careful consideration to the instructions given; but after many trials of new systems and improvements of old methods, I am not a stage further forward than thirty years ago. Strawberries always require care, cleanliness, and prompt action to make their transmission a success. One thing in their management is often overlooked, and as commonly by Covent Garden growers as by private cultivators, and that is the preparation of the fruit before it is sent away; fresh air in abundance for some days before packing is done is most essential, and the advantages of structures specially for Strawberry forcing cannot be too highly estimated. Fruit ripened with plenty of air and a dry atmosphere may be had nearly as finely flavoured as those grown in the open air; but it is well-known that such is not generally met with during March and April, and the practice of cramming Peach houses, vineries, and Pine stoves with fruiting Strawberries is certainly a very improper one, and often fraught with much trouble and labour, which the best of crops scarcely returns value for. I still prefer shallow boxes carrying one or two layers of fruit, and have given up the system of twisting the fruits into the leaves, but simply lay one fruit to a leaf as closely as they can be packed. If a second layer of fruit is placed, vine leaves—or some other kind, smooth and firm—are laid over between each layer of fruit, and the same placed between the lid and top layer. The box should always be full and compact, so that no shaking may be given, and when proper kinds of fruit are selected, such as Vicomtesse H. de Thury, Sir J. Paxton, properly finished with plenty of air, no difficulty need be apprehended in sending them to long distances. The Strawberry leaves for packing are gathered over-night to be limp in the morning. *M. Temple.*

SEED-PODS AND FRUITS.—Fruit bushes and trees after a heavy crop—and very often after only a moderate one—recuperate by bearing the year following very few, if any, fruits, which shows plainly that the plants have borne fruits to excess, which overburdening might have been obviated by timely thinning; it is to be feared, however, that there will not be much of this kind of work to do during the present season, for although there was such a wealth of blossom, the "set" has not been good, or if it was, swelling has been miserably bad. Cherries and Plums turned yellow, and fell off wholesale. Apples and Pears are nothing like what they promised to be; but it should be borne in mind that trees of these were already taxed in strength by the great number of their flowers, and there is, therefore, the greatest necessity to limit the crop; but in its present uncertain condition, it will not be wise to thin off any, as yet, fruit dropping not having ceased; those deformed or maggot bitten may be removed at once and burnt. The quickest way, perhaps, of thinning the fruits referred to is to snip them off with a pair of long sharp scissors, the points of which will go between the fruit stalks without injury to those left; but some prefer the thumb-nail. Turning from fruits to Scarlet Runners and Peas, it is surprising what a difference it makes as regards their bearing capacity, if they are kept from maturing seed, or have all their pods removed while they are useable, for if left beyond that stage the plants cease to grow or flower with vigour, whether they are wanted for supply or not. Among plants liable to suffer from excessive seeding are Delphiniums, which, as soon as they are freed of seed vessels, send up other flower spikes. Rhododendrons and Azaleas will soon be out of bloom, and wherever time can be spared for the job they should have their seed pods taken off immediately the flowers fall, at which time they can be broken out most readily. If left till later, clearing the seed pods is more difficult, and not only that, the shoots begin to grow, and injury to these is likely to result. *J. S.*

BLIGHT.—Just as to the stern moralist all flesh is grass, so to the unlearned worker amongst trees all insects are blight. "There's a terrible lot of blight this year," exclaims the garden labourer; and in his reference is included aphis and caterpillar, fly and moth—indeed, all the insect tribe which prey upon fruit trees. Not that there is not plenty of blight, too, amongst other trees, but our typical labourer is not much concerned on that head. It is when working amidst the fruit trees that he notes leaves eaten upon bushes, and terribly excoriated foliage on the Apple, Pear, Plum, and Cherry trees—that he realises the full extent of the fact that "there is a lot of blight about." I do not think that we shall have to attribute what, I fear, will, after all, prove to be a comparatively thin fruit crop, so much to the blight on the trees as to the imperfectly ripened wood and immature fruit trees of last season. But there can be little doubt but that a great deal of trouble has been caused to fruit growers, especially amongst Apple, Pear, and bush fruits, in liming, sooting, and dressing with Hellebore powder—a drastic remedy to adopt, and only to be employed when all others fail. Whilst we have so far had a glorious time for leafage, since buds expanded, and with a comparative absence of easterly winds, some remarkable washing rains, and, so far, have the richest and most luxuriant display of leafage ever seen in the month of May, yet has blight of all kinds been as abundant as if there had been cold winds and dry withering weather. I observed but a few days since men were engaged in the orchard firing shots into the trees to destroy the clusters of the Lackey or cobweb caterpillar, which has been very plentiful, and which the birds decline to eat. Sparrows, however, have been active in destroying other vermin, and were the foolish crusade against these birds to become general, great indeed might be our misfortunes. *A. D.*

SOCIETIES.

ROYAL HORTICULTURAL.

At the meeting held on the 11th inst., and which was fully reported on last week, awards were made as follows:—

By the Floral Committee.

(Fifteen Members present.)

First-class Certificates.

Verbascum Olympicum, from W. H. Loder, Esq. (unanimously).

Rose (Tea) Souvenir de S. A. Prince, from Mr. G. Prince (unanimously).

Awards of Merit.

Begonia Mrs. Chamberlain, from Messrs. J. Laing & Sons (6 for).

Fuchsia Dorothy Fry, from Mr. G. Fry (6 for).

Pyrethrum Pericles, from Messrs. Kelway & Son (7 for).

Pæony Princess Christian, from Messrs. Kelway & Son (8 for).

Pæony Princess Irene, from Messrs. Kelway & Son (8 for).

Delphinium Regalia, from Messrs. Kelway & Son (5 for).

Delphinium Orbit, from Messrs. Kelway & Son (8 for).

Delphinium Faust, from Messrs. Kelway & Son (7 for).

Delphinium Ardite, from Messrs. Kelway & Son (7 for).

Cultural Commendation.

To C. T. Partington, Esq., for Collection of Epidendrum vitellinum.

Medals.

Silver-gilt Banksian to Messrs. Kelway & Son, for Group of Pæonies, Pyrethrums, &c.

Silver Banksian to Messrs. Barr & Son, for collection of cut flowers.

Bronze Banksian to Messrs. Paul & Son, for collection of cut Roses.

Bronze Banksian to Mr. G. Prince, for collection of Roses.

ROYAL BOTANIC.

June 19.—This, the last show of the season as regards this Society, was held under most favourable conditions of weather, and was well attended. Fruit was not so extensively contributed as on some former occasions, but taken as a whole the exhibition was satisfactory, notwithstanding that competition was not very close in many cases.

Plants and Cut Flowers.—Mr. J. F. Mould, nurseryman, Pewsey, Wilts, was 1st for best six and twelve stove and greenhouse plants, with well-formed and evenly-flowered specimens. There were included several Ericas and Darwinia tulipifera, Dipladenia profusa, Gloriosa superba, and Bougainvillea glabra. 2nd in both classes, Mr. H. James, Castle Nursery, Norwood, with Ericas and Anthuriums as conspicuous features.

The same exhibitor was 1st for six palms and six fine foliage, Latania borbonica, and Cycas revoluta, being the best samples.

For six fine foliage plants from an amateur, Mr. A. Offer, gr. to J. Warren, Esq., Crawley, was 1st, with grand plants of Croton angustifolius, C. Andreanus, and Alocasia metallica, with Cycas revoluta and Phœnix reclinata in the background.

The same exhibitor led for six variegated-leaved plants, with some good Crotons, Pandanus Veitchii, and Anthurium crystallinum, in vigorous and well-grown specimens. Mr. Offer was again leading for six stove and greenhouse plants, when he secured an easy victory with most deserving specimens.

Once again, for six large specimen Ferns, Mr. Offer was in the front rank with Cyathea medullaris, Thamnopteris nidus avis, and Dicksonia antarctica, as his best in a fine lot. Mr. J. Douglas was 2nd, having a good Gleichenia.

Mr. P. Butler, gr. to H. H. Gibbs, Esq., Regent's Park, was placed 1st for a collection of European Ferns, which it would be advisable to name correctly; a very fine plant of a good variety of Polystichum angulare, a conspicuous object, and shown as Lastraea filix-mas.

Mr. T. S. Ware was accorded 1st for collections of Liliums, and again for Irises, showing both in great variety; and for hardy herbaceous flowers, Messrs. Paul & Son, Cheshunt, were accorded the leading position, showing a bright lot in large masses.

Fancy and show Pelargoniums in pots from nurserymen were shown by Mr. C. Turner, Royal Nurseries, Slough; and from amateurs only by Mr. D. Phillips, Langley Broom, Slough, both of whom had an excellently flowered lot of plants, and deservedly carried off the 1st prizes in their respective sections.

For six zonals, Mr. J. Eason, gr. to B. Noakes, Esq., Hope Cottage, Highgate, led with capital specimens; and H. Little, Esq., Twickenham (gr., Mr. Watts), was 1st for tuberous Begonias, showing plants in fine condition.

Mr. D. Phillips had 1st for twenty-four cut trusses of zonal Pelargoniums, with bright specimens of favourite varieties; and cut trusses of show Pelargoniums were best from Mr. C. Turner.

A group of cut Pæonies came from Messrs. Paul & Son, Cheshunt, and embraced a number of good varieties (Bronze Medal); and a few good alpines were contributed by the same firm, among which were Phyteua comosum, Cistus florentinus, and Coronilla montana.

Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, sent a collection of cut flowers of Delphiniums, Iceland Poppies, Liliums, Pæonies, and Liparis bifolia.

Mr. J. Chamberlain, Westlake Nursery, Isleworth, sent a number of Viola Snowflake, and Phloxes, with Diplacus californicus (Certificate).

Mr. Offer had a collection of well-grown Crotons, of fine size (Large Bronze Medal).

A Silver Medal was given to Messrs. Kelway & Son, Langport, Somerset, for a fine and extensive collection of cut Pæonies, Gaillardias, Pyrethrums, and Delphiniums in boxes; and to Messrs. H. Cannell & Sons a similar award was made for tuberous Begonias, which made a good show.

Messrs. Barr & Son sent a collection of cut herbaceous flowers, comprising Irises of the Xiphion and Germanica groups. Pæonies were also plentiful, as well as bedding Pansies, Liliums, Anemones, &c.

A Small Silver-gilt Medal was granted to Messrs. J. Laing & Sons, Forest Hill, S.E., for a group consisting of Begonias and Orchids, arranged with Caladiums, Palms, Ferns, &c.

Mr. W. Langlands, gr. to J. W. Molles, Esq., Balcony House, Chingford, sent a miscellaneous group of decorative foliage plants, and received a Bronze Medal; while a Large Bronze Medal went to

Mr. W. Gordon, Twickenham, for a group of Lilium auratum vars.

Orchids.—Mr. J. Douglas, Great Gearies, Ilford, was placed 1st for twelve from amateurs, with Cattleyas as his chief features; 2nd, Mr. Whillans, gr. to the Duke of Marlborough, Blenheim, who had a remarkably pretty lot, well grown and well shown, large pieces of Cypripedium caudatum and Dendrobium Jamesianum call for a special note.

In the nurserymen's class, Mr. H. James led, showing Cymbidium Lowianum, Oncidium crispum, and Vanda tricolor.

Mr. J. Douglas led for twelve cut trusses of Orchids, having Cattleyas in plenty, Vanda suavis, and Brassia verucosa. Mr. A. Evans, gr. to J. S. Hodgson, Esq., Lythe Hill, Haslemere, was a good 2nd, with a more mixed lot.

For a collection of Orchids (amateurs), H. Little, Esq. (gr., Mr. Howard), Twickenham, was awarded 1st, for a pretty display of Cattleyas, Cypripediums, and Miltonia vexillaria, and Dendrobium thyrsiflorum.

Mr. G. T. White, Drayton Villa, Winchmore Hill, had a bank of Orchids, chiefly Cattleyas, in variety of colouring, including C. Mossiæ G. T. White, almost pure white except the lip, which had a base of yellow and rose (Large Silver Medal).

Mr. B. S. Williams, Paradise Nurseries, Upper Holloway, contributed a pretty and tastefully arranged group of Orchids and Fern Palms, Crotons, &c., showing off the plants to great advantage; Cattleya Mossiæ, various Cypripediums, Cœlogyne Massangeana, Anguloa Ruckeri, Vanda concolor, Calanthe veratrifolia, &c., were conspicuous (Silver-gilt Medal).

A Large Silver Medal was given for a bank of Orchids arranged with Adiantum, from Messrs. H. Low & Co., Clapton; Cypripedium bellatulum, C. Godefroyæ, C. Lawrenceanum, with Odontoglossum crispum, various fine Cattleyas, Lælia purpurata, and Phalænopsis were the most important items.

Mr. J. C. Cowley, gr. to F. G. Tautz, Esq., Shepherd's Bush, W., sent a neat miscellaneous lot, including Cypripedium Veitchii, Sobralia macrantha, Miltonia vexillaria, Odontoglossum crispum, &c. (Silver Medal).

Roses.—Mr. R. B. Cant, Colchester, had the best twenty-four varieties in threes, showing clear and bright blooms of good size and form; Etienne Levet, Madame G. Luizet, Ulrich Brunner, being fine. 2nd, Messrs. Paul & Son, Cheshunt, who also showed well.

For the best twelve varieties in threes, Colonel T. H. Pitt, Maidstone, was placed 1st, for blooms of average quality.

For six fine scented Roses in threes, Mr. G. A. Prince, Oxford, led well with Teas; Comtesse de Nadaillac was large, and Princess of Wales good. 2nd, Mr. B. R. Cant, who had A. K. Williams and Madame G. Luizet in good form. Mr. Cant was also 2nd, for any colour, one variety, being beaten by Messrs. Keynes, Williams & Co., Salisbury, with J. Laing. The best lot of yellows were Maréchal Niel from Mr. G. Prince.

Cut Roses, not for competiton, were contributed by Mr. B. R. Cant, who had a capital lot of Teas, in which Souvenir d'Elise, Madame Cusin (finely coloured), and Luciola were excellent.

Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, also had an exhibit chiefly of H.P.'s: Duke of Teck, Madame P. Langier, Madame G. Luizet, and Grace Darling, may be singled out.

From Messrs. Wm. Paul & Son, Waltham Cross, there was an extensive collection of Roses, both cut and in pots, and contained a number of recent introduction, the whole were prettily set up, and very effective (Large Silver Medal).

Fruit.—Grapes were largely shown, and, on the whole, very well. Mr. T. Osman, gr. to L. J. Baker, Esq., Ottershaw Park, Crawley, had the best white Grapes in three bunches of Buckland's Sweetwater. Muscat of Alexandria, from Mr. P. Feist, gr. to R. J. Ashton, Esq., Staines, gained him the 1st place; they were large in berry, but not ripe.

For black Grapes (not Hamburgh, three bunches), Mr. Geo. Thompson, gr. to Messrs. W. & E. Wells, Hounslow, led, with capital samples of Madresfield Court; while for three bunches of Black Hamburgh, Mr. J. Edwards, Bestwood, Nottingham, was awarded the leading place in a good competition, for well ripened bunches.

Mr. Feist and Mr. Edmonds were 1st respectively for white and black Grapes in baskets.

For a pair of Melons, one red and one green-flesh, Mr. T. Hare, Wellington Gardens, Grantham, was awarded 1st, for Dell's Hybrid (green) and Wellington Seedling (red); Mr. J. Douglas was 2nd.

Mr. Whillans, Blenheim Palace Gardens, sent Whillan's Seedling Melon, and Mr. Divers, Ketton Hall, Stamford, had Ketton Gem, a small yellow, well-netted fruit.

The best Queen Pine was from Mr. R. Parker, gr. to J. Corbet, Esq., Impney, Droitwich.

For the collection of dishes of fruit, Mr. R. Parker was a good 1st, having Black Hamburgh and Foster's Seedling Grapes, well finished; Negro Largo Figs, a Queen Pine (5½ lb.), and President Strawberry, all very fine; 2nd, Mr. Edmonds, who had a large number of dishes of average merit; 3rd, Mr. Robins.

Mr. Divers had the best Peaches, in Stirling Castle and Early Albert; and Mr. Hare led for Nectarines, with Violette Hâtive and Murry.

Mr. Divers' Strawberries, British Queen and Sir C. Napier, large and rich, secured him another 1st; and Mr. Sharpe, Chertsey, was a very close 2nd, with Marguerite and Sir Joseph Paxton.

Messrs. T. Rivers & Son, Sawbridgeworth, showed an elegant lot of fruit trees in pots, Peaches, Pears, Oranges, Plums, Cherries, being shown, numbering in all about fifty plants (Large Silver Medal).

Certificates were awarded as follows:—

Botanical Certificates.

Pteris ecetica nobilis (H. B. May), dwarf and crested.

Cypripedium De Witt Smith (H. Low & Co.), a hybrid of C. Lowi ×C. Spicerianum, lip narrow, olive-brown colour; dorsal sepal, cream with brown lines at the base; petals long and narrow, green with numerous spots and rosy at apex.

Cattleya Mendelii, Miss Little (H. Little), white, lip fringed with two purple blotches on the median lobe, throat yellow.

Inula glandulosa (T. S. Ware).

Cattleya Mossiæ, G. T. White (G. T. White).

Acer Gordoni (W. Gordon), deeply lobed, leaves green with red-brown margin.

Floral Certificates.

Lilium Martagon album (Barr & Son, and Ware), a pure white form.

Begonia Lord Weymouth (J. Ford, gr. to Sir C. Pigott, Slough), pale brick-red, with white centre; double.

Canna Petite Jean (Paul & Sons), scarlet, with yellow margin, leaves green; dwarf.

Rose Souvenir de S. A. Prince (G. Prince). Described last week.

Phlox White Swan (J. Chambers), white, pink eye, and dwarf habit.

Delphinium Castro (Kelway & Son), deep blue, black eye.

Delphinium Duke of Teck (Kelway & Son), cobalt, white eye.

Delphinium Princess Maud (Kelway) pale blue, with metallic sheen, white eye.

Pæony Prince George (Kelway), double crimson.

Pæony Mrs. Chamberlain (Kelway), flesh-colour, double.

Begonia Miss French (Laing), pale yellow; double.

Begonia majestica (Laing), single, deep red; large.

Begonia Lady Stafford Northcote (Laing), rich rosy-salmon; double.

Rose Duchess of Albany (W. Paul & Son); resembling La France, but darker.

Begonia Lady Lewisham (Cannell), bright red-salmon; double.

Begonia A. F. Barron (Cannell), bright rosy-pink; double.

Begonia Melaine Soupert (Cannell), pale cream, double—prominent guards.

Begonia Miss Mathews (Cannell), cream, tinted with salmon—double.

Lilium Hansoni (Ware), Indian yellow, with brown spots; recurved segments, which are very thick, with a prominent midrib on the outer face.

Delphinium Mrs. Roper (Ware), pale blue, with metallic sheen.

THE GREAT YORK GALA FLOWER SHOW.

THE thirty-first annual exhibition of this very successful Society took place on the 19th, 20th, and 21st inst., and it was, from an all-round point of view, the best exhibition the Society has held. The prizes offered amounted to over £600.

In the class for sixteen stove, greenhouse, and ornamental foliage plants, Mr. Letts, gr. to the Earl of Zetland, took the 1st prize with a first-class lot of plants, amongst them a noble specimen of Encephalartus Altensteini, and very fine specimens of Croton angustifolium, Ericas Cavendishiana and coccinea minor, Anthurium Schertzerianum, and Darwinia tulipifera. Mr. Cypher, nurseryman, Cheltenham, was a good 2nd.

Mr. Letts also scored 1st for six stove and greenhouse plants, having in this lot capital examples of Ixora Coleii, Allamanda grandiflora, and Anthurium Schertzerianum. Mr. J. H. Hodgkinson took the 2nd prize.

In the class for groups not exceeding 250 square feet, there were five exhibits. There was a very close competition between Mr. McIntyre, gr. to Mrs. Gurney Pease, Darlington, and Mr. Samuel Thacker, Nottingham, both groups being set up in the same artistic style; but the 1st prize fell to Mr. McIntyre, and the 2nd to Mr. Thacker—it was a very close run.

In the class for groups, not exceeding 150 feet square, there were four competitors; Mr. McIntyre again scored 1st for a lovely group, and A. Milnthorpe, Esq., York, 2nd.

In the other classes for stove, greenhouse, and ornamental plants there was keen competition.

In the class for six ornamental and fine foliage plants, it is an open question if six finer plants have been exhibited than those which were staged by Mr. Letts, and which took the 1st prize; they consisted of Encephalartus Vroomii—probably one of the finest plants in the kingdom—a wonderful Kentia Forsteriana, quite 20 feet high; two superb Crotons, angustifolium and Johannis; Kentia Belmoreana, and a superb Dion edule, with a 3 feet 6 inch stem. Old plant growers were full of admiration for this group. Mr. Letts also scored 1st for three ornamental plants, which included two superb Dasylirions.

Exotic Ferns were numerous and good, and there were several Tree Ferns in competition in this class.

Hardy Ferns were also to the front, and some good Cape Heaths, especially Mr. Letts' 1st prize lot, which included an excellent specimen of E. Cavendishiana.

Bedding plants in collections of sixteen kinds, in large pans or pots, have always been a feature here. Mr. Wm. Simpson, florist, Selby, was 1st, with a very fine lot; and Mr. S. Hardcastle, 2nd.

For hardy herbaceous and alpine plants in pots, there were five exhibitors, Mr. J. Rodwell, York, taking 1st, and Mr. Hardcastle, York, 2nd.

A great many Gloxinias were staged, and Mr. C. B. Lamb's 1st prize lot of twelve, were good examples of the erect section, and well flowered.

Orchids were not so numerous as usual, but were good in quality. Mr. Cypher, Cheltenham, took the 1st prizes for ten, six, and three, and in his lots were fine examples of Cypripedium caudatum, and C. Stoneii; Dendrobium Jamesonianum, and D. Bensonii, as well as Cattleyas.

As to the show Pelargoniums, the plants this year were magnificent. York has always been a great stronghold of the Pelargonium, but such plants as Mr. Eastwood's (gr. to Mrs. Tetley, Leeds), have never been seen before. Mr. Eastwood was 1st for twelve, six, and three; and Mr. McIntosh, gr. to J. Hingston, Esq., York, was a close 2nd, with plants which were very good. There was a splendid display of these and other Pelargoniums, and the zonals were also a marked feature of the show. Here again Mr. Eastwood was 1st, with wonderfully fine specimens in size, growth, and flowers; and Mr. Pybus, nurseryman, Ripon, was a good 2nd. For six zonals Miss Steward, Bishopthorpe, was 1st with finished, large plants. There was a good exhibit of double varieties, Mr. G. Cottam, jun., York, taking the 1st prize for eight varieties with well grown plants—all that could be wished for in foliage, and well bloomed; the only fault being that the blooms were rather small. Mr. Eastwood's 2nd prize lot consisted of larger plants, but they had not the healthy growth of the 1st prize lot.

In the class for nine variegated and bronze Geraniums, Miss Wharton, York, and Mr. G. Cottam, jun., took 1st and 2nd prizes with clean, well grown medium-sized plants.

There is a class at York for six double-flowered Ivy-leaf Geraniums, and there were six exhibits. The 1st prize plants staged by Mr. G. Cottam, jun., were models of good cultivation. Mr. Findlay, of Manchester—and no man is a better judge—stated that such plants could not be met with anywhere else than at York. The 1st prize lot were from 2 to 2½ feet high, in a half-pyramidal form, well flowered, and were much admired; Mr. Hy. Pybus was a good

2nd. Some of the other lots were too formally trained.

Tuberous Begonias were not numerous, and Messrs. Bailey & Sons, York, took 1st for six good plants.

Some excellent Fuchsias were shown, the 1st prize lot of six being especially good.

Dinner-table decoration plants were numerous and good.

Of the cut Roses the display astonished every one, as it was by far the finest ever seen at York, in the 72 blooms, there being not less than 36 varieties. Mr. Frank Cant, Colchester, was 1st in this class; Messrs. Harkness & Sons, 2nd; Messrs. George Cooling & Sons, Bath, 3rd; and Mr. G. M. Burch, Peterborough, 4th; and there was still one other exhibitor. For 48 blooms, Mr. F. Cant was 1st; Messrs. Harkness & Sons, 2nd; and Mr. Hy. May, 3rd.

For 36 varieties, there was seven competitors, 1st, Mr. F. Cant; 2nd, Messrs. Cooling & Sons, Bath; 3rd, Messrs. Harkness & Sons.

For 24 Roses: 1st, Mr. F. Cant; 2nd, Mr. G. Prince, Oxford; 3rd, Mr. S. P. Budd, Bath.

For 12 white and yellow Roses: 1st, Mr. G. Prince; 2nd, Messrs. Harkness & Sons; 3rd, Mr. Hy. May.

For 12 Tea Roses, one variety: 1st, Mr. G. Prince, with Countess de Nadillac, a grand stand; 2nd, Messrs. Harkness & Sons, with Caroline Kruger; the 3rd prize was taken with the same variety, but the exhibitor's name did not transpire.

In the class for 12 H.P.'s, one variety, Messrs. Cooling & Sons were 1st, with superb blooms of Mrs. John Laing; Messrs. Harkness & Sons 2nd, with Lady Alice, a lovely Rose; and Mr. H. May 3rd, with La France.

Mr. George Prince sent, not for competition, a box of blooms of Souvenir de S. A. Prince, a Niphetos like flower; and Mr. John House, Peterborough, sent a stand of Allen Richardson.

As we have before stated, the cut Roses made a splendid display, but of the pot Roses we have not much to say. The exhibitors have much to learn yet as to the cultivation of Roses in pots, and to use pots not quite so ugly as the deep long pots now in use. Mr. H. Pybus and Messrs. Jackson exhibited the best plants.

Collections of Pansies, Violas, double and single Pyrethrums; cut flowers, both tender and hardy, formed a noticeable feature of the show.

Fruit was not so largely shown as in former years. For the collections of ten kinds, Mr. McIndoe, gr. to Sir Joseph Pease, Bart., was 1st, as well as for six kinds. For the twelve dishes, Mr. Dawes, gr. to the Hon. Mrs. Meynell Ingram, Temple Newsam, was 2nd; Mr. Edmonds, gr. to the Duke of St. Albans, 3rd. For three bunches of black Grapes and three bunches of white Grapes, Mr. Allsopp, gr. to Lord Hotham, was a good 1st in both instances. There was a capital display of Melons, and Strawberries were well represented, and amongst the latter a dish of fine fruits of Laxton's Noble, gathered out-of-doors.

Of vegetables, other than Cucumbers and Tomatos, there was a poor display, these not being invited by the Society.

Special Prizes.—Messrs. Sutton & Sons, Reading, offered prizes for six kinds. Mr. Crawford, gr. to James Thorpe, Esq., Newark-on-Trent, was 1st, with a first-class lot; and Mr. McIndoe was close 2nd.

For Messrs. Webb & Sons special prizes for six kinds, Mr. McIndoe was 1st. Mr. P. Blair was 1st for Tomatos, with a fine dish of Sutton's Perfection.

Miscellaneous exhibits.—There were considerable numbers of honorary exhibits. Messrs. Henry Cannell & Sons, Swanley, contributed some fine blooms of double Begonias, Pelargoniums, and other flowers, and two new zonal Pelargoniums, Souvenir de Mirande, and King of the Purples, to both of which certificates were awarded.

Messrs. Harkness & Sons set up a grand display of herbaceous cut blooms, in which the varieties of Iceland Poppies were conspicuous. Messrs. Kent & Brydon, Darlington, also set up a good display; and conspicuous in this collection were the beautiful Lilium Sovitzianum, Oriental and Iceland Poppies, and the true old Double White Rocket.

Messrs. Cheal & Son, Crawley, exhibited the new patent flower supports; Messrs. Dicksons, Limited, Chester, a rich display of herbaceous Pæonies—a fine collection, truly—and other herbaceous plants.

Messrs. James Backhouse & Son, York, staged a large display of alpine plants and hardy herbaceous flowers—a fine exhibit.

Messrs. W. and J. Birkenhead, Sale, Manchester, staged quite 300 plants of chiefly British Ferns, a very interesting lot. Mr. Simpson, of Haworth, also contributed a group; and Messrs. H. Cannell & Sons showed their new Coleus Vesuvius, and a new, double white Regal Pelargonium, The Pearl.

Messrs. Foster & Pearson, Chilwell, Nottingham, sent samples of their greenhouses and frames, and garden appliances. We think that the show committee are to be congratulated on having got together a very fine horticultural exhibition. *Our Special Correspondent.*

EDINBURGH BOTANICAL.

June 13.—The Society met in the evening, on the above date, in the class-room, Royal Botanic Garden. Dr. Craig, President, in the chair. Amongst the communications read, or laid on the table, were:—

"Report on Galls collected in Norway by the Scottish Alpine Botanical Club, in 1887." Part II. By Professor J. W. H. Trail, M.D., F.L.S.

"The Botany of Lapland and of N.-W. Siberia, as observed during the voyage of the *Labrador*—July—October, 1888." By Philip Sewell.

"Exhibition of Rare Plants at the Royal Botanic Garden."

"Microscopic Demonstration of Absorption of Mercury by the wood-vessels of Acer Pseudoplatanus." By Robert Turnbull, B.Sc.

"On Temperature and Vegetation at the Royal Botanic Garden." By R. Lindsay, Curator.

"A finer May has not been recorded here, the splendid weather we have had has made ample amends for an otherwise backward season. The temperature, both day and night, has been considerably above the average, and the duration of sunheat, as well as its intensity, very remarkable. The lowest reading was 37° on the night of the 1st. The highest night reading was 50° on the night of the 22nd. On many days the thermometer (in the shade), registered from 60° to 70°, and in the sun from 100° to 112°. There are no greater charms in Nature than the unfolding of the spring growth presents, and the change was a rapid one. The foliage of deciduous trees and shrubs is most luxuriant, but owing to the last unfavourable summer, many are deficient of bloom. Apple trees seem to be the exception, for they have bloomed abundantly."

"Record of Temperature, Vegetation, &c., in the Botanic Garden, Glasgow, May, 1889." By Robert Bullen, Curator.

The past month of May, has been one of the most favourable experienced for many years. Not any frost occurred during the month. This seldom happens in May, as frost more or less has occurred every year since 1882. Vegetation made rapid progress, and in the absence of frost or severe winds, has gone on advancing without check of any kind. The foliage of deciduous trees has rarely been seen in such luxuriant condition, the heavy rains which fell during April having assisted in their development. The flowering of the ordinary ornamental trees and shrubs is considerably behind the average. Hawthorn and Holly are almost destitute of flowers, in remarkable contrast to the profuse manner in which they flowered last year. Rhododendrons and most hard-wooded plants are developing fine strong growths. Rapid growth is the most notable feature of the month. Herbaceous plants are flowering freely, but those which flowered early in the season have set very little fruit; Orobus, Cowslips, Cynoglossum, &c., grown here in quantity for class purposes cannot this season be had in fruit in anything like sufficient quantity. Very little frost occurred when the plants were in blossom to render them so barren, and I can only attribute their present condition to weakness induced by the cold dull summer of last year. The lowest night temperature recorded at the gardens was 35°, which took place on the 3rd of the month; other low readings were registered—on the 1st, 40°; 2nd, 37°; 26th, 38°; 30th, 37°; all the other readings were above 40°. The lowest day temperature was 52°, on the 5th; and the highest, 77°, on the 22nd.

The rock garden was very attractive during the month, from the large number of plants in blossom; 380 species and varieties opened their first flowers in May.

The exhibits were:—From the Garden: Amorphophallus campanulatus, Arum palæstinum, Xanthosia rotundifolia, Dianthus neglectus, D. neglectus, seedling vars.; Erinus alpinus albus, Saxifraga cœsia, Saxifraga, new seedling vars.; Raoullia eximia, &c. The President exhibited a large number of dried specimens from Cyprus. W. B. Boyd, Esq., sent a large number of cut blooms of rare alpine and herbaceous plants.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending June 17.	Accumulated Temperature. Above 42°, for the Week.	Accumulated Temperature. Below 42°, for the Week.	Accumulated Temperature. Above 42°, difference from Mean since Jan. 1, 1889.	Accumulated Temperature. Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (−) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1889.	Rainfall. Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	1 +	81	0	+ 176	+ 4	3 —	118	18.9	15	23
2	2 +	101	0	+ 101	+ 5	5 —	92	10.6	48	29
3	2 +	107	0	+ 67	+ 6	5 —	85	9.9	44	27
4	1 —	106	0	+ 42	+ 112	5 —	90	11.1	42	28
5	0 av.	109	0	+ 46	+ 60	6 —	83	13.9	36	25
6	0 av.	112	0	+ 53	+ 75	4 —	88	10.8	31	26
7	0 av.	89	0	+ 93	— 23	5 —	100	18.3	46	30
8	1 —	96	0	+ 68	— 1	5 —	91	13.0	49	29
9	1 —	104	0	— 11	+ 88	5 —	87	15.1	40	33
10	1 —	91	0	+ 50	— 53	3 —	109	15.9	32	26
11	1 —	96	0	+ 9	— 14	4 —	99	16.2	40	32
12	0 av.	109	0	+ 47	— 16	4 —	95	11.0	50	36

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending June 17, is furnished from the Meteorological Office:—

"The *weather* has been fair and dry, with a considerable amount of sunshine in most parts of the kingdom, but in the extreme north of Scotland and in the south-east of England the sky has been frequently cloudy or overcast, although little rain has fallen.

"The *temperature* has been rather above the mean in Scotland and the north-east of England, but in the other districts it has either been 1° below or about equal to the normal value. The highest of the maxima, which were generally recorded towards the close of the period, ranged from 71° in 'England, N.W.,' and the 'Channel Islands,' to 78° in 'Scotland, E.,' and to 81° in 'England, S.W.' At the commencement of the week the maxima over England and Ireland were very low; in many places the thermometer did not rise to 60°. The lowest of the minima were registered on the 11th, and varied from 33° to 37° in Scotland, from 37° to 38° in Ireland, and from 33° to 45° over England.

"The *rainfall* has been much less than the mean in all districts; over England and the east of Scotland the fall has been extremely slight.

"*Bright sunshine* has been less prevalent than it was last week in most places, especially in Ireland and the North of Scotland. The percentage of the possible duration ranged from 15 in 'Scotland, N.,' and 31 in 'England, S.,' to 48 in 'Scotland, E.,' 49 in 'England, N.W.' and to 50 in the 'Channel Islands.'"

Obituary.

David Jackson.—Old David Jackson, of Middleton, near Manchester, a well-known florist, has gone to his rest at the advanced age of eighty-four, having died on June 6. He was a hand-loom silk weaver, and of late years had to feel the force of the competition by machinery, and therefore did a little business as a florist also. Up to the last four or five years he had been a cultivator and exhibitor of the

Gold-laced Polyanthus, Auricula, and Tulip, the former being his especial favourite. He raised several seedlings. One was named the Rev. F. D. Horner, but it had the defect of a pale lacing to a golden centre. This he raised from a pod of seed of Hiefton's Lord Lincoln. He is said to have possessed the true form of Maund's Beauty of England Polyanthus, until he stood alone as the cultivator of it, but ultimately he lost his own stock of it. He also raised some seedling Tulips. From a pod of seed of a byblœmen named Ashmole's Emma he raised three varieties, viz., Mrs. Jackson, a feathered byblœmen, that bloomed for the first time in its broken character, and therefore never assumed the preparatory or breeder stage—a most unusual occurrence; and David Jackson and Music, flamed byblœmens. From the well-known flamed rose, Aglaia—a variety that has a good deal of yellow in its ground, which requires a week to get it bleached out before it can be shown—he raised a batch of seedlings, and among them was a dozen yellow selfs. Years ago the Tulip fanciers had a fourth class they denominated selfs, but white and yellow flowers only were admitted; consequently breeders, which are technically self flowers, found no place among them because of their tendency to become rectified. Some time prior to his death Mr. Samuel Barlow purchased of David Jackson his seedling Tulips, and they now enrich his fine collection at Stokehill. Up till recently the old man was a visitor at Stokehill at Auricula and Tulip times, and when he was unable through infirmity to walk the distance, Mr. Barlow kindly supplied a conveyance. Among the many florists who made a pilgrimage to Stokehill, probably none was more welcome than this old hand-loom weaver, of Middleton. *R. D.*

MARKETS.

COVENT GARDEN, June 20.

A steady trade doing. Supplies heavy, with prices generally lower. *James Webber, Wholesale Apple Market.*

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Fuchsias, dozen	3 0	8 0
Arum Lilies, p. doz.	6 0	12 0	Hydrangea, per doz.	9 0	18 0
Begonias, dozen	4 0	12 0	— paniculata, p. doz.	24 0	36 0
Calceolarias, dozen	6 0	9 0	Lobelias, dozen	3 0	5 0
Cyperus, per dozen	4 0	12 0	Marguerites, doz.	6 0	12 0
Dracæna terminalis, per dozen	30 0	60 0	Mignonette, doz.	4 0	9 0
— viridis, per doz.	12 0	24 0	Musk, dozen	2 0	4 0
Erica, various, doz.	12 0	30 0	Nasturtiums, doz.	3 0	5 0
Euonymus, in var., per dozen	6 0	18 0	Palms in var., each	2 6	21 0
Evergreens, in var., per dozen	6 0	24 0	Pelargoniums, per dozen	6 0	15 0
Ferns, in var., doz.	4 0	18 0	— Ivy-Leafed, doz.	3 0	6 0
Foliage plants, various, each	2 0	10 0	— scarlet, doz.	2 6	6 0
Ficus elastica, each	1 6	7 0	Roses, H.P., doz.	12 0	24 0
			— Fairy, doz.	6 0	9 0
			Spiræa, doz.	9 0	15 0
			Stocks, dozen	4 0	6 0

Bedding Plants in variety from 1*s.* per doz.; per box, 1*s.* 6*d.* to 2*s.* 6*d.*

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0	Mignonette, 12 bun.	3 0	6 0
Anemone, 12 bun.	1 0	3 0	Pansies, 12 bun.	1 0	3 0
Arum Lilies, 12 blooms	2 0	4 0	Pæonies, bun.	0 4	0 8
Bouvardias, per bun.	0 6	0 9	Pelargoniums, 12 spr.	0 6	1 0
Carnations, 12 bun.	3 0	6 0	— scarlet, 12 spr.	0 4	0 6
Cornflowers, 12 bun.	2 0	4 0	Primulas, dbl., 12 sp.	0 9	1 0
Delphinium, 12 bun.	3 0	6 0	Roses, Tea, per doz.	1 0	3 0
Eucharis, per dozen	3 0	6 0	— coloured, dozen	2 0	4 0
Gardenias, 12 blooms	2 0	4 0	— red, per dozen	0 9	1 0
Gladioli, 12 bun.	4 0	12 0	— Safrano, dozen	0 6	1 0
Heliotropes, 12 spr.	0 6	1 0	— Moss, 12 bun.	6 0	12 0
Iris, 12 bunches	4 0	12 0	Pinks (var.), 12 bun.	2 0	4 0
Lilac, white Fr., bun.	3 0	5 0	Spiræa, 12 bun.	6 0	8 0
Lilium, vari., 12 bls.	1 0	5 0	Stephanotis, 12 spr.	2 0	4 0
Maiden Hair Fern, 12 bun.	4 0	9 0	Sweet Sultan, 12 bun.	4 0	6 0
Marguerites, 12 bun.	3 0	6 0	Sweet Peas, 12 bun.	3 0	6 0
			Tuberoses, 12 blms.	0 6	1 0

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	8 0	...	Lettuce, per dozen	1 6	...
— French, bundle	2 0	8 0	Mushrooms, punnet	1 6	...
Beans, Jersey French, per lb.	2 6	...	Mustard and Cress, punnet	0 4	...
Beet, red, per dozen	1 0	2 0	Onions, per bunch	0 5	...
Carrots, per bunch	0 6	...	Parsley, per lb.	0 6	...
Cauliflowers, each	0 6	...	Peas, French, per qt.	2 6	...
Celery, per bundle	1 6	2 0	Potatos, new Jsy., lb.	0 3	...
Cucumbers, each	0 6	0 9	Rhubarb, bundle	0 6	...
Endive, per dozen	2 6	...	Shallots, per lb.	0 6	...
Green Mint, bunch	0 4	...	Spinach, per bushel	2 6	...
Herbs, per bunch	0 4	...	Tomatos, per lb.	2 0	...
Leeks, per bunch	0 3	...	Turnips, per bunch, new	1 0	...

Potatos.—Beauty of Hebron, 40*s.* to 50*s.*; Dunbar Magnums, 40*s.* to 60*s.*; Malta almost finished; Cornish, 10*s.* to 12*s.*; Jerseys, 9*s.* to 12*s.* Supply of Potatos short, demand firm, and likely to continue.

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, half-sieve	2 0	4 0	Lemons, per case	12 0	21 0
— Canada and Nova Scotia, per barrel	10 0	17 0	Peaches, per doz.	6 0	18 0
Gooseberries, ½-sieve	3 0	3 6	Pine-apples, Eng., lb.	1 6	2 0
Grapes, per lb.	1 0	4 0	— St. Michael, each	2 0	8 0
			Strawberries, per lb.	1 0	1 6

SEEDS.

London: *June 19.*—Messrs. John Shaw & Sons, of 37, Mark Lane, report the seed market to-day as most thinly attended, with almost a complete absence of business. Clover seed, as might be expected, is just now quite a dead letter. Offers of new Trifolium are now coming to hand from France, prices promise to open at a low level. For Bird seeds the sale is slow, Hemp seed is now exceedingly cheap. Values for Millet keep firm. Large blue Peas are still inquired for. Haricots meet a better request.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended June 15:—Wheat, 28*s.* 4*d*; Barley, 21*s.*; Oats, 19*s.* For the corresponding week in 1888:—Wheat, 31*s.* 7*d.*; Barley, 25*s.* 3*d.*; Oats, 17*s.* 3*d.*

FRUITS AND VEGETABLES.

Spitalfields: *June 19.*—Foreign Tomatos, 3*s.* to 6*s.* per box; Gooseberries, 4*s.* to 4*s.* 6*d.* per half-sieve; Strawberries, 5*s.* to 6*s.* per peck; Asparagus, 1*s.* 6*d.* to 2*s.* per bundle of 100 heads; Seakale, 1*s.* 3*d.* to 1*s.* 6*d.* per punnet; Cabbages, 1*s.* 9*d.* to 4*s.* 6*d.* per tally; Cauliflowers, 1*s.* to 4*s.* do.; Radishes, 2*s.* 9*d.* to 4*s.* do.; Spinach, 1*s.* to 1*s.* 6*d.* per bushel; Peas, 3*s.* to 4*s.* do.; do., 5*s.* 6*d.* to 7*s.* 6*d.* per sack; Greens, 1*s.* to 1*s.* 6*d.* per dozen bunches; new Turnips, 3*s.* to 3*s.* 6*d.* do.; new Carrots, 1*s.* 6*d.* to 4*s.* do.; spring Onions, 2*s.* 6*d.* to 3*s.* 6*d.* do.; Parsley, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Mint, 1*s.* 3*d.* to 2*s.* do.; Rhubarb, 1*s.* 6*d.* to 2*s.* per dozen bundles; Horseradish, 1*s.* 9*d.* to 2*s.* per bundle; Endive, 1*s.* to 1*s.* 6*d.* per dozen; Cos Lettuce, 1*s.* to 1*s.* 4*d.* per score; Mustard and Cress, 1*s.* 6*d.* to 2*s.* per dozen baskets; Leeks, 1*s.* to 1*s.* 6*d.* per dozen; Cucumbers, 9*d.* to 4*s.* do.; Beetroots, 9*d.* to 1*s.* do.; old Carrots, 32*s.* to 40*s.* per ton; Mangels, 16*s.* to 19*s.* do.

Stratford: *June 19.*—Cabbages, 3*s.* to 4*s.* 6*d.* per tally; Turnips, 3*s.* 9*d.* to 4*s.* per dozen bunches; Mangels, 14*s.* to 18*s.* per ton; Swedes, 14*s.* to 16*s.* do.; Onions, Egyptian, 5*s.* to 6*s.* per case; Watercress, 6*d.* per dozen bunches; Gooseberries, 2*s.* 6*d.* to 3*s.* 6*d.* per half sieve; Strawberries, 4*s.* 6*d.* to 6*s.* 6*d.* per dozen punnets; Cherries, 2*s.* to 4*s.* per basket; Peas, 6*s.* to 8*s.* per bag; Carrots, 3*s.* per dozen bunches; Cucumbers, 2*s.* to 6*s.* per dozen; Lettuce, 9*d.* to 1*s.* 6*d.* per score.

POTATOS.

Borough and Spitalfields: *June 18.*—Rather increasing supplies; prices in buyers' favour. Scotch Regents, 70*s.* to 120*s.*; English, 60*s.* to 100*s.*; Magnum Bonums, 65*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.*; other varieties, 60*s.* to 80*s.* per ton; new Lisbon Rounds, 5*s.* to 6*s.*; Jersey kidneys, 9*s.* 6*d.* to 11*s.*; flukes, 10*s.* to 12*s.* per cwt.

Spitalfields: *June 19.*—New: Jersey rounds, 6*s.* 6*d.* to 7*s.*; do., kidneys, 9*s.* to 10*s.*; do., flukes, 9*s.* 6*d.* to 11*s.* Cherbourg kidneys, 8*s.* 6*d.* to 9*s.*; do., rounds, 6*s.* to 6*s.* 6*d.*; do., flukes, 9*s.* to 9*s.* 6*d.*; St. Malo rounds, 6*s.* to 6*s.* 6*d.*; do. kidneys, 8*s.* 6*d.*; Lisbon rounds, 5*s.* to 5*s.* 6*d.* per cwt. Old: Magnums, 55*s.* to 65*s.*; Champions, 45*s.* to 60*s.*; Imperators, 50*s.* to 70*s.*; Hebrons, 35*s.* to 40*s.*; Victorias, 35*s.* to 40*s.*; Early Rose, 35*s.* to 40*s.* per ton.

Stratford: *June 19.*—Magnums, 60*s.* to 70*s.*; Hebron, 40*s.* to 50*s.*; Imperators, 50*s.* to 60*s.* per ton. New: Jersey, 8*s.* to 9*s.*; do., rounds, 6*s.* to 7*s.* per cwt.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the obtained week:—Prime old Clover, 120*s.* to 144*s.*; do., new, 85*s.* to 110*s.*; inferior, 45*s.* to 75*s.*; best hay, 78*s.* to 112*s.*; inferior, 20*s.* to 50*s.*; straw, old, 40*s.* to 45*s.*; do. new, 24*s.* to 40*s.* per load.

NOTICES TO CORRESPONDENTS.

Intelligent Readers, *do* please Note *that letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the* Publisher, and not to the Editor. All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be *written on one side only of the paper*, and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Cape Bulb: *P. H. G.* Buphane toxicaria.

Cauliflowers and Brussel Sprouts: *Erica.* The plants are suffering from clubbing—a condition of the roots caused by a slime-fungus. Pull up and destroy by burning infected plants; and before setting out clean plants, "puddle" the roots in soot, clay, and wood-ashes. The evil probably arose in the seed-bed, or in the bed in which the plants were pricked out.

Cuckoo Spit, Aphrophora spumaria: *J. C.* This curious insect does much harm to delicate plants when it is abundant; but it will soon arrive at the end of the pupa stage, when it will cease to imbibe the juices of plants, and will then emerge from its spume as a small brown fly, possessing remarkable powers of hopping—hence its other popular name, "hop frog." To get rid of the pupæ, heavy syringings are of use on plants sufficiently strong to bear that kind of treatment, and soap-suds have a better effect than clean water. Tobacco-water is of use, and petroleum emulsion. Delicate plants must be cleared by hand.

Cucumbers: *Vegetarian.* These are usually packed in boxes or baskets, with a little fresh grass or moss between the fruits. What their market value may be in July and August we cannot foresee, but it will not be much, there being a glut at that period.

Cyclamen Plants Injured: *W. C. & S.* The minute semi-transparent creatures you have found at the roots of your plants in pots are little worms generally found in decaying vegetable matter, and are not insects or larvæ at all. They are full-grown, and do not undergo any transformation. Syringe with gas-tar water and soap-suds or parafin, and destroy all diseased bulbs. *I. O. W.*

Drosera: *Enquirer.* Drosera rotundifolia is a British species of Sundew, and, like most of the Droseras, the viscidity of its parts detains small insects which may chance to settle on it, when their juices are absorbed by the plant.

Foxglove: *A Subscriber and Others.* A common malformation, often figured in these columns, and due to the union of several flowers in a very young state.

Moss Litter: *E. M.* The moss itself is of low manurial value, its efficacy as manure depending on the amount of urine absorbed, and the nature of the dung mixed with it.

Mushrooms Appearing: *A. J. A.* If the bed is spawned, with the materials of which it consists, at a warmth of 98°, or rather less—this warmth, or thereabouts, being maintained for two or three weeks—Mushrooms may be looked for at this season in five weeks, not sooner. When they appear on the surface sooner than that, there has been too much warmth in the bed itself, or in the house, and the crop will be poor and light, coming to an end in a comparatively short time.

Names of Plants: *J. N.* This appears to be an interesting plant, and may be the Mespilus stipulosus. Do you know anything of its origin? and will you kindly send us fruit later on?—*B. S.* 1, Phyllocactus Johnstonei; 2, P. E. M. Hovey; 3, P. Conway Giant. These are all seedlings or hybrids, and difficult to name without seeing branches, so that the names are not given with certainty.—*W. F. D.* 1, Anthriscus vulgaris; 2, Torilis Anthriscus; 3, Barbarea vulgaris; 4, Rhinanthus crista galli; 5, Trifolium pratense.—*A. P.* A, Bromus asper; B, Poa trivialis.—*S. W. W.* Buddleia globosa.—*J. S. F.* Chelidonium majus. The yellow juice is stated to be used for dissolving corns on the feet.—*J. F.* 2, Festuca pratensis; 3, Triticum repens; 4, Spergularia rubra; 6, Poa pratensis. 1 and 5 numbers

detached. The small one is Aira præcox—the other indeterminable. Send better specimens more securely numbered.—*J. E. F.* The rare Listera cordata. We shall be glad of another specimen. —*J. C.* 1, 2, forms of Begonia parvifolia; 3, Begonia semperflorens; 4, Spiræa aruncus; 5, shrub Rhamnus sp.?; 6, Dendrobium Macarthiæ. —*G. F.* Pentas carnea.—*T. C. T.* Libertia ixioides.—*J. A. B.* Cattleya Mendeli, Aerides affine var. roseum, Saccolabium guttatum. Would that all our correspondents sent as good specimens as you do. — *B. & S.* Farfugium grande; ? Anthericum ramosum. — *D. H.* 1, Spiræa ariæfolia; 2, S. confusa; 3, not recognised; 4, Calycanthus floridus; 5, Berberis vulgaris; 6, Berberis, not recognised.—*K.* 1, Allium siculum; 2, A. atropurpureum; 3, A. triquetrum; 4, A. subhirsutum? 5, Vicia pseudocracca var.; 6, Lothyrus roseus.— *F. B.* 1, Cyperus alternifolius; 2, Chlorophytum elatum; 3, Polypodium Billardieri; 4, Sempervivum montanum; 5, Gasteria verrucosa; 6, Gymnostachyum Verschaffeltii. — *S. K. G.* Probably Delphinium elatum, but the material (one leaf and one flower) is not sufficient to make certain.— *A. L. B.* The round-leaved variety of the Manna Ash, Ornus europæa.

ORCHID SEED: *Orchid.* Sow when ripe, and when possible on the sphagnum topping the pot in which the seed-bearing plant is growing, Scatter the seeds on the surface, thickly if you like, as not much of it has vitality.

PLANTING AT THE SEASIDE: *Enquirer, Southport.* The subject cannot be treated in an efficient manner in this column, and we should advise you to get the numbers of the *Gardeners' Chronicle* in which the matter is pretty fully gone into, viz., October 6 and 20, November 3, and December 8, all in 1888.

STRAWBERRIES NOT SWELLING THEIR FRUITS: *J. B. F.* Mildew—due to the cool damp weather. You can do nothing.

TOMATOS NOT SETTING THEIR FRUITS: *S. T. S.* The flowers failed to set because, probably, the earlier flowers were not perfect; or they opened properly, and then lost their anthers and stigma from some cause. Ants and weevils will sometimes gnaw these off the blooms of the Peach when grown in houses. Watch carefully at night, you may then catch the depredators at work.

TOMATOS AND CUT BLOOMS: *Experientia.* Tomatos must be separated by some soft substance—green moss or something similar—and packed in layers in boxes or baskets, these being usually furnished by the salesmen. Cut bloom is usually packed in trays, which are placed in light wood boxes one over the other—half-a-dozen or more trays fitting into a box. Choice things pay for careful packing—avoid wadding, and use tissue-paper and damp moss. Do not pile flowers in masses, but layer them as you would Strawberries.

VINES: *J. T. H.* The leaves appear to have been scalded, owing to insufficient ventilation at some time, or from there being a little too much sulphur on the pipes. We discovered no white insects, nor do the leaves appear to have been eaten by any insect. Catch some of the insects, and send them to us for identification.

WOODLICE IN MUSHROOM-HOUSE: *A. J. A.* Remove all hay covering, if any, from the bed, and at night pour scalding water all round the bed where it has probably shrunk away from the walls. A small quantity of carbolic acid might advantageously be mixed in the hot water, most insects disliking its odour. A good form of trap consists of 3-inch drain-pipes lightly stuffed with damp hay. Lay these about anywhere if the woodlice are troublesome, emptying them daily into a pail of hot water. If you follow up these practices the insects will be materially thinned in a few weeks.

COMMUNICATIONS RECEIVED.—W. B., Valleyres.—P. L. S., Paris.—B. R.—J. E. J.—B. S.—C. B.—Board of Trade.—G. —J. W.—C. H.—T. & Co., Geneva.—J. C. W. & Co.—B. J. —M.—L., Brussels.—P. Ghent.—Dr. D., Hamburgh.—W. T., St. Louis.—W. E., Leipsig.—Dobbie & Son.—K.—R. D.— N. E B.—J. J. F.—W. R.—J. R.—E. C.—F. A.—E. J.—W. Goldring.—R. A. R.—J. J. W.—B.—W. C.—W. H.—W. R. —D. T. F.—T. L.

☞ *Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect in all cases to obtain an answer to their enquiries in the current week.*

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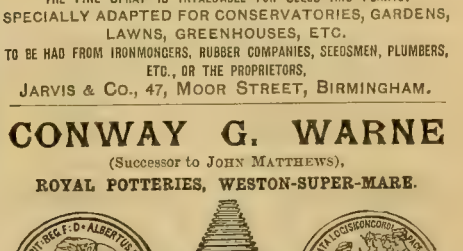
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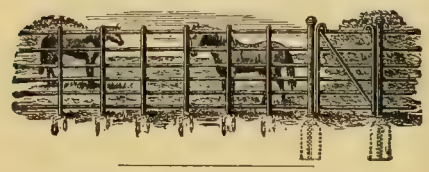
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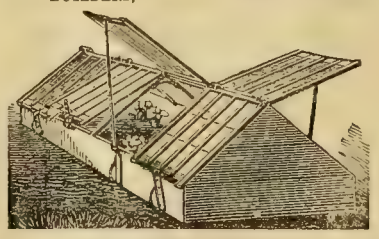
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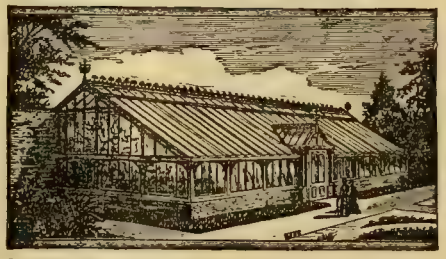
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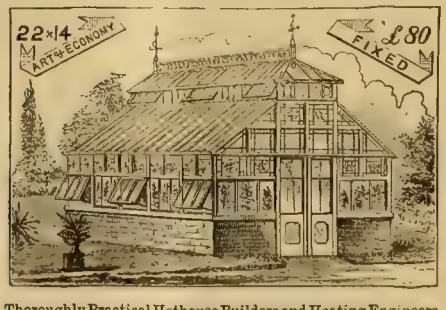
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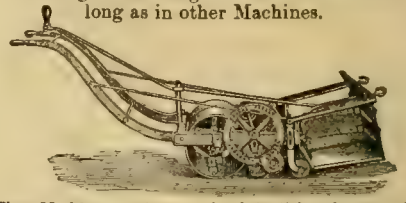
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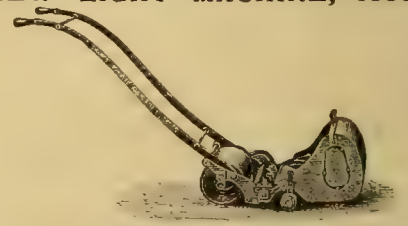
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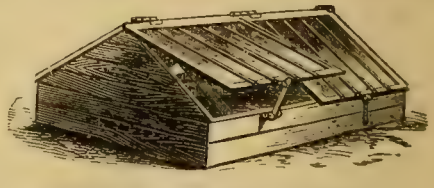
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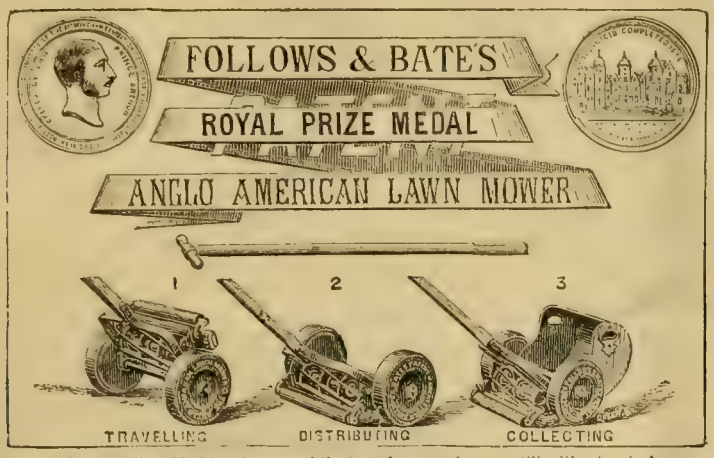


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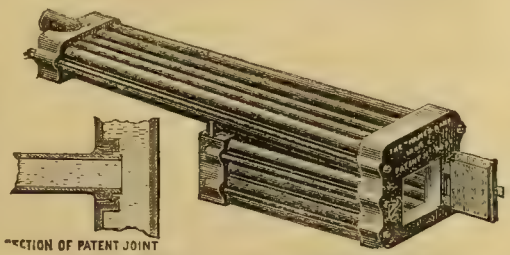
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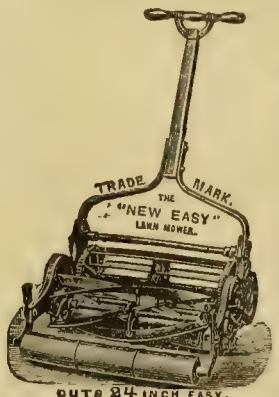
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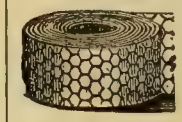
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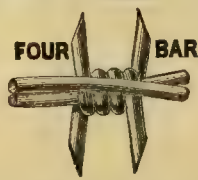
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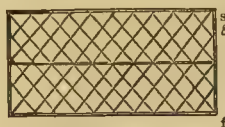
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5	„ ..	0	3	6	16	„ ..	0	9	0
6	„ ..	0	4	0	17	„ ..	0	9	6
7	„ ..	0	4	6	18	„ ..	0	10	0
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13	„ ..	0	7	6	24	„ ..	0	13	0
14	„ ..	0	8	0	25	„ ..	0	13	6

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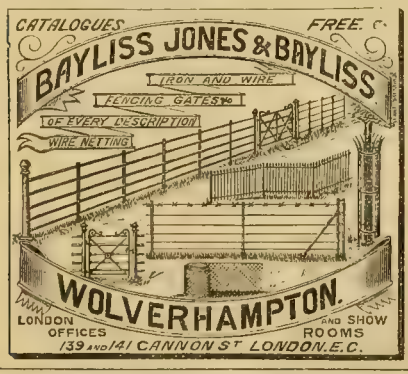
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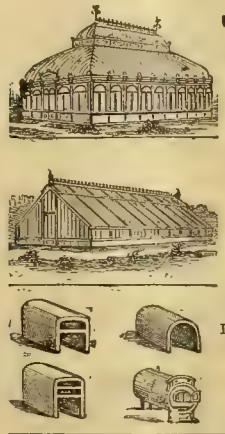


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GARDENING APPOINTMENTS.

Mr. H. RODMAN, late of Downside Gardens, Leatherhead, has been engaged as Head Gardener to W. E. BUDGET, Esq., Stoke Lodge, Stoke Bishop, Bristol.

Mr. H. YOUNG has been appointed Gardener to W. H. HODGKINSON, Esq., J.P., Glencot, Wells, Somerset.

Mr. F. H. FROUD, late of The Bank, St. Albans, has been engaged as Head Gardener to J. W. FORD, Esq., Chase Park, Enfield, N.

Mr. CHARLES STEWART, for the last five years Foreman at Thoresby, has been appointed Head Gardener at Haynes Park, Bedfordshire.

WANTED, AT ONCE, a HEAD GARDENER for South America (Argentine Republic). Must be thoroughly experienced in Plant Growing, especially Orchids, and have a good knowledge of Plants generally. Also a SECOND MAN, with a thorough knowledge of Fruit and Forest Trees, also Grafting and Budding. Both must be single or widowers without family. Good salaries and a three years' engagement will be given to competent men. Characters must bear the strictest investigation.—For further particulars apply at once, by letter only, to Mr. B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

WANTED, a SINGLE-HANDED GARDENER, without family. Wife to be Laundress. Good wages. House, Fuel, &c.—The Old Downs, Hartley, near Fawkham, Kent.

WANTED, a young Man, as UNDER GARDENER, about 18 years of age, to live in bothy. Experienced Inside and Out.—State wages and full particulars to J. SMYTH, Gardener, Undercliffe, Sunderland.

WANTED, an active, well-educated young Man, as FOREMAN, for the new range of Plant-houses in the Botanic Garden, Glasgow.—Only those with a good general knowledge of Plants and their Cultivation need apply.—Address ROBERT BULLEN, Curator.

WANTED, a thoroughly practical WORKING NURSERY FOREMAN. Must be well up in Florists' Flowers.—Apply with references and salary expected to LAING AND MATHER, Kelso, N.B.

WANTED, an experienced GROWER, for Covent Garden Market, of Roses, Carnations, Lily of the Valley, and other Cut Flowers. Must be thoroughly reliable. Good Cottage.—State Age, references, and wages required to R. E. ADDEY, Market Gardener, Brentford, W.

WANTED, a MAN, to take charge of two or three Greenhouses and Small Outdoor Nursery. Good character indispensable.—State wages to Mrs. HILLIER, Market Street, Cambridge.

WANTED, a steady, industrious MAN, to take charge of Walled-in Garden, and to Grow for Market Cut Flowers, Cucumbers, Peaches, Grapes, &c. State age, experience, and wages required. Good references indispensable.—JAS. IVERY AND SON, The Nurseries, Dorking.

WANTED, an active and successful ROSE BUDDER. For a good man this may be a permanent place.—State wages expected and particulars to THOMAS SMITH AND SONS, The Nurseries, Stranraer, N.B.

GRAPE THINNERS.—Temporary EMPLOYMENT OFFERED to a few expert hands. None but respectable and thoroughly experienced men need apply.—H. TITE, Hampton, Middlesex.

WANTED, TWO or THREE young MEN, used to Market Work, quick at Potting, &c.—JOHN TURTLE, Nurseries, Welling, Kent.

WANTED, a steady, respectable young MAN, to Help in Garden. Must have had some experience as above, and be well recommended.—Apply personally or by letter, stating wages required, to W. ODLUM, Warkworth House, Isleworth.

WANTED, a strong active young MAN (single) for Pleasure Grounds. One used to Scythe Work. Wages, 17*s*.—Apply, stating age, H. W. PERRIN, Woolpits, Ewhurst, Guildford.

To the Seed Trade.

TRAVELLER.—A first-class representative WANTED to travel the Midland and Northern Counties of England, for one of the largest Retail Houses. He must have a thorough experience in all branches of the Seed and Bulb Trade, as well as a knowledge of Plants. A liberal salary will be given to a qualified man.—State all particulars, age, where previously employed, &c., TRAVELLER, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a young MAN with good character who can Build, Repair, and Paint Greenhouse work, constant work to an industrious man who can fill up time at plant growing.—Apply to THOS. BUTCHER, The Nurseries, South Norwood, S.E.

WANT PLACES.

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RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners, seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

GARDENER (HEAD).—The ADVERTISER is at liberty to engage with any Nobleman or Gentleman requiring the services of a thoroughly practical man. Can be well recommended.—A. B., Moore & Son, St. Neots, Huntingdon.

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GARDENER (HEAD WORKING).—Age 30; experienced in all branches of the profession. Good character.—J. EGGLETON, The Gardens, Ashby St. Ledgers Lodge, Rugby.

GARDENER (HEAD WORKING), where two or three are kept.—Married; experienced in Flower and Kitchen Gardening. Good reference. Total abstainer.—TOMS, The Cottage, Layston House, Buntingford, Herts.

GARDENER (HEAD WORKING); age 40, married, no family.—A GENTLEMAN wishes to strongly recommend a man as above. Thoroughly experienced in all branches of the profession. Very superior, trustworthy, and obliging.—H. G. FAUSSETT OSBORNE, Hartlip Place, near Sittingbourne.

GARDENER (HEAD WORKING); age 28. —Mr. RUNNACLES, Leweston, Sherborne, Dorset, will be pleased to recommend his Foreman, Edwin Farmer, to any Lady or Gentleman in want of a thoroughly practical and conscientious man. Fourteen years in large establishments. Highest testimonials.

GARDENER (HEAD WORKING); age 42, married.—The Advertiser would be pleased to treat with any Nobleman, Lady, or Gentleman, requiring the services of a thorough practical Gardener. Had upwards of thirty years' experience in Growing all kinds of Forced and Hardy Fruits, Flowers, Vegetables, Mushrooms, Tomatos, both for Private use and Market. Possessing thorough knowledge of packing and sending to latter. Good references.—HEAD GARDENER, Packington Hall, Coventry.

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GARDENER (HEAD or Good SINGLE-HANDED) —Age 28, married; thoroughly experienced. Abstainer. —GARDENER, 13, West End Lane, Kilburn, N.W.

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GARDENER (SINGLE-HANDED, or good SECOND).—Well up in all bra ches of the profession. Total abstainer. Good references.—D. W., 12, Ross Villas, Richmond, S.W.

GARDENER, or good SECOND. — Age 26, married; good all round experience. Abstainer. Good character.—H. G., Wellington Road Nursery, Forest Gate, E.

GARDENER (SECOND). — Age 22; eight years' experience, Inside and Out. Excellent character from present and previous employers. Abstainer.—G. T. R., The Gardens, Milton Park, Egham, Surrey.

GARDENER (SECOND), or otherwise.— Age 27, single; accustomed to Houses, Flowers, and Kitchen Gardens. Very steady, willing, industrious. Excellent character. State wages. — M., Heathfield Stables, Streatham, Surrey.

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GARDENER (UNDER or SECOND), where three or four are kept.—Age 23, single; good character. Strong, sober, and industrious.—W. F., 4, Clifden Cottages, Keymer, Hassocks.

GARDENER (UNDER), or see to small Garden. —Age 21; good character.—J. SIMMONS, Oare, near Faversham, Kent.

GARDENER (UNDER).—Age 23; Kitchen Garden preferred. Nine years' experience. Good character.—E. B., Dover's Green, Reigate, Surrey.

GARDENER (UNDER). — Age 22, single; understands Cows. Good character from last place.—T. B., 99, Sunderland Road, Forest Hill, S.E.

GARDENER (UNDER), Inside and Out.— Age 19. Good character from last and previous employers. Total abstainer.—G. NEWMAN, 34, Bedford Road, Ealing Dean.

GARDENER (UNDER), Inside and Out, or Outside, wishing to improve. — Age 22; good character. Distance no object.—H. WAITE, Mr. Plumridge, Cookham, Berks.

GARDENER (UNDER), where others are kept, Inside and Out.—Age 21; three years' good character from present situation. — W. MALLOWS, The Palace Gardens, Peterboro.

MARKET GARDENER, in England.— Age 28; would give service for small wage, or for board. Two years' experience in Farm Work.—J. MAVER AND SON, Nurserymen, Holburn, Aberdeen.

To Nurserymen.

JOHN SMITH, many years Foreman to Mr. John Fraser, The Nurseries, Leyton, Essex, and well known to the trade, is prepared to offer his services to any one requiring a thorough practical OUT-DOOR FOREMAN or GENERAL MANAGER, could undertake Laying out to any extent, also furnishing, &c. First-class references from previous and present employers,—1, Copeland Road, Walthamstow.

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FOREMAN, in the Houses.—Age 25, single; eleven years' experience, quick, careful Waterer, excellent character. Two years as Foreman.—W. FREEMAN, Plawhatch, East Grinstead, Sussex.

FOREMAN, in Gentleman's Establishment.— Age 24; eight years' experience in good places. Excellent references. Past twelve months as Foreman. Abstainer. —FOREMAN, Brook Street, Milborne Port, Somerset.

FOREMAN; age 26.—Mr. F. W. RUSSELL, Head Gardener to E. T. Doxas, Esq., Woodgreen Park, Cheshunt, would be pleased to recommend his late Foreman, Edwin Staines, to any Gardener wanting a thorough trustworthy young man in the above capacity.—For particulars, please address as above.

FOREMAN, or FURNISHER. — Age 24; eleven years' experience in good places. Excellent references. No objection to the Trade.—WINSTANLEY, The Gardens, Sudbury Hall, Derby.

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To Nurserymen, &c.

FOREMAN, PROPAGATOR, and GROWER, chiefly Soft-wooded.—Good references regarding abilities and character.—C. SHEPHERD, Garraway & Co., Durdham Down Nursery, Bristol.

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PROPAGATOR and GROWER of Soft-wooded Stuff.—Many years' experience. Can set Boiler and fix Pipes. Good Carpenter.—W. STOCKER, 21, Nicholay Road, Upper Holloway, N.

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PROPAGATOR. — Age 24; well up in all Market Stuff. — H. SAYER, 13, Lion Road, Bexley Heath, Kent.

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JOURNEYMAN, Inside; age 21.—J. TRIGGER, The Gardens, Milton, Peterborough, can highly recommend Samuel Watkins to any Head Gardener requiring an active and industrious young man.

JOURNEYMAN, in the Houses, in a Nobleman's or Gentleman's place.—Age 22; experienced. Abstainer. Please state wages.—J. H., 1, High Street, Farnborough, Kent.

JOURNEYMAN (SECOND or FIRST), in good establishment.—Age 25; three and half years at Hand-Cross Park. Good references. — W. Humphreys, 8, Valley Road, Streatham.

JOURNEYMAN, or SECOND, where two or three are kept.—Age 21; good references.—E. ALDER, 164, Wellfield Road, Streatham, S.W.

JOURNEYMAN.—Mr. LAWLEY wishes to recommend a young man as above, who has been under him for the last four years.—Adcote Gardens, Boschurch, Salop.

£2 Bonus.

JOURNEYMAN, both Inside and Out. — Age 25; eighteen months' good character from last place, three years' previous.—C. M., 1, Lime Cottages, Hillingden Heath, Uxbridge.

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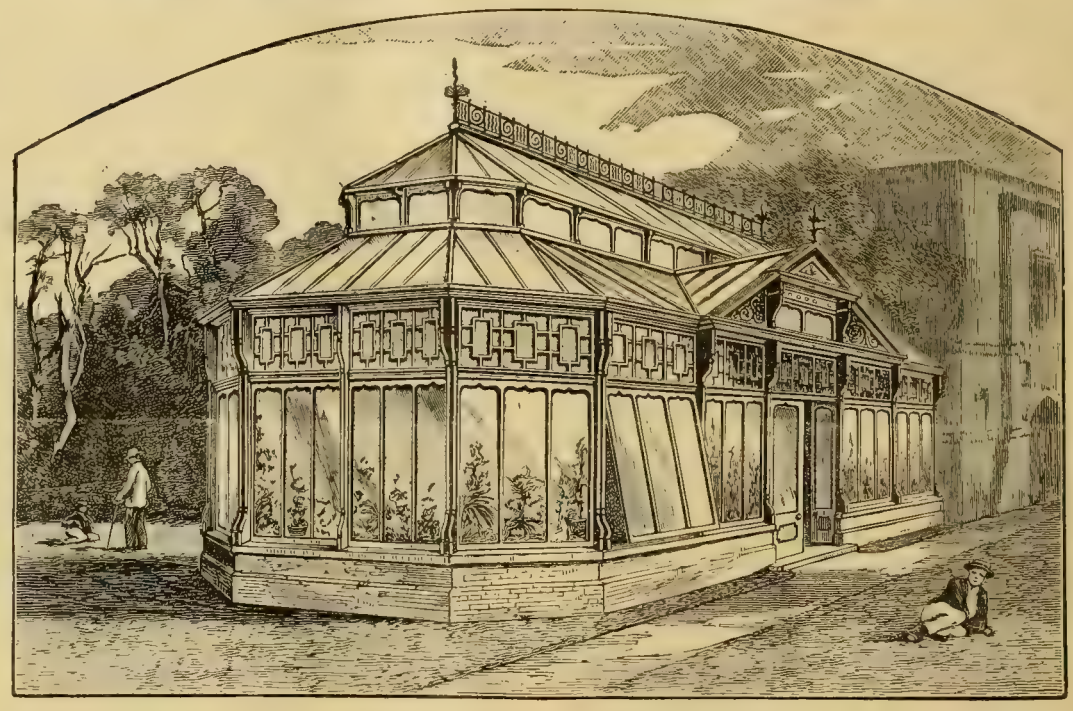
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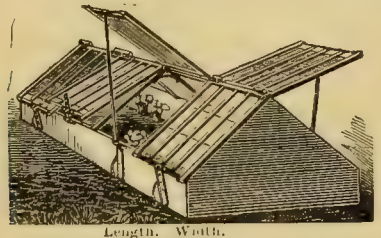
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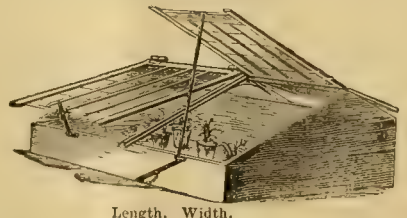
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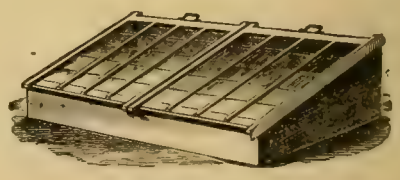
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6 „ „	24 „	by 6 „		10 7 6

No. 74.—THREE-QUARTER SPAN GARDEN FRAME.



	Length.	Width.		
1 Light Frame,	4 ft.	by 6 ft.	Cash Prices, Carriage and Packing FREE.	£2 15 0
2 „ „	8 „	by 6 „		4 7 6
3 „ „	12 „	by 6 „		6 0 0
4 „ „	16 „	by 6 „		7 12 6
5 „ „	20 „	by 6 „		9 5 0
6 „ „	24 „	by 6 „		10 17 6

No. 75.—MELON and CUCUMBER FRAMES.



	Length.	Width.		
1 Light Frame,	4 ft.	by 6 ft.	Cash Prices, Carriage and Packing FREE.	£2 0 0
2 „ „	8 „	by 6 „		3 0 0
3 „ „	12 „	by 6 „		4 5 0
4 „ „	16 „	by 6 „		5 10 0
5 „ „	20 „	by 6 „		6 15 0
6 „ „	24 „	by 6 „		8 0 0

STAND No. 530, ROYAL AGRICULTURAL SHOW, WINDSOR.

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THE GARDENERS' CHRONICLE IN AMERICA.

The Subscription to America, including Postage, is $4.30 for Twelve Months.

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ROYAL BOTANIC SOCIETY, Gardens, Regent's Park, N.W.
EVENING FÊTE and SPECIAL EXHIBITION, WEDNESDAY NEXT, July 3.

Gates open from 8 to 12. Four Military Bands will be in attendance. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 10s.; or on the day or evening of the Fête, 15s. each.

ROYAL BOTANIC SOCIETY, Gardens, Regent's Park, N.W.
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Gates open at 2 o'Clock. Military Bands will play from 2 to 7 o'Clock. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 10s.; or on the day of the Fête, £1 each. Schedules of Prizes and Regulations now ready.

CRYSTAL PALACE. SATURDAY, July 6.

The NATIONAL ROSE SOCIETY'S GRAND EXHIBITION of ROSES. Entries close Tuesday, July 2. Schedules and entry forms on application to Mr. W. G. HEAD, Superintendent, Garden Department, Crystal Palace, S.E.

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Wednesday, July, 17.

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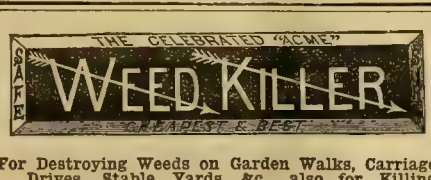


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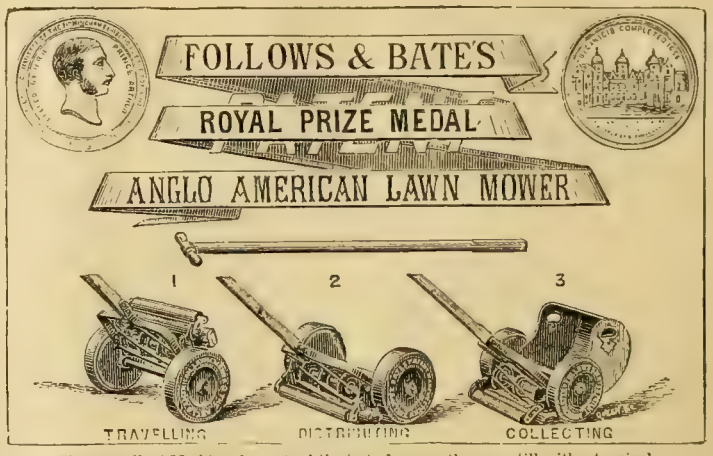
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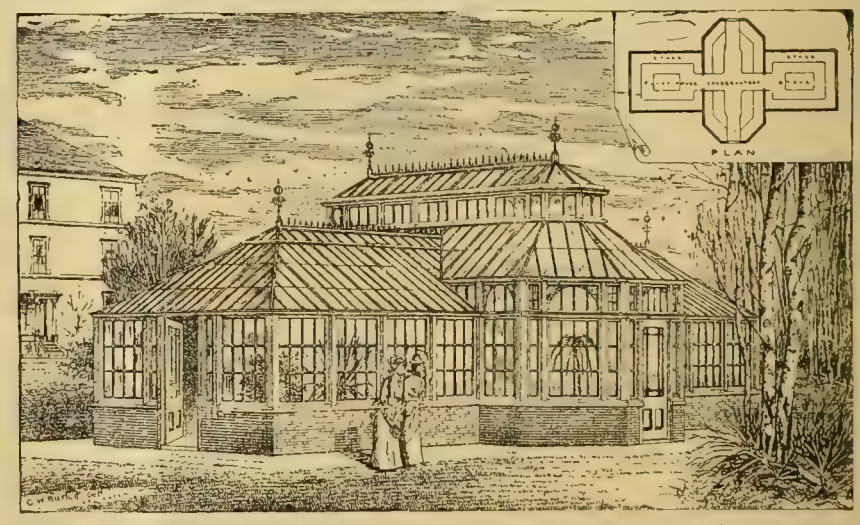
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TO THE

GARDENERS' CHRONICLE

FOR

Next Week, July 6,

Will be Published an Ink Photograph

OF A

GIANT GUM TREE

(EUCALYPTUS AMYGDALINA).

THE NUMBER WILL ALSO CONTAIN

ILLUSTRATIONS OF THE GIANT AROID AT KEW

AND

A REPORT OF THE ROSE CONFERENCE AND EXHIBITION AT CHISWICK.



THE

Gardeners' Chronicle.

SATURDAY, JUNE 29, 1889.

A HISTORY OF ENGLISH GARDENING.

(Continued from p. 649.)

THE London gardens of this period (fourteenth century) were comparatively large, and it was the custom of our ancestors to give audience and receive their friends in them. They were usually square enclosures, bounded either with high walls of stone or brick, or with thick, high hedges. There were generally two entrances to them, one a door opening from the house into the garden, and the other a private gate opening from the orchard or meadow. Immediately around the enclosure-wall a bank of earth appears to have been thrown up, the front of which was then faced with brick or stone, and the mould, being reduced to a level surface, was planted with sweet-smelling flowers and herbs according to the taste of the owner. Within this the garden was laid out with paths, "benches," and arbours. The main walks were not, as with us, bounded with turf, but with trees or shrubs, such as Bay, Hawthorn, or Maple. The paths were not gravelled, but covered with sand:—

> "All the alleys were made playne with sand."
> Lydgate, *Minor Poems*, p. 181.

Often a considerable area of the garden was covered with grass "thick yset and soft as any velvet." When this was the case "benches" or mounds of earth "on which one might sit and rest" were thrown up at various distances from one another, and covered with turf.

> "The benches turved with newe turves grene."
> *Ibid.* p. 181.

The "herber" or arbour, however, formed the chief feature of the mediæval English garden. Chaucer thus describes one:—

"A pleasant herber well ywrought,
That benched was, and with turfes newe
Freshly turved, whereof the grene gras,
So small, so thicke, so shorte, so fresh of hewe,
That most like unto grene wool wot I it was.
The hegge also that yede in compass,
And closed in all the grene herbere,
With sicamour * was it set and eglantere,†
Writhen in fere so well and cunningly,
That every branch and leaf grew by measure
Plain as a board, of oon height by-and-by."
The Flower and the Leaf.

Generally a garden was laid out with two such arbours. Sometimes, however, they were of considerable dimensions, and then they appear to have been completely separated from the garden proper by very thick hedges or walls. When this was the case they were usually entered from the women's apartments of the house—"my lady's bower"—or by a private doorway or "postern gate." These large arbours were also sometimes called "previ playing places.‡ Not unfrequently the fourteenth century gardens also contained ponds, wells, and stone fountains. The latter are often represented in the illuminated MSS. of this period, and sometimes appear to have been elaborately sculptured.

As to the flowers cultivated in the flower gardens of the fourteenth century we have very little information. Chaucer thus describes the contents of a flower garden of his day:—

"There sprange the Vyolet all newe
And fresshe Pervenke rich of hue,
And floures yellow, white, and red."
The Romaunt of the Rose, l. 1431-3.

He here implies that many flowering plants were cultivated, but from what we can gather from other writers of this period it would seem that not more than a dozen kinds of flowering plants were grown. These were the Periwinkle, Marigold, Rose, Lily, Violet, Primrose, Pink, Honeysuckle, Columbine, and the Eglantine or Sweetbriar. The former plant, the Periwinkle, appears to have been a great favourite, and is often mentioned in our mediæval poetry. In a ballad of Edward II.'s time a noble lady is called—

"The Parvenke of prowesse."§
Halliwell, *Lyric Poetry*, p. 58.

The Parvenke (the old name of the Periwinkle) is here used to typify excellence, as the Pink (as in the phrase "He is the very pink of courtesy") was used by the Elizabethans. In another old English poem it is called the "Joy of the ground;" and once we read of the mediæval women making garlands of it—

"A garland of Parvenke they set on his head."
Ritson, i., p. 33, l. 123:

The Marigold was also a favourite flower, and it, too, was employed for making garlands. Chaucer tells us of "Jealousy,"

"That weared of yellow gold a garland."
Knighte's Tale, i., 1071.

And the author of the *Great Herbal* (pub. 1521) writes that "Maydens do make garlands of it when they go to brydales, because it hath faire yellow flowers and rudy." Three varieties of the Rose only were cultivated—a white and a red variety of the garden species, and the common Dog-Rose. In Chaucer's time the "hips" of the latter species were cooked and served up at table. The following receipt, taken from the *Form of Cury* (a fourteenth century cookery-book), gives directions for cooking them:—"Sauce Saracen. Take heppes, and make them clean. Take Almonds blanched. Fry them in oil, and grind them in a mortar with the heppes. Draw it up with red wine, and do therein sugar and Ginger. Let it be stiff, and mix it with Rice, and colour it with alkanet and mess it forth." Four species of Lily were cultivated in the fourteenth century gardens. One of these, we are told in an early English medical MS. (fourteenth century), preserved in the Royal Library, Stockholm, "waxeth in gardens," and had flowers "as whyte as anie mylk." Two other species bore yellow flowers, one of a light, the other of a saffron hue; from which description, quaintly says the writer of the old MS., "men may knowe them well." The fourth species cultivated in these early times bore "blue-purple flowers in somertyde." The Violet is described in the same old MS. as an "erbe well couth (known)." Its flowers were used in garnishing the dishes of our mediæval ancestors as we use Parsley now. An old receipt for "Mon-Amy," which appears to have been a kind of thick cream pudding, directs the cook to "make the potage stand up in a dish," and to "plant it with flowers of violet," and to "serve it forth." (Arundel MS., 334, f. 413.) "Flowerez of Violets" are also mentioned as having been eaten "raw" with Lettuce, Onions, and other salad herbs.

Although the flower gardens of the Middle Ages were so scantily supplied with plants, this was by no means the case with the orchards or vegetable gardens. In the former were to be found most of those kinds now under cultivation in the orchards of this country. The commonest fruit then grown was the Apple, and no less than nine varieties of it were known. The commonest of these, the Costard Apple, was sold about the streets of London. The men who sold it were called the "costardmongers," and these appear to have been the originals of our "costarmongers." The Pearmain, another variety of Apple, was also extensively cultivated, and formed the chief cider Apple. Other varieties known in the fourteenth century were the Pomewater,* Ricardon,* Blaundrelle,* Queening,* Querdling,† Sweeting,† and Bitter-sweet.‡ It is interesting to note here that Chaucer mentions the old custom of our ancestors of storing Apples in hay or heath (*Miller's Tale*, l. 76). Not unfrequently Apples were cooked and served up at table. Sometimes they were merely baked (Langland, *Prs. Pl.*, l. 4387); sometimes they were "pared," and had their "cores" taken out and made into "fritters" (*Form of Cury*, No. 19), or "tarts" (*Ibid.* No. 23).

Cherries were also extensively cultivated in this country in the Middle Ages. June and July, the season of the year when the fruits were ripe, was often called by the old poets "cherry-time" (Langland, *Prs. Pl.*, l. 2993). "Cherry feasts" and "Cherry fairs" are also often mentioned in our early poetry. Gower (fourteenth century) tells us that human life—

"endureth but a throw
Right as it were a Cherry feast."
Conf. Aman., vi.

And Lydgate, another of our early poets, writes—

"This world is but a Cherry fair."
Minor Poems, p. 281.

The latter author also tells us that Cherries were, in his day, sold about the streets of London. The Pear was largely grown, and several varieties were known. Chaucer mentions two, the Caleweis (*R. of the R.*, l. 7045) and the Perjonette (*Miller's Tale*, l. 62). The former of these was probably the Calswel, or Kaylewell variety, which, as we have before seen, is mentioned in the fruiterer's bills of Edward II. It is also mentioned in Langland's poem, *Piers Ploughman* (l. 10,939). The Perjonette was an early variety, and was much esteemed:

"Sche was wel more blisful on to see
Than is the newe Perjonette tree."
Chaucer, *Miller's Tale*, l. 62.

Another kind cultivated in the fourteenth century was the Wardon Pear. It was one of English origin, and appears to have derived its name from Wardon, a town in Bedfordshire, where it was originally grown. It is mentioned by Lydgate as a "common fruit." The Pear was often cooked, and in the *Form of Cury* are receipts for "Pears in confyt" (No. 132), "Pears in syrup" (No. 30), and "Pears in paste." Pears are also mentioned as having been used with Quinces and other fruits to "stuff" poultry and to "make sauce." Beside these fruits, Plums, Damsons, Bullaces, Peaches,* Figs,† Walnuts, Strawberries, Quinces, and Medlars were also grown in our fourteenth century orchards. The former is mentioned by Langland (*Prs. Pl.*, l. 2508); and by Chaucer among the "homely trees" of an English orchard. Damsons and Bullaces were much esteemed, and the latter fruit was often cooked or "scalded with wine" (*Form of Cury*, No. 95), and served up at table. The Strawberry, according to Lydgate, was sold about the streets of London—

"Then into London I did me hye,
Of all the land it beareth the price:
Hot peascods, one began to crye,
Strawberry ripe and Cherries in the ryse."
London Lackpenny, Minor Poems, p. 105.

(To be continued.) P. E. N.

Honeysuckle. † Eglantine.
‡ See *The Romance of William and the Were-wolf*. Printed by Roxburghe Club, 4to, 1832, f. 135 b. § Braveness.

* All mentioned by Lydgate.
† Both mentioned in the *Form of Cury*.
‡ Mentioned by Gower, *Conf. Aman.*, viii.

* Lydgate mentions this as being grown in the Mayors' garden, Cheap. † Sloan MS., 4, f. 168.

New or Noteworthy Plants.

DENDROBIUM FAIRFAXII, *Rolfe, n. sp.*

An interesting little Dendrobium, belonging to the Stachyobium group, has been collected in the New Hebrides by Admiral Fairfax, Commander of H. M. Fleet, in Torres Straits, and sent home to his gardener, Mr. Yea, under whose care it has now flowered. A raceme was sent to the *Gardeners' Chronicle* for determination, and passed on to me; but I could not find anything like it, and on application for more materials and information respecting it, a second raceme, with a small plant and the above particulars, were sent, through Mr. William Thomson, of Clovenfords, near Galashiels. It is not D. polyanthum, Rchb. f., described from the New Hebrides, nor can I find any description with which it agrees, and therefore venture to describe it under the above name. The same name has been already used for another plant, but as D. Fairfaxii of F. Mueller and Fitzgerald is synonymous with D. teretifolium, R. Br., it is quite admissible to apply it again to another species, especially in view of the difficulty of finding distinguishing names in so large a genus as Dendrobium. The plant just mentioned is described where no one would think of looking for an Orchid, viz., in the *Sydney Mail* for September 21, 1872, p. 360, with a woodcut. Characters are there given for distinguishing it from D. teretifolium, but which break down in every direction when a series of specimens are examined, and do not even hold good for the figure of the latter in the *Botanical Magazine*, t. 4711; and these facts leave no doubt that D. Fairfaxii, Muell. and Fitzg., is a form of D. teretifolium. I may add that my knowledge of the above is derived from a cutting from the paper in question, pasted down with specimens of D. teretifolium, in the Kew herbarium, and that I have not searched the columns of the *Times* and the *Daily Telegraph* to see whether the present novelty may not already have received a name. Publication in these papers would be equally appropriate!

The following is the technical description:—Plant about half a foot high. Pseudobulbs 3 to 4 inches long, slender below, thickened and fusiform above, deeply sulcate, with about nine angles. Leaves linear-oblong, subacute. Racemes terminal, short, with two to three flowers, but old racemes, about as long as the pseudobulbs, show from five to seven flowers. Bracts oblong, acute, 2 lines long. Pedicels 1 inch long. Sepals lanceolate, acute, ¾ inch long; mentum stout obtuse, ¼ inch long, green. Petals lanceolate linear, 1⅛ inch long, like the sepals, white. Lip rhomboid-ovate, a little narrowed above, obtuse, ¾ inch long, greenish-white, with pale green nerves and a little light purple on margin; side lobes

infolding; apex a little reflexed; callus linear fleshy, bright green, confined to lower third of lip. Column short, white; stigma green. The flowers remain fresh for a considerable time, for a note says the flowers sent had been expanded six weeks. *R. A. Rolfe.*

Zygopetalum (Huntleya) lucidum, *Rolfe, n. sp.*

This is a new Zygopetalum, belonging to the section Huntleya, which has been imported from British Guiana, by Messrs. F. Sander & Co., of St. Albans. A specimen has been sent to Kew for determination, but proves different from any species hitherto described, so far as I am able to discover, and I therefore propose to distinguish it by the above name. It is a bright and attractive little plant, allied to Z. Meleagris, Benth. (the old Huntleya Meleagris, Lindl.), but a smaller plant altogether, the segments narrower, colours different, and the front lobe of the lip not broader than the basal fringed portion. The following is the technical description: Leaf (one only seen), oblanceolate-linear, sub-obtuse, 6 inches long, 1 inch broad. Peduncle erect, shorter than leaf, 1-flowered. Bract lanceolate, acute, ½ inch long, with a second one, a little longer than the other and very narrow. Flower 2 inches across; segments broadly lanceolate, a little acuminate, the petals a little shorter than the sepals, and the dorsal sepal a little broader than the lateral ones; lip 3-lobed, the front lobe broadly lanceolate, acute, 7 lines long, the lateral ones small and rounded, but quite obscured by the semi-circular crest, with very numerous radiating keels, and beautifully fimbriate margin; column with broadly rounded membranous wings. Colour of segments light brown in front, inclining to purple-brown on the petals and upper half of the sepals, the base of the sepals white, and each segment having a crescent-shaped, bright green, transverse band about the middle, which, being continued on each segment, gives the appearance of a halo, and is certainly somewhat unusual. Front lobe of lip lurid purple, shading into lightest yellow in front, base ochre-coloured, and with three slender linear keels; crest light yellow, passing into orange in front, keels margined with brownish-lilac, column white, striped with purple. It is a very pretty little plant, the whole flower having a shining appearance, in allusion to which the name lucidum is given. A word as to the genus, as these plants have hitherto borne the name of Batemannia in gardens, in fact have usually been described as such. Batemannia is a genus founded by Lindley for a plant pretty well known in gardens, though not generally cultivated—B. Colleyi—in which the flowers are borne in racemes, and the segments subconnivent. A second genus with solitary flowers and widely spreading segments he called Huntleya, the typical species being Huntleya Meleagris. These two genera were united by Reichenbach under the former name, under which any novelty has since been described. But Bentham pointed out that they had little affinity with the original Batemannia, and referred them as a section (Huntleya), to Zygopetalum. To the latter they are certainly more nearly allied than to Batemannia, and I do not find any character to separate Huntleya as a genus, so the best plan will be to let it remain as a section of Zygopetalum like Pescatorea, Promenæa, and others. *R. A. Rolfe.*

DISEASE OF LILIES.

POLYACTIS CANA, B.

The fungus which is often found on diseased Lilies, and which has several times been published (under different names), is, I think, Polyactis cana, Berk. This species is one of the most variable of fungi; sometimes it is virtually stemless, at other times it is drawn up and attenuated to an extreme degree; sometimes it produces on each branch a vast number of spores, at other times it is drawn out in a thin and attenuated condition, like Peronospora, with a single spore at the end of each long and slender branch. This is the fungus I referred to by name in communication to the *Gardeners' Chronicle* on the disease of Lilies, August 18, 1888. I have long had the fungus under observation; it grows on diseased Humeas and on Tulips, causing one kind of disease not in any way to be distinguished from the too familiar disease of Lilies. The spores on examples of Polyactis cana in the Kew Herbarium are identical in size with those from diseased Lilies, as lately confirmed for me by Dr. M. C. Cooke.

I regret that I described this fungus as a Peronospora in the *Gardeners' Chronicle*. I was misled by the seeming parasitic habit. I also thought I saw zoospores, but I may have been mistaken. Mr. Berkeley, too, probably saw, or thought he saw, some indication of zoospores. Professor Marshall Ward, in referring to Berkeley's opinion, says, "he had never seen it produce zoospores" (*Ann. Botany*, vol. vii., p. 359), whereas Mr. Berkeley's own words are, "Though I have not seen the zoospores, *I have no doubt they are developed in favourable weather*" (*Gardeners' Chronicle*, September 10, 1881, p. 340). Both Mr. Berkeley and myself were probably wrong, but I have seen other remarkable points in this fungus not hitherto published. In one instance my examples produced spores, some of which were furnished with a septum, in another instance the whole fungus was distinctly pink, and not white or grey in colour. But, however the fungus may vary in form, colour, or habit, I am now convinced that the fungus found on Lilies, Tulips, Humea, Scrophularia, &c., is no other than the old Polyactis cana.

It is curious that in referring to Mr. Berkeley's article in the *Gardeners' Chronicle* for 1881, Professor Marshall Ward should write (*Ann. Botany*, p. 359): —"Berkeley . . . seems to have been already acquainted with this disease." This remark seems to show that Professor Ward was himself unacquainted with the remarkable history of the Lily disease for the ten or more years prior to 1881. It may be well, therefore, to say here that the Lily disease had been closely studied for a dozen years before Mr. Berkeley wrote his 1881 article. Indeed, there are several communications from Mr. Berkeley's own pen in volumes of the *Gardeners' Chronicle* prior to 1881, in which Mr. Berkeley discusses a *possible* fungous origin of the disease, and in one instance mentions a fungus, Asteroma polygonati, as the possible cause.

The great difficulty in accepting a fungus as the sole cause of the disease of Lilies is this—the disease of Lilies was perfectly well known for ten years before the Polyactis was seen. How, then, was Professor Ward's "ferment" produced from 1871 to 1881, when the most searching and repeated examinations of diseased plants could detect *no fungus whatever*—except in one instance an Asteroma?

Another curious point is this—nematoid worms are almost invariably found connected with the Lily disease. The early spots on the buds and leaves, on which the fungus sometimes appears, are identical in appearance with the spots on Carnations produced by nematodes alone. In a series of Tulips sent to me last year by Dr. Hogg, the morbid appearances seemed to be identical with the disease of Lilies, but no parasitic fungus was present; on the other hand, the Tulips were in all parts swarming with nematodes, or minute eel-worms.

Sclerotia, or little seed-like, dark-coloured, compact masses of fungus spawn, have been mentioned in connection with the disease of Lilies. I have a MS. list of all plants in which I have seen sclerotia, but Lilies are not on the list, although sclerotia are common enough in and on certain bulbs, as Narcissus. On September 29, 1888, p. 361, an illustration was given by me in the *Gardeners' Chronicle* of a bulb infested with sclerotia. I have kept similar sclerotium-infested bulbs long under observation, but with me they have never produced a Peziza, and I should have been extremely surprised had such very small sclerotia done so. With me they have not even produced a Polyactis or Mucor, but on the other hand they have invariably produced a quantity of attenuated mycelium only, which mycelium has rapidly spread on to any other bulbs of Narcissus which may have been near, and there formed at once a series of new sclerotia. This process has been repeated over and over again, and it shows that some fungi can maintain themselves for a long time in the sclerotium condition, just as other imperfect fungi, as the Oidium of the Vine and the Uredo, or rust of corn, can maintain themselves in the Oidium or Uredo state.

I regret that by an obvious slip of the pen I lately wrote that the spores of the Lily fungus contained "mycelium" (as pointed out by Professor Ward). The word I had in mind was, of course, "protoplasm." *Worthington G. Smith, Dunstable.*

REMARKS ON PLANTING AND FRUITING VINES.

In the first week of July last I planted a house with Black Hamburgh Vines, with the view of making it an early house, and with the hope that I might not be the loser of a season's crop of fruit. So far my hopes have been fully borne out. The Vines are now carrying fifty bunches, some of which I think will weigh upwards of 4 lb., and, judging by present appearances, they should colour well. This is not a new practice; but to ripen off a crop of fruit, root out the Vines, and replant the house, and be able to cut Grapes the following season from the new Vines, is not done every day. The system has certainly an advantage over the old plan, when it can be done, and I will briefly jot down a few details of my method of procedure.

In the first place I was desirous of making the second into the early house, and what had been the early house into a later one for growing Gros Colmar. The Vines (Hamburghs) were started in November, 1887, the fruit being ripe in May following; and about the middle of the month of June all the Grapes left were cut and put into bottles in the usual way, the Vines were dug out, the house washed, the drainage made perfect, and the border refilled with sweet loam, bones, lime-rubble, and wood-ashes; and this mixture having been prepared previously, it was in good workable condition—not too wet nor too dry—and could therefore be trampled firmly. A small amount of fire-heat was then turned on, and the house was kept somewhat close, so as to impart warmth to the soil.

The greater number of the Vines to be planted were struck in February of the same year; the eyes being put into 60's, and placed in a brisk heat, and grown on briskly throughout, never allowing the roots to become matted, shifting the plants whenever the roots pushed through the new soil. At the time of planting these out, most of them were in 12-inch pots, and several canes measured from 5 feet to 7 feet long. Before being turned out of the pots each received several soakings of water; and when they were turned out the soil around the ball was loosed with a pointed stick, so as to disentangle and set free some of the roots. The strongest canes were allowed to fruit this year under the rafters, and will then be cut out, while the others, which will become the permanent Vines, were planted in the middle of each light; and it is intended to shorten these back in the autumn, allowing them to carry each a few bunches if it should seem desirable. A good watering with tepid water was afforded the border after the planting of the canes was finished, they were shaded for a few days, and the house was kept close, and the atmosphere moist. The Vines soon began to push roots into the new soil, and quickly reached the top of the house, at which point the ends of the shoots were stopped, and the lateral shoots were stopped at the fourth joint, and subsequently at every second one. By the end of the season all had made fine strong canes, which ripened up well. Half of these Vines were cut back to half their length, while the other half were left at their full length, to fruit this season.

It may be well to state that at the time of planting one of the tops accidentally got broken. But by keeping the top laterals pinched out, thus causing a dormant bud to break, the only difference which I

can detect in this cane is that at the recommencement of growth the lower buds broke more freely than was the case with the rest, and the bunches are equally good on all the Vines without exception.

The house which had been the earliest, and which it was intended to plant with Gros Colmar, was then taken in hand, the planting, &c., being carried out in the same way, with the exception that I have planted the Vines on June 15 this year, being a matter of three weeks earlier than those planted last year. The Vines are strong and healthy, some of them 6 feet in length, and judging from what the others have done, I fully expect to get strong fruiting canes by the month of November, half of which I hope to be able to crop next year, besides having a few bunches on the permanent Vines, should their growth be vigorous, and therefore not liable to suffer by early fruiting. *H. Markham.*

TORREYA.

We avail ourselves of the opportunity kindly afforded us by Messrs. Veitch of figuring the male and female flowers of T. californica of Torrey. These were grown at Orton, the seat of the Marchioness of Huntley, under the charge of Mr. Harding. It is not necessary to enter into detail concerning the species, as this has been done for popular purposes in Messrs. Veitch's excellent manual, while the botanist will find a full account in the late Professor Parlatore's monograph in De Candolle's *Prodromus.*

It may suffice now to say that the present species is a native of California, where it is called the Californian Nutmeg, the "ruminate" albumen being similar in appearance to the Nutmeg. It has much longer (3 inches), straighter, flatter, and more sharply pointed leaves than the other species, the fruit also is larger. The male catkins are oblong. It is figured in the *Botanical Magazine* under the name of T. myristica (1854), t. 4780; a sketch of an old tree in California with a very interesting note was communicated to these columns in October 31, 1885, by Sir J. Hooker.

Other species are T. taxifolia from Florida (see Hook. *Ic.*, 232, 233), which has yellowish branches, leaves of a relatively light shining green colour, and the male catkins are somewhat globose.

T. grandis is a native of China, whence it was introduced by Fortune, who gave a long account of it in our columns in 1857, p. 789. Fortune speaks of it as a "noble evergreen tree." Its leaves measure about three-quarters of an inch in length, dark green above, paler beneath.

T. nucifera is a native of Japan, with brownish-purple branches, the shoots of the year yellow, the leaves less than an inch long, sharply pointed, arching from above downwards, so as to be convex on the upper surface. The male catkins are oblong.

They are all trees of Yew-like aspect, and, indeed, are closely allied, structurally and geographically, to the Yew. In their native countries they are described as handsome trees, but in this country their growth is slow, and they cannot claim much repute for beauty.

Some very interesting particulars relating to the history of these trees were given in our columns by Dr. Asa Gray, in 1875, p. 291.



Fig. 126.—Male flowers of Torreya californica; hardy shrub.

NOTICES OF BOOKS.

ECONOMIC PLANTS.

The almost simultaneous appearance of two works on economic botany, one in this country and the other in Australia, indicate, if any indication were necessary, that much more attention is now given, all the world over, to the uses of plants than was formerly the case. The fact that a very large portion of the time of the officials of the Kew establishment is occupied on questions relating to the acclimatisation and development of plants valued for their uses rather than for their ornamental character only, a fact borne out by the *Monthly Bulletin* of the establishment being almost exclusively confined to subjects of economic interest, is another proof that economic botany is attaining the foremost position in the science to which it is justly entitled. Again, the formation of museums in most of our colonies, on the plan of those at Kew, is a still further proof that a knowledge of the useful products of the vegetable kingdom is being more carefully studied.

The first, and the most important of the two volumes referred to at the commencement of this article, is one published under the authority of the Committee of Management of the Technological Museum of New South Wales, at Sydney, under the title of *The Useful Native Plants of Australia (including Tasmania).* By J. H. Maiden, F.L.S., F.C.S., &c., Curator of the Museum. Its publishers are Trübner & Co., of Ludgate Hill, in this country, and Turner and Henderson in Sydney. What Bentham and Mueller's *Flora Australiensis* is to the scientific botanist, the book under notice will be to the economic botanist, for it is the best and most exhaustive account of the useful plants of any of our colonies that has appeared, and it is to be hoped will serve as an example for the authorities in our other possessions, especially where there are botanic gardens, and more especially where the floras have been worked up—to copy. The arrangement of the book is on a plan that will recommend it for general use by those unacquainted with a scientific classification, being divided under such heads as "Human Foods and Food Adjuncts," "Forage Plants," "Drugs," "Gums, Resins and kinds," "Oils," "Perfumes," "Dyes," "Tares," "Timbers," "Fibres," &c. The plants included under each of these heads are arranged alphabetically under their scientific names.

The following example of a paragraph taken from the section devoted to human foods will suffice better than any description of our own to show the plan and completeness of the book:—

"Araucaria Bidwillii, Hooker, N. O. Coniferæ, *B. Fl.*, vi., 243. 'Bunya Bunya.' 'The cones shed their seeds, which are 2 to 2½ inches long by ¾ inch broad; they are sweet before being perfectly ripe, and after that resemble roasted Chestnuts. They are plentiful once in three years, and when the ripening season arrives, which is generally in the month of January, the aboriginals assemble in large numbers from a great distance around, and feast upon them. Each tribe has its own particular set of trees, and of these each family has a certain number allotted, which are handed down from generation to generation with great exactness. The Bunya is remarkable as being the only hereditary property which any of the aborigines are known to possess, and it is therefore protected by law. The food seems to have a fattening effect on the aborigines, and they eat large quantities of it after

roasting it at the fire. Contrary to their usual habits, they sometimes store up the Bunya-nuts, hiding them in a water-hole for a month or two. Here they germinate and become offensive to a white man's palate, but they are considered by the blacks to have acquired an improved flavour (Hill).

"Dr. Bennett mentions that after an indulgence in this exclusively vegetable diet they have an irresistible longing for flesh, and in order to satisfy that craving, cannibalism used to be frequent amongst those tribes who were visitors (for the purpose of eating the Bunya Bunya seeds) of those tribes in whose territory the Bunya Bunya tree grows —Queensland."



Fig. 127.—Torreya californica, female flowers. (see p. 800.)

It will be seen from this extract that the plan adopted is to give first the scientific name, authority, natural order, the volume and page where it is described in Bentham's *Flora Australiensis*, the native name, then the description of its uses, and finally the colony where it is native. This plan is followed throughout. Mr. Maiden wisely omits any references to botanical characters. We entirely agree with him in the following paragraph, which appears in his preface:—"Because this is not a text-book of systematic botany, botanical diagnosis of all kinds have been rigorously suppressed. They would be simply useless padding in a book with the aim of the present one." As might be expected in a country where so many large timber trees abound, a large portion of the book—indeed, about one-half —is devoted to timbers.

Notwithstanding that an alphabetical arrangement has been adopted throughout the book, Mr. Maiden seems to be fully alive to the fact that no book of reference is complete without a good index; three indices indeed are given, one of vernacular names, one of scientific names, and the other miscellaneous. All are very full, complete, and extremely useful; but we think if they had been embodied in one general index the items would have been more quickly available. The book is one that should be in the hands of all in any way interested or concerned in Australian vegetable products.

The second book we have to refer to is published by Messrs. Roper & Drowley, of Ludgate Hill, under the title of *The Uses of Plants; a Manual of Economic Botany, with special reference to Vegetable Products introduced during the last Fifty Years.* By G. S. Boulger, F.L.S., F.G.S., &c. This is rather a disappointing book; for it has a good title to start with, and its tabulated list of contents looks well, namely, "Economic Botany more than Fifty Years ago," "The Progress of Economic Botany in England during the last Fifty Years," and the classification of the remainder of the book under such heads as Food, Food Stuffs and Food Adjuncts, Materia Medica, Oils and Oil Seeds, Gums, Resins, &c. Turning back to the first division, namely, "Economic Botany more than Fifty Years Ago," we find a sketchy enumeration of the several "Physic" and Botanic Gardens, and the various Botanical Collectors from the time of Gerard down to the establishment of the Royal Gardens at Kew. Little of this matter has any direct reference to economic botany, and the same might almost be said of the second division, "On the Progress of Economic Botany during the last Fifty Years." Referring to the early part of the present century, Mr. Boulger says:—"John Gibson was collecting Dendrobiums in India, a collection which, with the subsequent labours of the Messrs. Veitch, their hybridiser, Dominy, and other collectors, such as Low, Skinner, Rucker, and Bateman, has combined to render the cultivation of these beautiful exotics one of the most prominent features of the gardening of our time." What this has to do with economic botany, as usually defined, we leave our readers to decide, for it is well known that of all natural orders the Orchideæ is the least productive of economic products. Proceeding to the more practical part of the book, namely, that to which distinct heads are given, we find under food and food stuffs, a very brief enumeration of well-known plants such as Wheat, Barley, Oats, Rye, &c., the bulk of which have been known to commerce long before the period of fifty years of which the book is supposed to treat. Under the head of Materia Medica, the arrangement of the natural orders as carried out in Fluckiger and Hanbury's *Pharmacographia*, has, to a certain extent, been adopted, but we cannot understand the position of the Acacia gums under Palmaceæ (p. 149). Though many of the scientific names are antiquated, they are for the most part correctly spelt.

LIST OF GARDEN ORCHIDS.

(*Continued from p. 746*).

CATTLEYA—*Continued.*

(40.) C. PORPHYROGLOSSA, Linden and Rchb. f., in Otto and Dietr., *Allg. Gartenz.*, 1856, p. 98. *Epidendrum porphyroglossum*, Rchb. f., *Xen. Orch.*, ii., p. 33, also p. 172, t. 171, fig. 1; 172, fig. 2.—Brazil, province of Santa Catherina. Flowered in the collection of Consul Schiller, at Hamburgh. Allied to *C. guttata*, but with smaller flowers.

Var. PUNCTULATA, Rchb. f., in *Gard. Chron.*, ser. 3, ii., p. 98.—A form with scattered crimson dots on the inside of the petals, and a few also on the sepals.

Var. SULPHUREA, Rchb. f., in *Gard. Chron*, ser. 3, ii., p. 98. *Epidendrum porphyroglossum* var. *sulphureum*, Rchb. f., *Xen. Orch.*, ii., p. 172, t. 171, fig. 2. *Cattleya amethystoglossa* var. *sulphurea*, Rchb. f., in *Gard. Chron.*, 1866, p. 315 (excl. fig.).

(41.) C. PORPHYROPHLEBIA×, Rchb. f., in *Gard. Chron.*, n.s., xxiv., p. 552.—A hybrid, raised by Mr. Seden for Messrs. Veitch, between C. intermedia ♀ and C. superba ♂.

C. pumila, Hook.=LÆLIA PUMILA.

C. quadricolor, Lindl.=C. LABIATA var. TRIANÆ.

(42.) C. QUINQUECOLOR×, *Fl. Mag.*, t. 511.—A hybrid raised by Mr. Dominy for Messrs. Veitch, between C. Acklandiæ and C. Forbesii. It is not stated which species was the seed parent.

C. reflexa, Parment. = LÆLIA CRISPA.

C. Regnellii, Warn. = C. SCHILLERIANA.

C. Reineckiana, Rchb. f. = C. LABIATA var. MOSSIÆ.

(43.) C. RESPLENDENS×, Rchb. f., in *Gard.*

Chron., n.s., xxiii., p. 692.—A supposed hybrid between C. guttata and C. Schilleriana, introduced by Messrs. Low & Co.

C. rochellensis, Rchb. f. = C. LABIATA var. WARSCEWICZII.

C. Roezlii, Rchb. f. = C. LABIATA var. ? WARSCEWICZII.

C. Rollissonii, T. Moore = C. LABIATA var. TRIANÆ.

C. Rothschildiana, Hort. = LÆLIO-CATTLEYA × AMANDA.

(44.) C. RUCKERI, Linden, *Belg. Hort.*, 1865, p. 102.—I do not know what this can be. It is described as having a 7—9 flowered panicle of large flowers, the sepals and petals pure white, with sulphur-yellow lip. Native of New Grenada.

C. Sanderiana, Hort. = C. LABIATA var. WARSCEWICZII.

(45.) C. SCHILLERIANA, Rchb. f., in Koch, *Allg. Gartenz.*, 1857, p. 335; *Id., Xen. Orch.*, II., t. 111; *Flore des Serres*, t. 2286; *Gartenflora*, t. 1290. *C. Acklandiæ* var. *Schilleriana*, Jenn., *Orch*, t. 25. *C. Regnelli*, Warn., *Sel. Orch.*, ser. 2, t. 22. *Epidendrum Schillerianum*, Rchb. f., in Walp., *Ann. Bot*, vi., p. 318.—Brazil. First appeared in the collection of Consul Schiller, of Hamburgh, in 1857. A very variable plant, scarcely any two plants with flowers quite alike. It bears strong evidence of being a natural hybrid between C. Acklandiæ and C. guttata.

Var. AMALIANA, Linden, in *Lindenia*, t. 87.—Sepals and petals warm brown with a few darker spots, lip veined with deep rose, disc yellow.

Var. CONCOLOR, Hook., *Bot. Mag.*, t. 5150.—A fine purple-red, unicolorous variety.

C. Schofieldiana, Rchb. f. = C. GRANULOSA var. SCHOFIELDIANA.

(46.) C. SCHRŒDERIANA, Rchb. f., in *Gard. Chron.*, xx., p. 102. *C. Walkeriana* var. *Schrœderiana*, Veitch, *Man. Orch. Pl.*, pt. 2, p. 50.—Brazil. Introduced by Messrs. Sander & Co., in 1883. Allied to C. Walkeriana, of which Messrs. Veitch make it a variety, but differing in its very slender pseudobulbs, terminal flowers, and the side lobes of lip reduced to two extremely small, rounded auricles.

(47.) C. SCITA ×, Rchb. f., in *Gard. Chron.*, n.s., xxiv., p. 489.—Brazil. A supposed natural hybrid between C. guttata and C. intermedia, imported by Mr. B. S. Williams with the latter. C. flaveola × and C. picturata × have the same parentage. I have not seen it.

(48.) C. SKINNERI, Lindl., *Bot. Reg.*, xxvi., *Misc.*, p. 44; Batem., *Orch. Mex. and Guat.*, t. 13; *Bot. Mag.*, t. 4270; Paxt., *Mag. Bot.*, xi., p. 193, with plate; *Gard. Chron.*, n.s., xxi., p. 548, fig. 107; Veitch, *Man. Orch. Pl.*, pt. 2, p. 46, with fig. *C. Deckeri*, Klotzsch, in Otto and Dietr., *Allg. Gartenz.*, 1855, p. 181; *?C. lævioides*, Lem., *Jard. Fleur.*, iii., *Misc.*, p. 42, with fig.; also p. 50. *Epidendrum Huegelianum*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 312.—Guatemala and Central America. Discovered in 1836, by Mr. G. Ure Skinner; and subsequently found in one or two other localities in Central America. In Guatemala it is called the *Flor de San Sebastian*, and is used to decorate the temples and shrines of the saint.

Var. ALBA, Rchb. f., in *Gard. Chron.*, n.s., vii., p. 810; Warn. and Will., *Orch. Alb*, t. 112.—Costa Rica. A beautiful white variety, discovered by Endres.

Var. PARVIFLORA, Lindl., ex Hook., *Bot. Mag.*, t. 4916.—Flowers, scarcely half the size of the typical form, lip unicolorous.

(49.) C. SORORIA ×, Rchb. f., in *Gard. Chron.*, ser. 3, i., p. 40; Warn. and Will., *Orch. Alb.*, t. 307.—Brazil. A supposed natural hybrid of uncertain parentage, though the author suggests C. Walkeriana and C. guttata. It was imported by Mr. B. S. Williams.

C. speciosissima, Hort. = C. LABIATA var. LUDDEMANNIANA.

C. spectabilis, P. N. Don = LÆLIA PUMILA.

C. SPHENOPHORA, Morr. = C. GUTTATA.

(50.) C. SUAVIOR ×, Veitch, *Man. Orch. Pl.*, p. 2, p. 92.—A hybrid, raised by Mr. Seden for Messrs. Veitch, from C. intermedia ♀, and C. labiata Mendelii ♂.

C. sulphurea, Hort. = C. LUTEOLA.

C. sulfurina, Lem. = C. CITRINA.

C. superba, Schomb. = C. VIOLACEA.

C. Trianæ, Linden and Rchb. f. = C. LABIATA var. TRIANÆ.

C. triophthalma ×, Rchb. f. = LÆLIO-CATTLEYA × TRIOPHTHALMA ×.

C. Veitchiana ×, Hort. = LÆLIO-CATTLEYA × VEITCHII.

(51.) C. VELUTINA ×, Rchb. f., in *Gard. Chron*, 1870, p. 140; also p. 1473; *Id.*, 1872, p. 1259, figs. 288, 289; Warn. and Will., *Orch. Alb.*, t. 26.—Brazil. A supposed natural hybrid, which first flowered in the collection of Mr. Joseph Broom, at Didsbury, near Manchester, in 1870, but afterwards in several other collections. It was at first supposed to be a hybrid between C. Walkeriana and C. Schilleriana, then between one of these and C. bicolor; finally, C. bicolor and one of the guttata forms has been suggested, and this certainly seems best supported by the evidence.

Var. LIETZEI, Regel, *Gartenflora*, 1888, p. 49, t. 1265.—A form with the colours paler than in the original.

C. vestalis, Hoffmannsegg = C. FORBESII.

(52.) C. VIOLACEA. *Cymbidium violaceum*, Kunth, in Humb. and Bonpl., *N. Gen. and Sp*, i., p. 341. *Epidendrum violaceum*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 318. *Cattleya superba*, Schomb., ex Lindl., *Sert. Orch.*, t., 22; Paxt., *Mag. Bot.*, ix., p. 265, with plate, p. 266, with fig.; *Bot. Mag.*, t. 4083; *Flore des Serres*, t. 926; Hook., *Cent. Orch. Pl.*, i., t. 31; Warn., *Sel. Orch.*, ser. i., t. 24; *Ill. Hort.*, t. 605 (var. *splendens*, Lem.); Warn. and Will., *Orch. Alb.*, t. 33 (var. *splendens*); Sander's, *Reichenbachia*, i., t. 32 (var. *splendens*). *Epidendrum superbum*, Rchb. f., *Xen. Orch.*, ii., p. 32. *Cattleya Schomburgkii*, Lodd., ex Lindl., *Sert. Orch.*, sub t. 22. *? C. odoratissima*, P. N. Don, in *Florists' Journ.*, 1840, p. 185.—Introduced in 1838, by Schomburgk, who sent it to Messrs. Loddiges, of Hackney.

The name of C. violacea has appeared several times, but apparently always applied to a form of C. Loddigesii, *i.e.*, Epidendrum violaceum, Lodd. This latter name appeared in 1819, but Cymbidium violaceum, Kunth, still earlier, in 1815.

C. violaceum, Hort. = C. LODDIGESII.

C. virginalis, Linden and André = C. LABIATA var. ELDORADO.

C. Wageneri, Rchb. f. = C. LABIATA var. MOSSIÆ.

(53.) C. WALKERIANA, Gardn., in Hook., *Lond. Journ. Bot.*, ii., p. 662; *Pescatorea*, i., t. 41; Warn. and Will., *Orch. Alb*, t. 154; Paxt., *Fl. Gard.*, i., t. 3; *Belg. Hort.*, 1880, t. 17; *Gard. Chron.*, n.s. xxii., p. 780, figs. 132, 133; Veitch, *Man. Orch. Pl.*, pt. 2, p. 49, with fig. *Epidendrum Walkerianum*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 416. *Cattleya bulbosa*, Lindl., in *Gard. Chron.*, 1847, p. 623; Id., *Bot. Reg.* xxxiii., t. 42; Paxt., *Mag. Bot.*, xv., p. 49, with plate. *C. Gardneriana*, Rchb. f., in *Gard. Chron*, 1870, p. 1473, in note.—Brazil. In May, 1847, a Cattleya, whose origin is not recorded, flowered in the collection of Mr. Sigismund Rucker, at Wandsworth, to which Lindley gave the name C. bulbosa, but it afterwards proved identical with C. Walkeriana, previously described by Gardner, from wild specimens.

Var. NOBILIOR, Veitch, *Man. Orch. Pl.*, pt. 2, p. 50. *C. nobilior*, Rchb. f., in *Ill. Hort.*, xxx, p. 73, t. 485. *Gard. Chron.*, n.s., xix., p. 728, fig. 120; *Lindenia*, I., p. 15, t. 6 (var. *Hugueneyi*, Linden).—Flowers a little larger, and side lobes of lip a little longer than in type.

Var. dolosa, Veitch = C. DOLOSA.

Var. Schrœderiana, Veitch = C. SCHRŒDERIANA.

C. Wallisii, Linden = C. LABIATA var. ELDORADO.

C. Warneri, T. Moore = C. LABIATA var. WARNERI.

C. Warscewiczii, Rchb. f. = C. LABIATA var. WARSCEWICZII.

C. Warscewiczii delicata, T. Moore = C. LABIATA var. TRIANÆ.

(54.) C. Whitei, Rchb. f., in *Gard. Chron.*, n.s., xviii., p. 586. Warn. and Will., *Orch. Alb.*, t. 115. *Gartenflora*, t. 1159.—A supposed natural hybrid, found growing on a tree in company with C. labiata and C. Schilleriana, which may be its parents. Imported by Messrs. H. Low & Co.

(55.) C. WILSONIANA ×, Rchb. f., in *Gard. Chron.*, n.s., viii., p. 72. *Epidendrum Wilsonianum*, Rchb. f., *l.c.*, in note.—Brazil. A supposed natural hybrid between C. bicolor and C. intermedia, which appeared with the former, in the collection of Mr. John Wilson, at Liverpool.

C. Zenobia ×, Rolfe = LÆLIO-CATTLEYA × ZENOBIA. *R. A. Rolfe, Herbarium, Kew.*

(To be continued.)

PLANT NOTES.

PENTSTEMON GLABER.

THIS is a remarkably handsome species, surpassing in beauty all those at present in bloom with us. It seems to be one of the old species, having been figured under the names of P. glabra and P. Gordoni in the *Botanical Magazine*, in vols. xxxvi. and xl. Its variable habit has given rise to several names, P. speciosus, amongst others, being a very pretty form. In the synoptical flora of North America four extreme varieties are described, beginning with the mountain form, P. g. alpinus, a very dwarf plant, not more than 2 inches high, the other extreme being P. cyananthus, a charming, robust, blue-flowered variety from the Rocky Mountains. This form was first introduced by Lucombe, Pince & Co., of Exeter, in 1848, flowering in their nursery the following year. The root leaves of the plant now flowering in the herbaceous grounds at Kew are slightly glaucous, lanceolate, and nearly acute, the cauline ones sessile with undulated margins. The stems grow about 3 feet high, more than half of which is covered with beautiful sky-blue flowers fading to a reddish-purple. *D.*

OLEARIA (EURYBIA) STELLULA.

It is a pity that the name Eurybia is to be cast aside, as it was most appropriate for the above species. Eurybia, in Greek mythology, was the mother of Lucifer and all the stars. It is a most floriferous plant, the ray florets are of a pure white, resembling small stars, and this doubtless in the first instance suggested the name at the time of christening. It is a compact, shrubby composite, with small leaves with dentate margins, the underside as well as the stem are covered with a close cottony down. The flowers are borne in a panicled arrangement at the end of the branches. Propagation is effected by cuttings taken after the plant has finished flowering, and placed in a frame kept close and shaded from sunlight, or placed beneath a bell glass in some shady quarter. With us it is quite hardy, being planted in a southerly position under a wall, and every year about this time is perfect loveliness. *W. Harrow, Cambridge.*

TIARELLA CORDIFOLIA.

The habit and nature of this plant cause it to be well suited for either the rockwork or border, and more especially is it adapted for semi-shady positions, such as places partly overhung by trees. A short while ago I noticed a good-sized thriving patch growing at the foot of a large log on the bank of a small stream, flowering abundantly. The leaves partake of the shape of some of the Heucheras and Mitellas. They are heart-shaped and acutely lobed, with chocolate markings on the upper surface. The flowers are disposed in light feathery racemes, with longish filaments bearing salmon-coloured anthers. It needs no special soil or position in which to grow it, and on this account it should find a place wherever hardy flowers are cherished. It is needless to say that when planted in a shaded locality the flowers last a much longer time than when grown in the sunshine. It is the most common of the genus, and is met with in the regions extending from Canada to Virginia. Propagation is readily effected by means of divisions of the plant. *W. Harrow, Botanic Garden, Cambridge.*

Lathyrus rotundifolius.

We have lately received flowering specimens of this very interesting plant under no less than four distinct names—the above, L. Sibthorpii, L. Drummondii, and L. brachypteris. The first and last are substantially the same form, while the third and fourth, though a little more variable, are practically the same, and very distinct as a garden plant, though classed along with the type by botanists. We have been trying to trace the origin of the name Drummondii, but have failed, and we are at a loss to know whether it was the collector, or some amateur. The latter will be nearest the mark, doubtless, as Drummond collected chiefly in America and Australia, while our plant is a native of the Caucasus, Asia Minor, Roumelia, &c. Sibthorp's name in this connection can be easier explained, as he collected and named plants from the Levant, &c., and may possibly have been the means of introducing this handsome form, though of this we have been unable to find any trace whatever up to the present. The figure in the *Botanical Magazine*, t. 6522, is the variety Drummondii, and not the type rotundifolius. The specimen figured was received from Mr. Justus Corderoy, of Didcot, and we believe this was about its earliest connection with L. rotundifolius, it having always been, and still is, grown in most gardens simply as L. Drummondii. The type, on the authority of the *Gardeners' Dictionary*, was introduced in 1822. A robust habited plant, growing from 3 to 4 feet high, the angled stems broadly winged, the margins of the wings finely serrated; the stipules an inch or more long, lanceolate acute; leaves of three, usually four leaflets, the latter oblong, veins reticulated, leathery to the touch; the petiole also broadly winged. From the upper axils the flowers are produced in bunches, in colour rosy-purple, dingy on the outside.

L. brachypteris seems to differ, in more usually having only two leaflets, larger stipules, and narrower sepals. Syn. miniatus, Stev. pedunculatis Poir. L. rotundifolius var. Drummondii is smaller in all its parts unless the flowers, which are, if anything, larger, and of a fine pure brilliant rose, or bright carmine colour—the most striking colour by far of all the Lathyrus species we have seen. It grows from 4 to 7 feet high, stems angled and winged, but the wings are narrower, with perfectly smooth, not serrated margins. Stipules very small, not more than half-inch long, lanceolate acute. The leaflets, never more than two in number, only half the size of the type, nearly round, mucionulate, the texture very thin, and veins more numerous. Origin unknown, but probably of gardens.

L. Sibthorpii may be cited as a synonym, the difference being only one of degree, and Drummondi, we believe, is the oldest name in gardens.

There is a curious variety of rotundifolius called ellipticus figured in Sweet's *British Flower Garden*, ser. ii., t. 333. It appears to have been cultivated in the Birmingham Botanic Garden as early as 1836. We think, however, it should be classed with one of the long, narrow-leaved species, as it does not answer to our plant at all. *D.*

The Apiary.

HOW TO HIVE A SWARM.

Sunday, June 9, and Sunday, June 16, will probably be known amongst the fraternity as Swarm Sundays. Whether it is that Sundays are sunnier than other days, or not, it often happens that bees give a little trouble on those days. The bells were ringing, and I was just about to depart, when, as I closed my gate, there was a noise of bees, and I saw a swarm from my strongest hive whirling about in the air. It was very warm, and the bees seemed rather frantic, so the Prayer Book had to give place to a pail of water and a syringe. On a warm day I usually treat the bees to a syringe full of water. It cools their ardour, and they at once commence to settle. No need for pots and pans knocked together to bring down a swarm in this realm of England. Perhaps it was different aforetime. It is a curious fact that there are swarming trees as well as swarming Sundays. It is so here, for almost invariably my bees adjourn to the neighbouring garden, and settle on a Medlar tree. They also seem partial to one particular bough. I soon had a skep held under the swarm, and, shaking the whole of the bees into it, took them off in triumph to a bar-framed hive. I used to lift off the covering from the frames, and shake the bees on them. This sometimes leads to confusion, especially if done at once. I took the skep, and gently poured a few down at the entrance, then a few a little farther off on a slanting board; then a few more. They at once commenced rushing in, and then I threw the whole on the board, and saw them all scamper in. I think it is a very pretty sight to see bees rush into a hive like this. In about five minutes they were all in their places, and commencing work. The hive had been prepared and supered beforehand; so that ere the church clock struck eleven, a deed—but not of dreadful note—had been done.

About two hours afterwards I went to the hive, and found them hanging about in festoons, as usual. Formerly I allowed bees to stop in the skep till evening, and then hived them; but this causes the loss of a day—a serious item in our short summers—and also causes the bees to mark their position twice—once in the skep, and once after they are placed in their permanent position. There appears to be a very fair chance for beekeepers this summer. *Bee.*

Plants and Their Culture.

Solanum capsicastrum. — Any of these plants which were cut back early in spring, repotted, and grown in a cold frame, they will have made good growth, and should now be placed in their summer quarters. This plan is preferable to placing the plants where they get infested with aphis, as out-of-doors they make sturdy growth. The plants should be planted out in a good soil on a sunny border, and not allowed to suffer from dryness at the root. They should be cleared of all insects before planting out, or a poor set of berries will result. The best way to clean the plants is to dip them in weak tobacco-water. Young stock should now get the final shift for the season, and have the points of the shoots nipped out. Syringe frequently, keeping these plants in a cold frame, and giving plenty of air. Growth should be quick, so as to afford time for the plants to ripen their wood, and set their fruits early in September.

Chrysanthemums.—Plants for decoration should now get their final shift, and be placed on a hard bottom, in a position where they can get all the sun possible and yet be sheltered from wind. They like a good fibrous yellow loam, with a portion of bone-dust and decayed manure, putting some quarter-inch bones over the drainage, the potting being done firmly. Regular attention must be paid to watering and syringing the plants. Late propagated plants should not be overpotted, but get their final shift later; these plants will be best in pots a size or two smaller than the earlier plants, and 30's will be found generally large enough if some good fertiliser can be given them when the pots are filled with roots. Do not crowd the plants, but allow space for the full development of foliage.

Camellias.—The plants which bloomed early and were repotted, will ere this have made their growth, and have been hardened off, with plenty of air to mature the wood, and such plants will be ready in a short time to be placed outside in a sheltered spot where they will be screened from the direct rays of the morning sun. Place them on a hard bottom of coal-ash or gravel, or on tiles, and afford each plant a stake to make it secure against the wind. Sometimes plunging in deep beds of gravel or coal-ashes is adopted. If aphides are present on them fumigation with tobacco or dipping in tobacco-water will be needed; and the watering should be performed carefully, and also syringing, every evening during bright weather. Large plants which are planted in borders, or which cannot be easily removed, should be afforded a stimulant in the form of a little soot-water or other fertiliser whilst making growth, that is, if no retubbing or replanting has this season taken place. We use soot-water twice a month beneficially. It is useful in dry houses, where thrips are liable to be troublesome. Plenty of air should be admitted to these plants, and the syringe should be used freely every evening after sunny days.

Azaleas.—The plants which flowered late should have the seed-pods removed directly after blooming, and have a thorough syringing with some insecticide. Should the plants be badly infested with thrips, tobacco-water should be used as the insecticide, washing them several times before placing them in a warm moist house to make their growth. Shade from the sun during the early part of the day, and shut up early in the afternoon, syringing the plants heavily. Clay's Fertiliser given once a week will be found of service, as also abundance of water if the pots are full of roots. Encouragement should be given to hasten growth, in order to get the shoots matured during the warm weather. Plants which were forced will now have made their season's growth, and should be put out-of-doors in a position that is warm and sheltered, and free from worms; but do not place them under trees, as there the drip from the leaves would reach them. Syringe the plants after hot days, and take care to protect the pots from the sun's rays, and water with care. Any plants that require shifting should be attended to as soon as their growth is completed. *Geo. Wythes, Syon House, Brentford.*

Fruits Under Glass.

Tomatos in Houses.—So far this season has been favourable to the outdoor crop, and the plants have made good progress, and set their fruit very fairly. Keep the plants trained to a single stem, pinching out all side shoots as soon as formed, and in the case of strong growers the stem should be stopped, and a lateral encouraged to take its place; water abundantly when it is required. The compost should not be too rich nor damp; an elevated position with a southern aspect is the best, and one good way is to shoot a barrowful of soil against a wall, where there is a vacant space, and put a few brickbats roughly in front to keep it together, and also mixed with the soil I find more favourable to their fruiting than planting them out on the level border. Those in houses require much the same treatment; but those in pots may have a richer soil and some dung-water given them when swelling their fruit.

Strawberries.—Now is the time to prepare for another year—all the pots should be looked up, washed and crocked, and the compost thrown together in a dry shed. I rely on nice firm loam, and to six cart-loads of loam add the following ingredients:—1½ cwt. of Thomson's manure, six barrow-loads of Mushroom-bed dung, and a barrowful of soot; this is turned over two or three times, and well mixed. In potting, make the plants quite firm, and do not plant too deeply, especially in the case of Vicomtesse Hericart de Thury. For the early kinds 5½-inch pots are large enough; 6½-inch for the latter, and stronger growing varieties. Take the first opportunity of layering the early runners. As soon as the roots show at the bottom of the pot, they may be put into their fruiting-pots; and if the weather be very bright, if they are placed for a day or two behind a north wall instead of in full exposure it will be beneficial, giving them a gentle syringing night and morning. Afterwards they should be stood where they can enjoy full sunlight, still syringing them after bright days.

Melons.—These may still be planted, and seed sown in case fruits are required late in the season. Attend to the setting of the blooms on bright days, stopping the shoots after the fruit is set, to one leaf; and syringing freely, at shutting up time, those plants on which fruits are swelling. Give plenty of air to those ripening their fruit, and do not let them suffer for want of water; maintain a temperature of 70° at night and 80° by day, with a rise by sun-heat at shutting up time. *W. Bennett, Rangemore, Burton-on-Trent.*

Cross-bred Wheat.—Messrs. J. Carter & Co. have issued a descriptive catalogue with illustrations of their cross-bred Wheats. We have before now alluded to the great interest, practical and scientific, attaching to these experiments, and we trust Messrs. Carter may be encouraged to pursue their most useful work.

Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position in the paper be guaranteed for advertisements occupying less space than an entire column.

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APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, JULY 2 { Royal Horticultural Society: Rose Conference, 2 P.M. (two days); and Fruit and Floral Committees at Chiswick.

WEDNESDAY, JULY 3 { Royal Horticultural Society: Rose Conference, and Scientific Committee, 2 P.M., at Chiswick. Royal Botanic Society: Evening *Fête*.

SHOWS.

TUESDAY, JULY 2—Sutton.

WEDNESDAY, JULY 3 { Bagshot, Croydon, Farnham, Maidstone, and Twickenham.

THURSDAY, JULY 4 { Canterbury, Bath, Winchester, Hitchin, and Norwich.

SATURDAY, JULY 6 { National Rose Society, at the Crystal Palace.

SALES.

THURSDAY, JULY 4 { Imported and Established Orchids, and Tuberoses from the Cape, at Stevens' Rooms.

FRIDAY, JULY 5 { Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK—62°.9.

The Giant Aroid at Kew.

THE magnificent and gigantic Aroid, to which we have already referred, is, for this season, practically a thing of the past. It was eagerly watched by the botanists, sketched by various artists in various stages of growth, but the ways of the creature proved perverse and disappointing. On Friday, June 21, the giant was observed to be developing fast, and was watched accordingly; but, alas! it seemed afflicted with shyness, and took the opportunity of displaying its full charms for a very brief period on Friday evening, when but few of those whose curiosity had been roused to such a pitch had the opportunity of seeing it, and the artists who had sketched it during its various stages, as Mr. Pecksniff sketched Salisbury Cathedral—from the north, the south, and all other aspects—were disappointed in not being able to delineate it when fully expanded. Mr. DYER, however, we believe, managed to get a slight sketch of the monster at its best, when it seems to have presented an appearance very similar to that shown in Dr. BECCARI's sketch of the plant in its native haunts, as reproduced by us at p. 748, June 22 last. The whole history of the plant, then, so far as outward appearance goes, has been carefully illustrated. Botanists who know the ordinary Amorphophallus (see p. 755, June 22), will recognise that, except in point of size, there was no very important difference between the Titan and the other species of the genus. Those who are familiar with the common Arum of the hedges, or with the so-called Arum Lily, Richardia æthiopica, may in a measure realise the appearance of the plant by imagining the green spathe of the "Lords and Ladies," or the white spathe of the Richardia, replaced by a gigantic funnel-shaped spathe folded longitudinally like a fan, at its upper part, creamy-white outside, and of a lovely velvety reddish-purple within. This spathe, when fully developed, measured 3 feet in height and 4 feet across when fully expanded. Standing erect in the centre of this funnel was the projecting spadix, a conical mass of spongy texture some 5 feet high, and of a delicate creamy-yellow colour. At the base of the spadix, concealed within the tube of the funnel, were the flowers—a ring of males—surmounting a similar, but deeper ring of female flowers, each consisting of an ovoid ovary tapering into a long straight style. Only a few were privileged to look down into the tube to see the flowers, and those few paid for their curiosity by the inhalation of a stench compared to that of rotten fish, but of an intensity unspeakable! Fortunately this did not last long, and whenever we had the pleasure of seeing it, there was nothing to mar the intensity of the interest so wonderful a production excited. On the Saturday the spathe gradually folded up like an umbrella, and since then the giant has betaken himself to rest, or rather to develop its fruit, and let us hope, seeds. These hopes are founded on the circumstance that the flies, attracted by the delicious odour, were very busy scattering the pollen, while a mere shake sufficed to cause the yellow pollen to fall on to the stigmas. For some reasons it is to be wished that the seed may not be set, for if it does so it may possibly involve the loss of the tuber, though there may be provision for increase in the development of new tubers. For the particulars which follow, we are indebted to the courtesy of the Curator:—

"The tubers were received at Kew from Marquis CORSI SALVIATI, in 1879, by whom they were sent at the request of Signor BECCARI, the discoverer. It was grown in a moist tropical house, and rested for about four months after the huge leaf (see p. 745, fig. 119) went off. The "rest" meant first a good wash, then a thorough exposure to the air for about a week. It was then buried in moist clean sand, and placed in the stove. This treatment has been followed every year. This year the tuber was potted into soil on March 28. It is of the shape of a Cyclamen tuber, and weighed, when fully developed, 57 lb. It was 18 inches in diameter, 1 foot deep. The bud grew slowly till about a month before the spathe expanded; during that month it grew at the rate of about 3 inches in height per day. The ultimate height of the whole inflorescence was 6 feet 9 inches, the length of spadix 5 feet, diameter at the thickest part 10 inches, colour of the spadix at first pale green, afterwards chrome-yellow. Depth of spathe 3 feet, diameter, when fully expanded, 4 feet; colour pale green below, white above on the outside; inside deep claret-purple, with a bluish sheen. Length of supporting stalk 15 inches. The spathe commenced to unfold on Friday, June 21, at noon, and was fully expanded by about 7 o'clock the same evening. Next morning at 6 it had begun to fold in again. The flies were very busy about it on the Friday afternoon, when the stench was strongest. Next morning this had almost ceased, and the next day there was no smell at all. On Monday a hole was cut in the base of the spathe in order to get at the flowers for figuring and preserving. They were perfectly fresh, and every shake caused the yellow pollen to drop on to the stigmatic surface of female flowers. The females were exactly like little nine pins in shape, and crimson in colour. The males were little round seed-like bodies, yellow, with two tiny strings of pollen on the top of each (the anthers, as in many Aroids, opening by pores at the top).

Such is the history of this comely giant. We have already given representations of the magnificent leaf produced last year (see *ante*, p. 745), and of the inflorescence as drawn by Signor BECCARI in Sumatra (p. 748), and in a short time we hope to lay before our readers further illustrations of this most "sensational" plant.

AGAVE DASYLIRIOIDES.—This handsome Agave (fig. 128), better known as A. dealbata, is preferable to most of the plants of this genus from a horticultural point of view. In the first place it does not perish after flowering, but like A. Sartorii, and a few others, produces a flower-spike almost every year. A plant of it at Kew has flowered annually for the last three years. Another good point in A. dasylirioides is its convenient size. It forms a compact rosette of leaves about 2 feet long, spreading, and is in general appearance more like a Yucca than an Agave. Then, it is ornamental, the stiff, flat, sword-shaped leaves being silvery-green. The spike borne by the Kew plant is about 8 feet long, and it has the singular habit of curving over almost from the base, so that if not fastened up to a stake, about half the length of the spike would trail on the ground. The flowers open in succession, beginning at the base, and lasting so long that the spike is not exhausted in six months. Each flower is about 1½ inch long, tubular, the segments spreading, pale green. The stamens project an inch or more beyond the flowers, the anthers being large and versatile. The bracts which clothe the lower part of the spike are about 4 inches long, striated, and brownish. A curious phosphorus-like smell is emitted by the flowers. The cultivation of this Agave is easy. A greenhouse where there is plenty of sunlight suits it, and it may be placed out-of-doors during summer. It likes a liberal allowance of root-room, and should be kept moist at the root all the year round. Seeds are ripened in abundance by cultivated plants, and from these a stock of young plants is easily obtained. Under cultivation here it would probably take about twelve years to grow a flowering specimen from seed. It is a native of Mexico, aud is related to A. striata, the Rush-leaved Agave.

SMALL FARMS IN IRELAND.—We have received for publication the subjoined suggestive letter:—

"Having closely followed the fruit-growing controversy, which raged in the Press last autumn, and having since planted fruit trees in considerable quantities both in England and Ireland, I should be obliged by your allowing me space in your journal for a few remarks on the subject of fruit growing as an industry for small holders in Ireland.

"On the Irish side of St. George's Channel you start with the immense advantage of finding 300,000 small holdings under £15 valuation already in existence marked out for combined fruit, vegetable, dairy, and poultry farming. The two last mentioned branches of farming are undergoing considerable improvement, while fruit and vegetable growing are almost entirely neglected in a soil and climate eminently suited for bush fruit growing.

"Were these 300,000 holdings in Belgium or Switzerland, their small cultivators would inundate British markets with their produce. In Ireland this very considerable source of wealth is almost ignored.

"I say 'almost,' for only this very morning I have had the immense satisfaction of seeing my ideal of combined fruit and vegetable growing in actual and most successful operation in the village of Gormanstown, near Balbriggan. It is a long way the most encouraging spectacle I have witnessed during my repeated visits to Ireland in search of anything hopeful in any direction. I am happy to be able to add

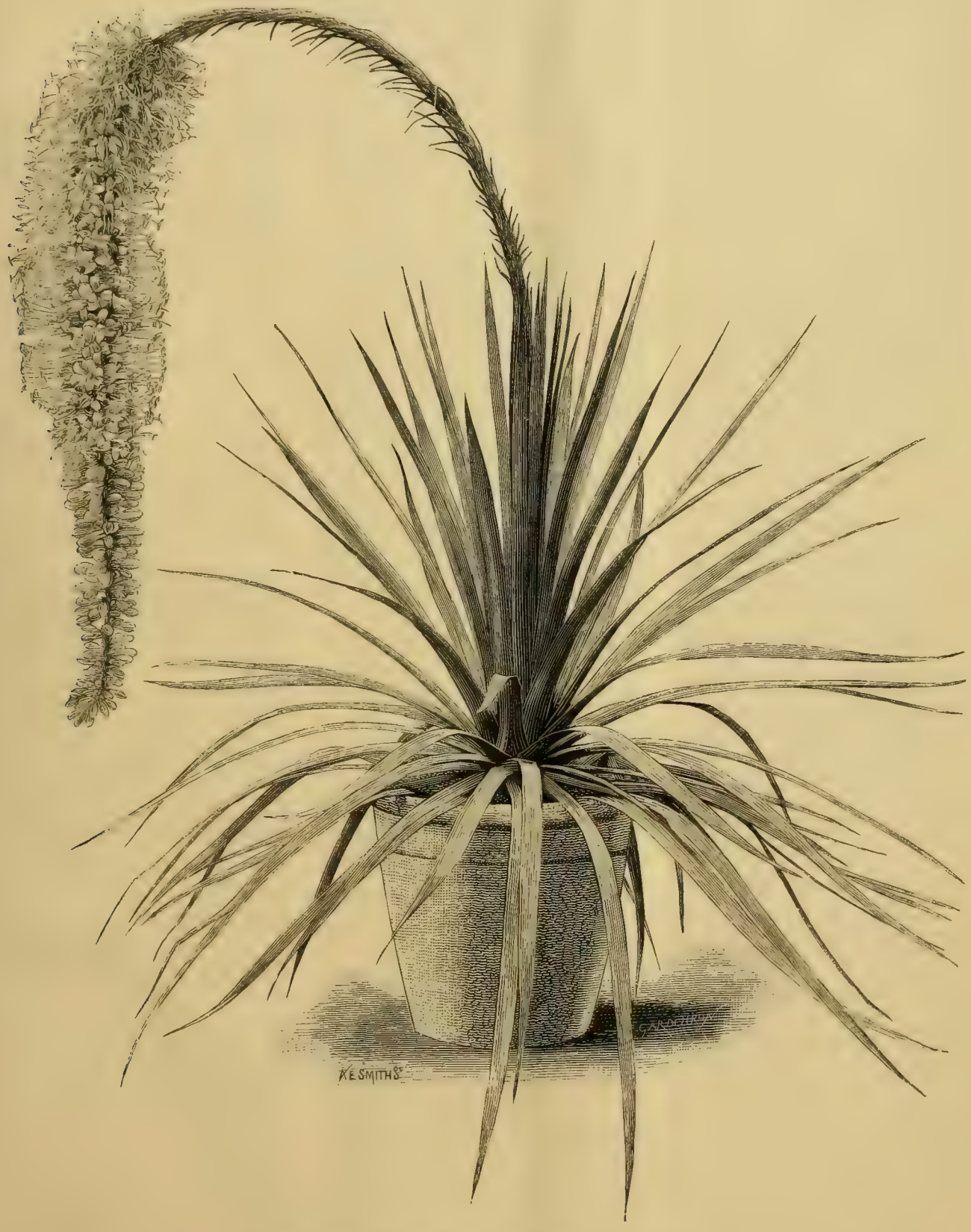


Fig. 128.—Agave dasylirioides: much reduced. (see p. 804)

that the fruit growing experiment is not confined to Gormanstown, but is to be met with in equally successful operation in the villages of Julianstown, Naul, Balscadden, Stamullen, and Duleek.

"The holdings vary from one to about four Irish acres, and the average net profit from each acre, one year with another, is by comparing statements, about £25. I know of no other use to which average land can be put which would yield so good a result.

"Fruit and vegetable growing is peculiarly suitable to the economic conditions of Ireland, where small farms and large families prevail, furnishing free and always present labour for thinning and picking at the critical moment. Young hands would thus be usefully trained to picking, not in combination with stealing.

"The commonly reputed avarice of the Irish landlord is strikingly absent at Gormanstown, where 30s. is the modest rent of the Irish acre of first-rate garden ground I spent three-quarters of an hour minutely inspecting this morning.

"The acre was loaded with produce; about two-fifths was under Raspberries, two-fifths under Gooseberries, the remaining one-fifth under Currants and sundries. A passage 5 feet wide is left between each row of bush fruit, and utilised at times for Potatos and Cabbages. The whole is dotted about with standard Apples and Plums, casting in some cases too much shadow, I think, over the fruit and vegetables. I should prefer to see 'bush' Apples shaped like wine-glasses. hollowed in the centre, with a stem about 3 feet high, and branches trained upwards, but never allowed to grow out of the reach of a man's hand, *i.e.*, about 7 feet from the ground.

"Plums will not bear this training, and must be grown with more or less bushy heads, as I am informed by my friend Mr. RIVERS, of Sawbridgeworth.

"As I sat in the clean and comfortable home of the grower of all this produce after inspecting his little farm or big garden, his tidy wife exclaimed, 'The fruit is a great paying business.' The husband—quite a youth—remarked to me outside, referring to Irish small farmers in general, 'They are not refined to this business.'

"Dublin and Liverpool are the markets for the fruits produced. As a matter of fact, the inhabitants of this fruit-growing district, locally known as Fingal, are mostly descended from Danes, as I am informed; but if fruit and vegetable farming can be successful in Fingal, on the east coast of Ireland, to the north of Dublin, what may not be achieved in the south of Cork, where I am encouraging experiments over a limited area? I am convinced that 3 acres and fruit has a great future before it on both sides of St. George's Channel. "Yours, faithfully,

"W. H. BULLOCK HALL."

THE CHISWICK VEGETABLE CONFERENCE.—A further meeting of the committee of this Conference was held at the Society's offices on Tuesday last; present, Mr. H. J. Veitch, in the chair; the Rev. W. Wilks, and Messrs. Wythes, Herbst, Bates, A. Dean, Sherwood, Wright, and Smith, of Mentmore. The schedule of classes for vegetables was further considered and revised, as also the classification into—Green Vegetables, including Cabbages, Broccolis, Borecoles, Spinach, &c.; Fruits and Pulse, including Marrows, or Gourds, Cucumbers, Tomatos, Capsicums, Peas, Beans, &c.; Tubers and Bulbs, comprising Potatos, Artichokes, Onions, Turnips, Shallots, &c.; Taproots, such as Beet, Carrots, Parsnips, Horseradish, &c.; Salading, including Lettuces, Endive, Celery, &c.; Parsley in pots, to show real character; also flavouring herbs, and vegetable garnishing of natural growth. Several small committees of experts will be appointed at the Conference, to select and certificate the best examples in the various sections and classes. No awards will be made to individual collections, but solely to special good samples from the various collections. With respect to papers, it was determined that a portion of the second day, and the whole of the third, so far as possible, should be utilised by the reading of papers and discussion, the first day being employed in the work of selection, and awarding the certificates. With respect to subjects for papers, out of a long list submitted, it was agreed that the following should be selected:—"The Cultivation of Asparagus, with special reference to Autumn Production," Mr. Shirley Hibberd; "Winter Supply of Salading for a Family," Mr. Norman, of Hatfield; "Food Vegetables," J. Wright; "Improvement in Peas during the past Quarter of a Century," Mr. Laxton; "The same in reference to Potatos," Mr. A. Dean; and last, "A Concise Indication of the Best Methods of Supplying a Family with Vegetables all the Year Round, and the Best Varieties for the Purpose," Mr. Smith, of Mentmore. The programme as thus prepared, it is hoped, will be printed and circulated at an early date.

GREAT INTERNATIONAL HORTICULTURAL EXHIBITION IN BERLIN, 1890.—It is the intention of the Prussian Horticultural Society to hold an international exhibition from April 25 to May 5, 1890, in the Royal exhibition buildings at the Lehrter railway station in Berlin. The programme is divided into the following fourteen sections. Decorative divisions (2), novelties, either imported plants, or those raised from seed, &c.; Orchids; stove and greenhouse plants, &c. (105 classes); Roses, forced shrubs, flowering herbaceous perennials, and bulbous plants, cut flowers, and bouquets, &c.; nursery stock, fruit culture, landscape gardening, horticultural industries, and the scientific division, including morphology, anatomy, history of development, and the physiology of plants; instruments and methods of research; useful and dangerous fungi; officinal and commercial plants; seeds of useful plants, showing the commoner modes of adulteration and falsification; seeds of weeds and Conifer seeds; implements for seed cleaning, plant geography, and an historical division. All inquiries to be addressed to the General Secretary, Invaliden Strasse, 42, Berlin.

REICHENBACHIA.—The last issued part of this fine publication contains plates of:—

Cypripedium Tautzianum ×.—A hybrid raised by Mr. SEDEN, it is asserted between C. niveum and C. barbatum. Upper sepal white with very dark-purple veins, and two green veins on either side of the central one. Petals ciliate, purple-nerved. Lip like that of C. barbatum, dark purple, warted, t. 65.

Cymbidium Mastersii var. album.—A form with drooping racemes of rather large white flowers, with narrow segments, and a lip yellow at the base. It requires to be grown in a compost consisting of three parts of fibrous loam mixed with broken charcoal and silver sand. The pot should be well drained and abundance of water supplied. The temperature of a Cattleya-house suits it well, t. 66.

Angræcum caudatum.—A rare species, difficult to cultivate. It is remarkable for its narrow, olive-green segments, its stalked oblong-acute lip, from the base of which extends a very long, slender, brownish spur, t. 67.

Lælia albida, t. 68.—A winter-flowering species of great elegance. It is a native of Mexico. It succeeds best, says Mr. SANDER, in a very moist atmosphere with all the sunlight possible during the growing season, with a long rest after that period.

MR. F. BURBIDGE.—We are delighted to hear that at the "commencement" at the University of Dublin (Trinity College), on June 27, the honorary degree of M.A. was conferred on Mr. BURBIDGE, an old Chiswick student, the well-known Curator of the Trinity College Botanical Garden. His work as a horticulturist and as a botanical traveller in Borneo amply entitle him to this recognition, and we congratulate not only Mr. BURBIDGE but also the authorities of the University on this honour paid to horticulture in the person of Mr. BURBIDGE. No practical botanist has attained such an honour in the Dublin University since Dr. MACKAY received the degree of LL.D. on the completion of his *Flora Hibernica*. The late Dr. MOORE, of Glasnevin, it will be remembered, received his degree of Ph.D. from the University of Zurich.

"MONOGRAPHIÆ PHANEROGAMARUM."—The sixth volume of the continuation of the *Prodromus*, edited by M. M. DE CANDOLLE, has just been issued. It is entirely devoted to the enumeration of one tribe only of grasses—the Andropogoneæ. These are monographed by the highly competent hand of Dr. HACKEL, of St. Polten. The monograph occupies over 700 pages, and yet only one tribe is dealt with! The Sugar-cane is included, and the curious fact that it is propagated by offsets, and yet has given rise to many varieties, is mentioned, but Dr. HACKEL does not appear to have been aware at the time of writing of the raising of seedling forms in the West Indies, as detailed in the Kew Bulletin and our issue for December 15, 1888, p. 702.

PLANTÆ DELAVAYANÆ.—The second part of M. FRANCHET'S work under this name is devoted to the description and illustration of species collected in Yunnan by the Abbé DELAVAY. The drawings are by M. D'APREVAL, and are well executed and apparently very faithful. The size of the work (large 8vo) ought to render the book less costly than some similar publications, and just as useful for botanical purposes.

NEW WORK ON HARDY FERNS.—Our well-known correspondent, M. H. CORREVON, of Geneva, is, we hear, bringing out a book entitled "Les Fougères Rustiques," which we hope will be as successful as "Les Plantes des Alpes," published by the same author in 1885.

BERLIN BOTANIC GARDEN.—Dr. URBAN has been appointed Director of this garden.

MR. BERNARD BADGER.—The class lists issued by the University of Oxford on Saturday afternoon show that Mr. A. BERNARD BADGER, B.A., of New College, Oxford, BURDETT COUTTS (University) Scholar, and youngest son of Mr. EDWARD W. BADGER, of Birmingham, has for the second time been placed in the First Class of the Final School of Natural Science at Oxford. Mr. BADGER has gained the distinction of being a Double First Classman and a University Scholar. He was educated at King EDWARD'S School, Birmingham, and was awarded an Exhibition on leaving school. The following year he won an Open Science Exhibition at New College, Oxford. Between leaving school and matriculating at Oxford he was a student at Sir JOSIAH MASON'S Science College, where he gained several prizes, and was elected a Honorary Scholar of that college.

ROSE SHOW AT THE CRYSTAL PALACE.—We are requested by the Secretaries of the National Rose Society to state, that in consequence of His Majesty the Shah of PERSIA (who will be accompanied by Their Royal Highnesses the Prince and Princess of WALES) having intimated his wish to visit the metropolitan show of the Society on Saturday, July 6th, at the Crystal Palace, the exhibition will be held in a tent adjoining the north end of the Palace, from which it will be entered. As His Majesty can not arrive at the Palace before half-past six, it is hoped that exhibitors will consent to allow their boxes to remain for the inspection of the Royal party. Some inconvenience having been experienced as to private view tickets, they will on this occasion have a piece torn off them at the turnstiles, and the remainder to be given up at the entrance of the tent.

MORE BREATHING-PLACES FOR LONDON.—On Tuesday, June 25, the Duke of CAMBRIDGE opened the churchyard of St. Alphege's, Greenwich; which, covering an area of over 3 acres, has been laid out under the auspices of the Metropolitan Gardens Association. We are also glad to learn that a faculty has been obtained for the laying out of the churchyard of St. James's, Clerkenwell, as a re-

creation-ground, and that immediate steps will be taken to carry out the work.

The Big Douglas Fir at Dropmore.—Mr. Herrin tells us that he recently measured the finest specimen of this tree, and found it to be 116 feet. The leader has not been injured since 1886, and there is some doubt as to the correctness of former measurements.

Stock-taking: May.—The following table is extracted from the "summary" of imports into this country from foreign countries and British possessions during the month of May, and a comparison with the corresponding period in 1888:—

	1888.	1889.	Difference.
	£.	£.	£.
Total value of imports	30,370,775	34,802,437	+4,431,662
§II.—(A.) Articles of food and drink—duty free	9,873,635	11,492,716	+1,619,081
(B.) — do., dutiable	1,554,094	1,646,611	+92,517
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	5,956,681	7,776,424	+1,819,743
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	2,890,903	3,293,306	+402,403
§IX. — Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,105,178	997,072	—108,106

"When the chemical trade is good," said Lord Beaconsfield, some years ago, "it is a sign that other trades are looking up also." The increase in the imports of chemicals is £187,423 over the amount recorded for May in the preceding year. All the other items in the above table speak for themselves, especially in §II., food, &c., and raw materials (§VI.), The following excerpts from the general returns will be found of interest:—

	1888.	1889.	Difference
§ II. Fruit:—			
Apples, raw ... ... bush.	39,662	63,554	+23,932
Unenumerated, raw ... ,,	11,651	14,455	+2,804
Onions ... ... ,,	370,289	350,146	—20,143
Potatos ... ... cwt.	110,886	133,523	+22,657
Vegetables, raw, unenumerated ... ... Value	£66,373	£54,865	—£11,508

The heavy decrease in unenumerated raw vegetables probably means a gain to the British market-gardener; we sincerely hope it does. Satisfactory as all the above is, there is one item of "stock-taking" which ought to "give no pause"—to wit, the exportation to Queensland the other day of nearly 500 souls, men, women, and children, all of the agricultural class, and picked; and all this, although we have unoccupied and waste lands in plenty, Allotment Act, Local Authorities, County Councils, and are to have an Agricultural Board.

Strawberry Papers.—There was but a moderate attendance at the Drill Hall during Tuesday afternoon to listen to the admirable papers on Strawberries, read by Mr. A. F. Barron and Mr. G. Bunyard. Sir C. Strickland presided. Mr. Barron generally reviewed the history of the cultivated Strawberry in this country, and illustrated his remarks with examples of the wild Strawberry, the Hautbois, alpine and other small fruiting forms. He gave selections of the best eight and twelve kinds, the latter comprising, in the order of ripening, Laxton's Noble, King of the Earlies, Héricart de Thury, President, Sir Joseph Paxton, Sir C. Napier, Countess, Lucas, British Queen, Dr. Hogg, Waterloo, and Elton Pine. Mr. Bunyard dealt with the market-growing aspect of Strawberry culture, and the difficulties attending the transport of the fruit from the grower to the consumer. One of the districts of Kent, and perhaps of the whole country, where the Strawberry was most grown, he said, was St. Mary Cray, where there were perhaps 2000 acres under crop, the grubbed woodland of the place being just that which the plant liked, and town manure is readily transported thither. Sandwich is another place famous for its Strawberries. The British Queen is the variety mostly grown there. After describing methods of planting and packing, he said that the object of raisers of new varieties should be in the direction of a lengthening of the seasons, although in a measure this is now obtained by growing the fruit in different parts of the country. After noticing the varieties grown in Cornwall, and about Evesham, and the modes of planting there pursued, he indicated the Strawberries to be grown for market, viz., King of the Earlies, Noble, Pauline, Vicomtesse H. de Thury, Sir J. Paxton (the main crop), Sir C. Napier, and Bicton Late Pine. Except the Chairman, Mr. A. Dean was the only person who addressed the meeting, objecting to the inordinate size of some of the modern fruits, their dull, heavy colour, and general lack of flavour. With respect to size and colour, he pointed to a beautiful even sample of Crown Prince, from Mentmore, as offering a correct ideal. A cordial vote of thanks was awarded to the readers. After some remarks by the Chairman, intended to invite further discussion, Mr. Morris, Treasurer, Royal Horticultural Society, said that any one desirous of full information on all matters connected with Strawberry culture could not do better than pay a visit to the Society's garden, and consult with Mr. Barron, the Superintendent.

Rose Souvenir de S. A. Prince.—We have been favoured with specimens of this novelty by the raiser Mr. G. Prince, of Oxford. It is a welcome addition to the Tea-scented Roses, and must become a favourite variety. Resembling Niphetos, it is distinct from it by having a fuller centre, and the petals are of greater substance, a more even form and no pale green flush, and is very suitable for bouquet and wreath work. It is a sport from Souvenir d'un Ami.

Ghent Chambre Syndicale.—At a meeting held on Monday, June 17, awards were made as follows:—

First-class Certificates.—To Cattleya Mendelii var., from MM. Elm. Vervaet & Co.; to Cypripedium Curtisi amœnum, and to Crassula Seedlings, from M. Ed. Pynaert-Van Geert; to Cattleya Lawrenceana, from M. G. Vincke-Dujardin; to Cattleya Mossiæ, from M. Ad. d'Haene.

Seed Corn at the Windsor Show.—In the important and extensive open competition in seed Corn at the above show, Messrs. J. Carter & Co., High Holborn, inform us that the 1st and 2nd prizes for Barley were awarded to growers who are their customers.

The Flower Garden.

The Treatment of Roses.—But a very short time since the prospect of a good flowering season was dark indeed, the plants being just as badly attacked by caterpillar as were the Apples, Pears, and Oaks. Thanks, however, to the thorough measures taken in cutting off all the injured buds and foliage, and thoroughly drenching the plants with clear water, flowering prospects are now as bright as before they were gloomy.

To keep the plants clean and growing vigorously it will be necessary to repeat the overhead washings, and renewal of the surface mulchings of manure. The first flowering of climbing roses being now nearly over, and although a good second season of bloom can hardly be expected, still by means of cutting out old shoots which have bloomed, clearing the plants of insects, the renewal of the mulchings, followed by a thorough watering of the borders, a fairly satisfactory succession of flowers may be hoped for.

Bedding Plants.—Any kinds which are not making satisfactory growth should be examined as to the cause of the same. Drought, shallow planting, or failure when planting to press the soil firmly round the roots, will be found to be the causes in most instances. Bedding Violas are, and have been for some time past, so beautiful that a word of commendation is their due. To ensure continuous flowering throughout the summer it is necessary to keep the seed pods picked off regularly, and the surface of the soil mulched—the plants being very impatient of a dry soil.

In this part of the country partial shade is desirable, it being an aid to a free and constant habit of flowering; still, it may be done without, provided the soil be rich and deep, when full exposure to sunshine will not injure, but will aid their well doing. The position in which they do best is between small shrubs, Retinosporas, variegated Euonymus, Cupressus and the like, as these afford just the amount of shade the Violas require, and moreover the small shrubs and the Violas look well in combination.

Tuberous Begonias are robust in growth and very free to flower, bidding fair to equal the Violas. Planted in the flower beds, direct from the frames in which the tubers were started, they suffered no check, and are now full of flowers. Some of them are planted between small shrubs, where they look well. These tuberous Begonias are, however, most effective when used as specimen plants on a ground work of variegated Mesembryanthemum cordifolium, the grey Sedum glaucum, the white Antennaria tomentosa, or the green Herniaria glabra. Planted thus, the plants grow into the most perfect globes of foliage and bloom imaginable, and the only attention which they need to keep them in good condition to the end of the season, is to maintain an uniform state of moisture at the root. I find that the application of water is frequently required by the Begonia even in showery weather, the close growth of the groundwork plants hindering much of the rain reaching their roots.

Petunias, Heliotropes, Tropæolums, in fact all loose growing rambling plants, should have the points of the leading shoots pinched out, and in order that the ground may be covered quickly they should be pegged out. Standard or "sentinel" plants placed in large beds of other plants, with the view of counteracting the flat and monotonous appearance of these, should have their leading side-shoots pinched in, so as to give the plants a pyramidal form. Abutilons, Fuchsias, and Pelargonium Lady Plymouth are all well adapted for use as pyramidal sentinels. The best standard plants for foliage beds are Grevillea robusta, Acacia lophantha, the white Fish-bone Thistle, Yucca recurva, and Dracæna lineata. Except the Acacia, none of these require pinching, but all should be neatly tied to stakes.

Trimming Shrubs.—Trim hedges of all kinds; Privet, Laurel, Yew, and Box may be clipped. At this season Holly hedges should only have the very longest shoots cut away, and such ornamental evergreens, as Bays, Portugal Laurels, Junipers, and Retinosporas should only be trimmed with a knife. If sheared, they will look naked all the summer. See that all seed-pods and dead flowers are removed from Rhododendrons and Azaleas; and water copiously and syringe overhead in the evening any plants that were transplanted late in the spring. *W. Wildsmith, Heckfield House, Winchfield.*

The Hardy Fruit Garden.

Strawberries.—When a sufficient quantity of strong healthy runners are obtainable from the stock plants, there should be no delay in getting the required number layered, either by pegging them securely on squares of turf, packed neatly together, and mulched over, or on 60-sized pots; this latter practice is the one which I follow, and by getting them pegged early, healthy and strong plants are obtained by the end of July, or by the first week of August. Plants raised in this way make very strong crowns by the end of the season, fruiting well the following year. Laxton's Noble I intend to grow more largely for early work, it ripening here outside about June 11.

Pyramids and Bush Trees.—All summer shoots on these should be shortened back to within a few buds of the old wood, and young trees should have some kind of support given them to keep the central shoots straight, and to prevent them from getting broken. Where the soil is light, a heavy mulching should be applied, and followed with copious waterings, and especially is

this practice of benefit to trees worked on dwarfing stocks and in bearing. Thin the fruit early where it is too numerous, and make a general survey of all fruit trees, removing suckers springing up from the roots, and growths on the stem. *H. Markham, Mereworth Castle.*

HOME CORRESPONDENCE.

[*Many communications are unavoidably deferred.* ED.]

THE RECENT DISCOVERY AT OXFORD.—The "discovery" announced in the *Athenæum* of June 8, is one affecting the identity of the author of the M.S. notes referring to the dried specimens of plants contained in the volume, and not its recovery. These were formerly attributed to Dillenius, who was professor of botany in the University when Linnæus visited Oxford in 1736. The existence of the collection in its vellum-bound covers was as well known as the interesting notes on the front outside cover, relating to the perfect state of preservation of the contents, are remembered as evidence of the methodical painstaking of the writer of them, the author of *British Flowering Plants*, W. Baxter, who was a Curator of the gardens for a great number of years. The paragraph in the *Athenæum* is unfortunately calculated to convey an erroneous impression to readers of it, and occasion reflections that the discoverer would certainly not wish. Whoever is responsible for the notice appearing in so crude a form, unconsciously doubtless, but effectually administers reproof to those who are charged with the safe keeping and supervision of works of historic and great botanical interest. [The collection referred to is a bundle containing a number of Italian plants, well preserved, with indications of the names and localities whence they were taken, by Gregorius à Reggio (Calabria), a Capucin, who collected them in 1605. It is not known how they got to Oxford. Another bundle contains the mosses brought by Sir John Franklin. ED.]

HOLLYHOCK DISEASE.—A first experience of this pest caused me to read with interest the life-history of the fungus as detailed in the *Gardeners' Chronicle*, in 1882. Can Mr. Plowright or Mr. Worthington G. Smith say to what extent the mycelium develops in the tissues of the host plant? Will a series of pustules (sori) be produced from the mycelium resulting from the germination and growth of a single spore? And how far may the continued development of this individual mycelium ramify through the tissues of the leaves, petioles, or stems? Again, in the case of the Hollyhock, are the mycelia of perennial duration, resting (or nearly so) in the tissue of the host during the cold period, and starting to grow afresh with the plant in the spring, and ultimately producing teleutospores during the second season of its growth? If this be so, may not mycelia be present in the seeds and cuttings, and thus be the means of reproducing the fungus, apart altogether from the conidial-forms of reproduction? More light would greatly interest *D. Storrie.*

A JAVAN FUNGUS AT SUNNINGDALE.—Last year a very extraordinary fungus was discovered in my nursery—Mutinus bambusinus—a native of Java, and, I believe, never before found in Europe. How it obtained a footing here, and how it should have done so during the wet and cold summer of 1888, is a mystery, which has never been explained, and to-day (June 17) two specimens have matured, and two others are now in the egg-form, bursting through the ground. This curious species is figured and described in *Grevillea*, plate 173. *Charles Noble.*

AWARDS OF MERIT.—We are getting along swimmingly in relation to awards of merit, for I observe in your report of the recent London meetings that nine awards have been made to seedling Begonias, and eight to seedling Delphiniums during the past fortnight. Considering that literally hundreds of thousands of Begonias, and, I may add, Gloxinias, are annually raised from seed, the question may well be asked when or where are these certificates to end? Then, out of the vast quantities raised, how very few, after all, find their way to certificate-granting meetings! The main point, however, in relation to these flowers is that certificates can hardly indicate anything else but merit in strains, because seed now give all the merits of the parents, and any certificated variety is practically lost or forgotten in a year or two in the myriads of seedlings which exhibit advance beyond the named varieties. The same may be said of Delphiniums, which come into about the same category as Foxgloves, Pentstemons, or Sweet Williams. They seed abundantly, and reproduce all their finest forms from seed freely. It is only where great quantities are grown that a reckless sacrifice of scores of fine spikes can be afforded, but myriads of fine seedlings may be found in the country of the finest quality, which their owners would not care to show for certificate or any other honour for the world, because the sacrifice of beauty would be too great. If seed of these fine Delphiniums be sown as soon as ripe, really very fine spikes will be produced by the seedling plants the second year, and a large percentage will be of the very finest form. It is but a question of selection, and in a few years a strain is secured out of which scores of spikes may be obtained meriting certificates, but which it would be in such case absurd to grant. *A. D.*

PLANTS, &c., CERTIFICATED

DURING THE HALF-YEAR ENDING JUNE 30, 1889.

BY THE ROYAL HORTICULTURAL SOCIETY.

*** *F.C.: First-class Certificate; A.M.: Award of Merit; B.C.: Botanical Certificate.*

Acineta maculata	Sir T. Lawrence, May 14—B.C.
Aciphylla squarrosa	J. Veitch & Sons, May 30—B.C.
Amaryllis Acquisition ...	J. Veitch & Sons, Mar. 12—A.M.
,, John Ruskin	J. Veitch & Sons, Mar. 12—F.C.
,, Sea Nymph	Paul & Son, April 23—A.M.
,, Terentian	J. Veitch & Sons, Mar. 26—F.C.
Athyrium F.f. regale, Barnes' var.	W. & J. Birkenhead, May 30—A.M.
Aubrietia Leichtlinii	Paul & Son, April 23—A.M.
Begonia Duchess of Teck ...	J. Laing & Sons, May 14—F.C.
,, Lady Harriet Cavendish	H. Cannell & Sons, May 30—A.M.
,, Mrs. Chamberlain ...	J. Laing & Sons, June 11—A.M.
,, Rosebud	H. Cannell & Sons, May 30—F.C.
,, Sir W. C. Brookes ...	H. Cannell & Sons, May 30—A.M.
,, Stanstead Gem	J. Laing & Sons, May 14—F.C.
Brassia caudata	G. T. White, May 14—B.C.
Caladium Raymond Lemoinier	J. Laing & Sons, May 30—A.M.
Catasetum barbatum proboscidium	Sir T. Lawrence, April 9—B.C.
Cattleya Brymeriana	F. Sander & Co., May 30—F.C.
,, Gaskelliana, Cook's var.	Malcolm Cook, June 25—A.M.
,, Mendelii Arddarroch var.	R. B. White, April 23—F.C.
,, ,, Rothschildianum ...	Baron Schroder, May 30—F.C.
,, Trianæ var.	Bruce Findlay, March 26—A.M.
Clivia John Laing	J. Laing & Sons, March 26—F.C.
,, Lady Wolverton	P. Davidson, March 12—F.C.
Coleus Eureka	— Hill, April 23—A.M.
Crinum Kirkii	F. Ross, May 14—F.C.
Cunonia capensis	G. Wythes, May 14—F.C.
Cyclamens (for strain) ...	St. George's Nursery Co., March 12—A.M.
Cymbidium eburneo × Lowianum	J. Veitch & Sons, Mar. 12—F.C.
Cypripedium nitidissimum ...	N. C. Cookson, April 23—F.C.
,, Rothschildianum ...	Lord Rothschild, Mar. 12—F.C.
Delphinium Ardite	Kelway & Son, June 11—A.M.
,, Banquo	Kelway & Son, June 25—A.M.
,, Britannia	Kelway & Son, June 25—A.M.
,, Faust	Kelway & Son, June 11—A.M.
,, Orbit	Kelway & Son, June 11—A.M.
,, Regalia	Kelway & Son, June 11—A.M.
,, Sir T. Lawrence	Kelway & Son, June 25—A.M.
,, The Shah	Kelway & Son, June 25—A.M.
Dendrobium euosmum leuc terum ×	Baron Schroder, April 9—F.C.
,, melanodiscus ×	Sir T. Lawrence, Mar. 26—A.M.
,, micans ×	J. Veitch & Sons, Mar. 26—F.C.
Dracæna Douceti	J. Veitch & Sons, May 14—F.C.
Epiphyllum Makoyanum ...	J. Veitch & Sons, April 23—F.C.
Fuchsia Dorothy Fry	G. Fry, June 11—A.M.
Hyacinth Yellow Hammer ...	J. Veitch & Son, Mar. 26—A.M.
Iris Rosenbachiana	Barr & Son, Mar. 12—F.C. J. Douglas, Mar. 12—F.C.
Lælia Dellensis ×	Baron Schroder, May 30—F.C.
,, Digbyana × Mossiæ ...	J. Veitch & Son, May 14—A.M.
Lilium Martogon album ...	Barr & Son, June 25—F.C.
,, Wallichi superbum ...	H. Low & Co., June 25—F.C.
Lycaste Schilleriana	Sir T. Lawrence, April 9—F.C.
Masdevallia Ellisiana	J. Veitch & Sons, June 25—F.C.
Mignonette Garaway's Double White	Garaway & Co., April 23—A.M.
Miltonia vexillaria purpurea ...	F. G. Tautz, April 9—F.C.
Mimulus grandis	R. Dean, May 14—A.M.
Odontoglossum Pescatorei var. ,, ,, Thomsonianum	— Dowsett, Feb. 12—A.M. H. M. Pollett, April 23—F.C.
Oncidium bifolium	F. Sander & Co., April 9—A.M.
,, hæmatochilum	F. Sander & Co., May 30—B.C.
,, superbiens	Sir T. Lawrence, Mar. 26—F.C.
Ophrys Bertolonii	Sir T. Lawrence, April 23—B.C.
Pæonia arborea Agenoria ...	Kelway & Son, May 30—A.M.
,, Leonard Kelway ...	Kelway & Son, May 30—A.M.
,, lobata (?)	T. S. Ware, May 30—F.C.
,, Princess Christian ...	Kelway & Son, June 11—A.M.
,, Princess Irene	Kelway & Son, June 11—A.M.
Pansy (bedding) Golden Crown	R. Dean, May 14—A.M.
Pelargonium Indian Yellow ...	Foster, May 30—A.M.
,, Souvenir de Mirande ...	H. Cannell & Sons, May 30—A.M.
Pink Her Majesty	F. Hooper, May 14—F.C.
Ponthieva maculata	Sir T. Lawrence, May 14—B.C.
Primrose Blue Gem	R. Dean, March 12—F.C.
,, G. F. Wilson	G. F. Wilson, April 23—A.M.
,, Quakeress	G. F. Wilson, April 23—A.M.
,, The Mikado	R. Dean, March 26—F.C.
Primula sinensis Imperial White	R. Owen, March 12—F.C.
,, ,, Miss Inez	J. Knight, Jan. 15—A.M.
,, ,, Princess Mary ...	H. Cannell & Sons, Jan. 15—A.M.
,, ,, Swanley Mauve ...	H. Cannell & Sons, Jan. 15—F.C.
,, petiolaris	Prof. Foster, March 12—A.M.
,, Sieboldi var. General Gordon	Ryder & Son, April 23—A.M.
,, ,, Miss Nellie Barnard	Ryder & Son, April 23—A.M.
,, ,, Mrs. Ryder	Ryder & Son, April 23—A.M.
,, ,, Queen of the Whites	Ryder & Son, April 23—A.M.
,, viscosa splendens ...	Ryder & Son, April 23—A.M.
Pyrethrum Albert Victor ...	Kelway & Son, May 30—A.M.
,, Pericles	Kelway & Son, June 11—A.M.
Rhododendron Her Majesty ...	J. Veitch & Son, Apr. 23—F.C.
Rose Claire Jacquier	W. Paul & Son, April 23—A.M.
,, Gloire de Margottin ...	H. Lane & Son, April 9—A.M.
,, Silver Queen	W. Paul & Son, May 14—F.C.
,, Souvenir de S. A. Prince	G. Prince, June 11—F.C.
Saccolabium cerinum	F. W. Moore, May 14—B.C.
Saxifraga Malayi	Paul & Son, March 26—F.C.
Shortia galacifolia	H. J. Elwes, March 26—F.C.
Struthiopteris pennsylvanica recurva	W. & J. Birkenhead, May 30—F.C.
Tulipa Leichtlini	Paul & Son, April 23—F.C.
Vanda Amesiana	Lord Rothschild, Jan. 15—F.C.
Verbascum olympicum ...	W. H. Loder, June 11—F.C.
Veronica Fairfieldi	G. Thomson, May 30—F.C.

VEGETABLES.

Cucumber, Covent Garden Favourite	Unwin, April 9—A.M.
,, Lockie's Perfection ...	Charles Turner, May 30—F.C.
Kale (variegated)	Veitch, Feb. 12—A.M.

BY THE ROYAL BOTANIC SOCIETY.

*** *B.C.: Botanical Certificate; F.C.: Floral Certificate.*

Acer Gordoni	W. Gordon, June 19—B.C.
Aciphylla squarrosa	J. Veitch & Sons, May 15—B.C.
Adiantum Capillus-veneris var. grandis	T. Jannoch, March 20—B.C.
Amaryllis Dark Beauty ...	Paul & Son, March 20—F.C.
,, Lustrous	J. Veitch & Sons, Mar. 20—F.C.
,, Mirabelle	J. Veitch & Sons, Mar. 20—F.C.
,, Optima	J. Veitch & Sons, Mar. 20—F.C.
,, Salvator rosea	Paul & Son, April 10—F.C.
,, Sirocco	J. Veitch & Sons, Apr. 10—F.C.
,, Vulcan	Paul & Son, April 10—F.C.
Angræcum Sanderianum ...	J. Douglas, March 20—B.C.
Asplenium scandens	J. Veitch & Sons, May 15—B.C.
Aubrietia tauricola	Paul & Son, May 15—F.C.
Auricula Heather Bell ...	J. Douglas, April 10—F.C.
,, Marcus Aurelius	J. Douglas & Son, Mar. 20—F.C.
Begonia A. F. Barron	H. Cannell & Sons, June 19—F.C.
,, gigantea	J. Laing & Sons, May 15—F.C.
,, J. Douglas	H. Cannell & Sons, May 15—F.C.
,, J. Mar-hall	H. Cannell & Sons, May 15—F.C.
,, Hon. Mrs. G. Goschen ...	H. Cannell & Sons, May 15—F.C.
,, Imogen	H. Cannell & Sons, May 15—F.C.
,, Lady Lewisham	H. Cannell & Sons, June 19—F.C.
,, Lady Staff. Northcote ...	J. Laing & Sons, June 19—F.C.
,, Lord Weymouth ...	J. Ford, June 19—F.C.
,, magnifica	J. Laing & Sons, May 15—F.C.
,, majestica	J. Laing & Sons, June 19—F.C.
,, Melaine Soupert ...	H. Cannell & Sons, June 19—F.C.
,, Miss French	J. Laing & Sons, June 19—F.C.
,, Miss Mathews	H. Cannell & Sons, June 19—F.C.
,, Stanstead Gem	J. Laing & Sons, May 15—F.C.
Brassia caudata	G. T. White, May 15—B.C.
Calanthe vestita oculata gigantea	J. Veitch, March 20—B.C.
Canna Petite Jean	Paul & Sons, June 19—F.C.
Catasetum discolor	F. Sander & Co., May 15—B.C.
Cattleya Mendelii Miss Little	H. Little, June 19—B.C.
,, Mossiæ G. T. White ...	G. T. White June 19—B.C.
,, Trianæ ampliata ...	F. Sander & Co., Mar. 20.—B.C.
Cineraria Advance	J. James, March 20—F.C.
,, Conqueror	J. James, April 10—F.C.
,, Emperor Frederick ...	J. Carter & Co., April 10—F.C.
,, Favourite	J. James, April 10—F.C.
,, Paul Jones	J. James, April 10—F.C.
,, Sybil	J. James, March 20—F.C.
,, Victor	J. James, April 10—F.C.
,, Wonder	J. James, March 20—F.C.
Crocus vernus leucorhynchus .	Barr & Son, March 20—F.C.
Cyclamen Faust	J. James, March 20—F.C.
,, striatum	J. Odell, March 20—F.C.
Cypripedium De Witt Smith .	H. Low & Co., June 19—B.C.
Delphinium Castro	Kelway & Son, June 19—F.C.
,, Duke of Teck	Kelway & Son, June 19—F.C.
,, Mrs. Roper	T. S. Ware, June 19—F.C.
,, Princess Maud	Kelway & Son, June 19—F.C.
Dendrobium Harveyanum ...	F. Sander & Co., April 10—B.C.
,, Schneiderianum	J. Veitch & Sons, Mar. 20—B.C.
,, Wardio-aureum	J. Veitch & Sons, Apr. 10—B.C.
Dracæna Douceti	J. Veitch & Sons, May 15—F.C.
Edrianthus serpylifolus ...	Paul & Son, May 15—B.C.
Inula glandulosa	T. S. Ware, June 19—B.C.
Iris Rosenbachiana	Barr & Son, March 20—F.C. T. S. Ware, March 20—F.C.
Lilac Marie Lemoine	Paul & Son, April 10—F.C.
Lilium Hansoni	T. S. Ware, June 19—F.C.
,, Martagon album	Barr & Son, June 19—F.C. T. S. Ware, June 19—F.C.
Masdevallia caudata Estradæ	J. Veitch & Sons, May 15—B.C.
Narcissus Her Majesty ...	Barr & Son, April 10—F.C.
Nepenthes Dicksoniana × ...	J. Veitch & Sons, Mar. 20—F.C.
Odontoglossum hebraicum excellens	F. Sander & Co., May 15—F.C.
Oncidium sarcodes maculatum	J. Laing & Sons, May 15—F.C.
Pæony Mrs. Chamberlain ...	Kelway & Son, June 19—F.C.

Pæony Prince George	Kelway & Son, June 19—F.C.
Phalænopsis Schilleriana alba	G. Firth, April 10—B.C.
Phlox White Swan	J. Chambers, June 19—F.C.
Pink Her Majesty	F. Hooper, May 15—F.C.
Primula marginata cærulea ...	T. S. Ware, April 10—F.C.
,, Sieboldi Crimson King...	T. S. Ware, May 15—F.C.
Pteris, cretica nobilis	H. B. May, June 19—B.C.
Ramondia pyrenaica alba ...	Paul & Son, May 15, F.C.
Rhododendron Ne plus ultra...	J. Veitch & Sons, Ap. 10—F.C.
,, Princess Beatrice ...	J. Veitch & Sons, Mar. 20—F.C.
Rose, Duchess of Albany ...	W. Paul & Son, June 19—F.C.
,, Silver Queen	W. Paul & Son, May 15—F.C.
,, Souvenir de S. A. Prince	G. Prince, June 19—F.C.
Thalictrum aquilegifolium rubrum	Paul & Son, May 15—F.C.
Tiarella cordifolia	Paul & Son, May 15—F.C.

VEGETABLE.

Cucumber Lockie's Perfection T. Lockie, May 15

SOCIETIES.

ROYAL HORTICULTURAL.

Tuesday: *June* 25.—This was a meeting at the Drill Hall, Westminster, at which a few nurserymen made a showy display with Delphiniums, Pyrethrums, Lilies, Roses, Pæonies, Iris, and herbaceous cut flowers. In Roses—the flower of the month—Messrs. W. Paul & Son were strong in own raised novelties.

Orchids were few, and other plants brought to the cognizance of the various committees not numerous.

Floral Committee.

Present: W. Marshall, Esq., in the chair, and Messrs. H. Herbst, T. W. Girdlestone, W. Goldring, L. Castle, F. Ross, B. Wynne, H. Holmes, H. Cannell, C. Noble, M. T. Masters, and G. Nicholson.

Roses.—Miss Roberts, of St. Clements, Ipswich, gr. Mr. Churchman, exhibited a seedling H. P. Miss Rose Roberts, a flat formed, full flower of purplish-rose colour.

Messrs. W. Paul & Son, Waltham Cross, Herts, had six boxes of cut blooms, mostly of their own raising. We are unable to speak of the merits of the plants in regard to habit. Burns is a dark crimson H.P., not of much merit as seen; Pink Rover is a climbing Rose of the Bourbon section, of a tender flesh colour, full, with a low centre, the outer petals being almost white, and recurved; Milton, a fine globular-shaped crimson Moss, the mossiness in moderation, and the scent that of Provins; Rose Salamander is purplish-crimson, nice in bud; Waltham Pet is a miniature Moss, white with a flesh-coloured centre, the moss apple-green, and not very abundant—pretty in bud, as becomes a Moss Rose; Spenser is a fine flesh-coloured bloom, good at all stages of development, large and full; Marchioness of Lorne, a striking flower, of purplish-crimson, moderately full, and at its best when half-opened; Crimson Queen, H.P., is a flower too full to be a good Rose in all weathers; and is best for indoor culture; Hero of Waltham is a full bloom, the centre well raised: colour deep pink; Fair Rosamond is a blush-tinted climbing variety, good enough, if floriferous; Magenta Queen, H.P., a nice large, purplish-rose-coloured flower; Duchess of Albany, a sport from La France which it resembles, but is darker, has been noticed before as also has Grand Mogul, H.P., a velvety, small-sized crimson flower; Sappho, a Tea, buff suffused pink, a pretty bud; and Medea, a Tea.

Mr. G. B. Basket, gr. to Lord Penzance, Eashing Park, Surrey, brought a seedling Rose derived from Luxembourg Moss and Princess Christine, H.P. It has foliage partaking in character of both parents, and large rose-coloured flowers, the calyx slightly mossy.

Miscellaneous.—A showy group of varieties of Lilium auratum, set in a bed of Japan Maples and ferns was a prominent group on one side of the Hall. This was the exhibit of Mr. W. Gordon, nurseryman, Twickenham, who appears to have made Lilies a specialty of his business, and certainly he grows them to perfection. Messrs. H. Low & Co., Clapton, N., showed the beautiful Lilium Wallichi superbum, a plant 5½ feet high, surmounted with clusters of pale buff-coloured blooms.

The showy table of Messrs. P. Barr & Son, King Street, Covent Garden, consisted of hardy perennials in season.

The stand of Messrs. Kelway & Sons, of Langport, Somerset, made a grand show of colour, with many Pæonies, Delphiniums, gaudy Pyrethrums, and Gaillardias. Four of the Delphiniums received recognition from the committee.

The Pæonies filled thirteen large show boxes, and, although making a glittering array of colour, no striking novelty in colour or form was observed.

Mr. T. S. Ware, the Hale Farm, Tottenham, was represented by a stand of much smaller dimensions than we are accustomed to. In it were flowers of the handsome Lilium monadelphum Swowotzianum, a lemon-yellow of great size and substance; L. martagonalbum, a white Turk's Cap, useful for variety; a pretty variety of Calochortus venustus roseus, differing from the type in its rosy suffusion and darker and larger spots and blotches at the lower portion of the interior; Calliphruria flava, Triteleiæ laxa, Iris siberica, &c.

A double-flowered Begonia (tuberous) named Mrs. A. Smith was shown by Mr. R. Owen, nurseryman, Maidenhead.

A quantity of blooms of very excellent Sweet Williams of apparently Hunt's Auricula-eyed strain came from Mr. G. Phippen, nurseryman, Reading.

From the nurseries of Messrs. J. Veitch & Sons, Chelsea, came Styrax japonica. Andromeda speciosa var. cassinifolia, and A. sp. pulverulenta, both pretty shrubs with Lily of the Valley-like blooms abundantly produced. Other plants, or, rather, cut blooms, from the same establishment, were Leptospermum baccatum, an Australian Myrtaceous plant, blooms numerous, and white—a good plant for a wall; and Rhododendron The Czarina ×, R. Teysmannii, and Princess Royal, flowers dainty blush.

The Home of Flowers, Swanley, contributed some enormous so-called double Canterbury Bells, in several colours; and beautiful blooms of Balsams, Petunias, and Begonias.

Shirley Poppies were shown by the Rev. W. Wilks, Shirley, in large numbers; and by Mr. R. Dean, Ealing, the former in large numbers, and the flowers of large size. The latter showed Seedling Carnations and Venidium fugax, a hardy annual of the Marigold family with showy orange and yellow blooms.

Mr. Ross, gr. Pendell Court, showed the pretty Ceropegia elegans.

Orchid Committee.

Present: H. J. Veitch, Esq., in the chair; and Messrs. J. O'Brien, L. Castle, T. Hill, J. Dominy, H. M. Pollett, C. Pilcher.

Messrs. J. Veitch & Sons exhibited their hybrid Masdevallia Ellisiana = M. ignea × M. Harryana, and Zygocolax Leopardinum = Colax jugosus × Zygopetalum maxillari, the lip is a beautiful shade of blue, nicely contrasted with the light green, brown-barred sepals and petals, size intermediate between the parents.

Cattleya Gaskeliana Sunray was shown by Dr. Duke, Lewisham, S.E. It has a finely-formed yellow throat, and a crimson stripe on the sepals and petals. Mr. Hall, 14, Upper Tulse Hill, S.W., showed Cattleya Mendelii Hallæ, a flower having a very exquisite lip heavily frilled, rich purple in colour, and a purple stripe on the petals. A pale form of C. Gaskeliana, the throat lined with primrose yellow having greenish lines running longitudinally down it, was shown by Malcolm Cooke, Esq. A plant of Dendrobium stratiotes was shown by M. M. Sherwood, Esq., Dunedin, Streatham Hill, S.W.

An orange-scarlet Masdevallia Heathi came from Messrs. Heath & Sons, Cheltenham; and some strong spikes of Orchis maculata (foliosa ?) from Mr. Ross, Pendell Court.

Fruit Committee.

Present: F. Rivers, Esq., in the chair; and Messrs. P. Crawley, J. Lee, R. D. Blackmore, J. Smith, W. Bates, T. J. Saltmarsh, J. Wright, G. Bunyard, G. Wythes, H. Balderson, F. J. Lane, S. Ford, C. W. Strickland, R. Hogg, J. Burnett.

Strawberries were the only fruits exhibited, and very fine fruits they were generally, except where some exhibitor had brought a very poor sample of a fine kind, on purpose to show how great was the contrast with it and such kinds as Laxton's Noble, Paxton, and some others. This first-named fruit was shown in abundance; and, judging from remarks we heard, it is likely to be a good deal grown, in spite of its flatness of flavour and beefy look. It is undoubtedly an early variety, of large size, and good cropping qualities. The variety was shown by Messrs. G. Bunyard & Co., Maidstone; Mr. J. Mulcaster, Hayton, Row Mill, Carlisle; Mr. Jamieson, Rothsay (two of the places more than 500 miles apart); Mr. J. Smith, gr. to Lord Rosebery, Mentmore; Mr. Allan, Gunton Park, Norwich; and by Mr. Barron, Chiswick; and in every sample the size of the berries was remarkable.

Excellent fruits of J. Veitch, Sir J. Paxton, and British Queen, and poor ones of Keen's Seedling and Vicomtesse H. de Thury, came from Mr. Bunyard. The Society's Garden contributed fifteen varieties; Mr. R. Gilbert, Burghley, Stamford, Paxton, and A. F. Barron, very fine; Mr. S. Ford, Horsham, the wild Strawberry and Hautbois; Mr. H. E. Rundle, Stoke, Devonport, Peter the Great, and two seedlings of bad colour; Mr. Allan showed Vicomtesse H. de Thury, Paxton, J. Veitch, Aug. Boisselot, and very fine fruit of La Grosse Sucrée.

Mr. J. Smith had Crown Prince, a showy, bright scarlet fruit, in colour like Elton Pine, La Grosse Sucrée, Vicomtesse H. de Thury, &c.

Mr. J. Watkins, Pomona Farm, Withington, Hereford, showed the American variety Sharpless, a large conical or cockscomb fruit, grown in a field with Laxton's Noble, and ripe at the same time; Alice Maude, a bright-looking fruit of middling size, with prominent seeds. British Queen and Alpha came from Mr. S. Ford.

AWARDS.

Floral and Fruit Committee.

Lilium martagon album, from Messrs. Barr & Son (6 for).

Lilium Wallichi superbum, from Messrs. H. Low & Co. (unanimous.)

Award of Merit.

Delphinium Britannia, from Messrs. Kelway & Son (3 to 2—eleven voters being present.)

Delphinium The Shah, from Messrs. Kelway & Son (unanimous).

Delphinium Banquo from Messrs. Kelway & Son (unanimous).

Delphinium Sir Trevor Lawrence, from Messrs. Kelway & Son (unanimous).

Medals.

Silver Banksian to Messrs. Kelway & Son, for collection of cut flowers; to Messrs. Barr & Son, for collection of cut flowers; to Mr. W. Gordon for group of Maples.

Awards: Orchids.

First-class Certificate to J. Veitch & Son, for Masdevallia Ellisiana.

Award of Merit to Mr. Malcolm Cooke, Kingston Hill, for Cattleya Gaskeliana, Cooke's var.

Fruit Committee.

Cultural Commendations for Strawberries to:—Messrs. S. Ford, W. Allan, J. Smith, T. Laxton, R. Gilbert.

ROYAL AGRICULTURAL OF ENGLAND.

June 22—29.—The great metropolitan show of this Society was opened in the Windsor Great Park last Saturday, when the implement-yard was thrown open. Although mainly agricultural, there were, nevertheless, a number of objects appealing to horticulturists, such as greenhouses, and boilers, systems of glazing, and the various stands of seed and nursery firms.

The floral decorations were entrusted to Messrs. Sutton & Sons, Reading, Berks; and the garden of the Queen's pavilion, executed by them, was a most charming piece of work. The bedding was subtropical generally, Hydrangeas and Maples being also largely employed, and at the pavilion itself were fruiting Vines, with Ampelopsis and Canary Creepers, growing downwards from balconies, and on a neat grass-plot, back and front, were the letters V. R., in Lobelias. Inside the building, Orchids and specimen Palms were freely used.

Greenhouses, &c.—Messrs. Boulton & Paul, Norwich, contributed a type of a gabled conservatory (25 feet by 15 feet), for attaching to a dwelling-house; it had a lantern roof, and at the top of the sides was a border of cathedral glass for effect. The interior was furnished by Messrs. W. Fromow & Sons, nurserymen, Chiswick. Other articles in this stand were various garden pumps and barrows, and a checkend saddle boiler; also a cottage suitable for gate-lodge or a woodman's residence, &c., constructed of wood and galvanised iron, with a comfortable interior arrangement.

A span-roofed plant-house measuring 40 feet by 18 feet, shown by Messrs. Foster & Pearson, Beeston, Notts, was a light, airy structure, with a lantern roof, and well fitted for its purpose. A smaller house and numerous plant frames were also shown,

some of the last-named being very serviceable structures, with appliances for holding the lights open. A Peach-wall-cover with mechanical arrangements for free ventilation at the top and front, and so constructed that the lights are easily removed, and a horizontal Beeston boiler for use in small greenhouses without a stokehole, the boiler being let into the side of the house, were also in this stand.

In the stand of Messrs. Wrinch & Son, Ipswich, were a variety of garden seats and amateurs' greenhouses, also a plant house of elegant design for a small garden near the residence. In their "registered" conservatory the eaves are extended some distance beyond the foundations of the house, the sides above the stage sloping out to meet them—an arrangement which gives an extended roof area and more room to the tops of the plants.

Messrs. W. Richardson & Co., Darlington, contributes several frames, lights, &c., and three houses; one span-roofed, 20 by 16 feet, well ventilated by the firm's own apparatus, and strongly built; another is a half-span, 30 by 14 feet. There are also "The Darlington" fruit wall-cover, which has been mentioned on a former occasion, and the wall tree-protector consisting of a glass eave, both of which are useful articles. The greenhouses here serve the purpose of displaying the Parisian greenhouse blinds, which are made of thin wooden laths, and constitute an effective shading.

Various systems of dry glazing are extensively shown, the styles of Messrs. Newton, Rendle, S. Deards & Co., Helliwell, and others, all of which are well known to our readers, are each represented in houses glazed in the method.

Pottery.—In this direction there are only a few exhibits worthy of particular note. Messrs. R. Sankey & Son, Bulwell Potteries, Nottingham, show a varied assortment of plain and ornamental pots of good colour and smooth finish, light yet strong; and also specimens of their wall tile, with pockets to receive plants.

A number of large sized ornamental vases were shown by Mr. C. G. Warne, Weston-super-Mare, and were nicely furnished with plants; and from the Wood Green Potteries Co., Waltham Abbey, Essex, were excellent garden pots, and samples of art-pottery in imitation of the ancient styles. Large corner pieces, or jardinières, coloured to represent natural wood-bark were very effective.

Nursery and Seedsmen, &c.—The leading firms made a grand display, and were conspicuous objects of attraction. On entering, the exhibit of Messrs. Sutton & Sons, Reading, was at once noticed. Begonias and Gloxinias were fine, especially the latter, the plants bearing large flowers freely, and drooping foliage. Collections and specimens of grasses, and models of various produce were to be seen.

Messrs. J. Carter & Co., High Holborn, W.C., also had a large exhibit, contributing specimens of their cross-bred Wheats, Invicta lawn seeds, and various agricultural seeds, roots, &c.

Messrs. E. Webb & Sons, Stourbridge, had a large show of grasses, Swedes, Clovers, and Potatos, arrayed artistically, and Messrs. Oakshott & Millard, Reading; Raynbird, Caldecott, Bawtree, Dowling & Co., Basingstoke; Dickson & Robinson, Manchester; and Messrs. Dicksons, Limited, Chester, each had collections of agricultural seeds, &c., the last-named including a collection of weed seeds found in grasses.

Messrs. Wm. Barron & Sons, Borrowash, had plans of model farms, estates, &c., and a tree transplanting-machine.

In the stand of Messrs. Little & Ballantyne, Carlisle, were grasses, &c., and a collection of ornamental Coniferæ in elegant specimens, a plant of Abies Albertiana making a good centre-piece.

Miscellaneous.—Chemical manures were plentifully contributed by various manufacturers, and Messrs. Corry, Soper, Fowler & Co., London, had a stand of sundries, including the Lethorion Vapour Cone and Nicotine Soap, which are strong insecticides.

In the class for the best fruit-drying appliances there was but one entry, that of Ph. Mayfarth & Co., Frankfort-on-the-Maine, Germany. The article consists of a furnace, from which the heat is conducted through a wooden trough or box, in which the articles to be dessicated are placed, on wire trays. Specimens of dried Apples, Pears, Currants, and various vegetables were exhibited. Cider-presses of great strength were shown in this stand. Prizes were offered, too, for paring and coring machines, but again only brought one entry. Messrs. Goodell & Co., Antrim, U.S.A. (London: J. C. Rollins & Co., Limited, Old Swan Wharf, London, E.C.) being the exhibiting firm.

ROYAL OXFORDSHIRE HORTICULTURAL.

JUNE 25.—What is known as the commemoration show of this Society took place in the grounds of Trinity College, Oxford, on the above date. The Oxford Society is fortunate in getting every year a charming site in one of the College gardens for their June show, where there is well-kept, close-shaven turf, and plenty of shady trees. Trinity College, though not one of the oldest of the Oxford colleges, is yet one of considerable antiquity; and a leading feature of these gardens is an avenue of Limes nearly 300 yards in length; the trees are said to be over 200 years old, but they have to be cut back a good deal at times to keep their heads within bounds.

Three large tents were required to accommodate the plants and cut flowers; while the vegetables found a place on tables arranged under the friendly shade of the Limes. The leading features of the show were comprised in a certain number of classes open to all England. Handsome prizes were offered for—

Nine Stove and Greenhouse Plants.—Mr. James Cypher, of Cheltenham, being placed 1st, with a very large Phenocoma prolifera Barnesi, and fine examples of Stephanotis floribunda, Allamanda nobilis, Ixora salicifolia, and Erica Cavendishiana; 2nd, Mr. Finch, gr. to J. Marriott, Esq., Coventry, who had good pieces of Lælia purpurata, Cattleya Gaskelliana, Erica Cavendishiana, J. Williamsii, and Franciscea calycina.

Cape Heaths.—Of these, Mr. J. Cypher had the best six, his leading specimens being Kingstoniana, Ferruginia major, ventricosa rosea, and tricolor Wilsoni. Mr. J. F. Mould was 2nd, his plants showing signs of staleness.

Show Pelargoniums.—Good prizes were offered for collections of twelve, and only one lot was forthcoming, that from Mr. J. Mattock, Headington Nursery, Oxford, which was awarded a 2nd prize. Prizes for fancies brought no response.

Roses.—Some remarkably fine cut blooms of these were shown; and in the class for twenty-four triplets, Mr. George Prince, nurseryman, Oxford, was placed 1st, with a fine and fresh lot, Tea-scented varieties largely preponderating. He had very fine examples of Edith Gifford, Grace Darling, Lady Folkestone, Marie Van Houtte, Anna Ollivier, alba rosea, Jean Ducher, Innocente Pirola, Amazone, Princess of Wales, Souvenir d'un Ami, Souvenir d'Elise Vardon, Catherine Mermet, Madame Cusin, Niphetos, Comtesse de Nadaillac, Jean Pernet, and Madame Caroline Kuster, with a few hybrid perpetuals. 2nd, Dr. S. P. Budd, Bath, who had a very fine lot also, his blooms of Marie Verdier, A. K. Williams, Madame G. Luizet, Ulrich Brunner, François Michelon, La Havre, Violette Bruyère, and Alfred Colomb, being admirable examples.

Mr. J. Mattock had the best twenty-four single blooms; 2nd, Dr. Bywater Ward, Warneford Asylum, with some capital blooms.

Mr. J. Mattock was the only exhibitor of table decorations, a tasteful arrangement being shown by him.

In the plant classes, open to members of the Society, stove and greenhouse plants in flower were indifferent. Mr. G. Jacob had the best four Orchids, having small but nicely grown and flowered specimens of Anguloa Clowesii, Odontoglossum citrosmum, Miltonia vexillaria, and Cattleya Mossiæ. Mr. R. Price, Headington, was 2nd, his two best plants being Lælia purpurata and Odontoglossum citrosmum. Good Achimenes were shown by Mr. Robins, gr. to E. D. Lee, Esq., Hartwell House, Aylesbury; some capital tuberous Begonias by Mr. A. Price; some good Ivy-leaved Pelargoniums by Mr. J. Walker and others; and good double and single zonal Pelargoniums.

Some excellent cut bloom of hardy herbaceous plants was shown by several county gardeners and others. Pansies, Pinks, Iris, Pyrethrums were likewise good. Grapes, Peaches, Nectarines, Strawberries, and Cucumbers were shown; but there was nothing which calls for any remarks by us.

The special prizes for vegetables offered by the firms of Messrs. Sutton & Sons, Reading, and Messrs. C. Webb & Sons, Stourbridge, were awarded to Mr. T. Lockie, who had very fine lots; and to Mr. Pope, Highclere Gardens, Newbury, 2nd; and Mr. G. Neal.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending June 24.	Temperature. Accumulated. Above 42°, for the Week.	Below 42°, for the Week.	Above 42°, difference from Mean since Jan. 1, 1889.	Below 42°, difference from Mean since Jan. 1, 1889.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1889.	Total fall since Jan. 1, 1889.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	2 +	93	0	+ 200	+ 4	7 —	118	18.9	47	24
2	2 +	106	0	+ 115	+ 5	5 —	92	10.6	52	30
3	0 av.	102	0	+ 71	+ 6	5 —	85	9.9	49	28
4	2 —	108	0	+ 42	+ 112	5 —	90	11.1	32	28
5	0 av.	118	0	+ 54	+ 60	6 —	83	13.9	43	26
6	1 +	127	0	+ 67	+ 75	5 —	88	10.8	50	27
7	4 +	125	0	+ 124	— 23	8 —	100	18.3	55	32
8	2 +	124	0	+ 91	— 1	6 —	91	13.0	58	31
9	2 +	127	0	+ 11	+ 88	5 —	88	15.2	65	35
10	2 +	120	0	+ 75	— 53	7 —	109	16.0	49	27
11	3 +	132	0	+ 43	— 14	6 —	100	16.3	58	33
12	1 +	124	0	— 37	— 16	6 +	97	12.1	35	36

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing, &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending June 24, is furnished from the Meteorological Office:—

"The *weather* has remained generally fine and dry, but over England a good deal of cloud has been experienced during the night time and the early morning hours. Thunderstorms occurred in the Channel Islands on the 19th, 20th, and 21st.

"The *temperature* has been about equal to the average in 'England, N.E.,' and the Midland Counties, and a little below in 'England, E.' but in all other districts the mean values have been in excess of the normal. In most cases the excess has ranged from 1° to 3°, but in 'Scotland, W.,' it has been as much as 4°. The highest readings which were observed as a rule either on the 21st or 22nd varied from 82° in 'Scotland, E.,' and 'England, S.W.,' to 74° in 'England, E.,' and 70° in the Channel Islands. The lowest readings were recorded on irregular dates, and ranged from 38° in 'Scotland, N.,' to 47° in 'England, N.E.,' and 52° in the Channel Islands.

"The *rainfall* has been considerably less than the mean in all districts, excepting the Channel Islands, where, owing to the heavy rains which accompanied the thunderstorms of the 19th, 20th, and 21st, a decided excess has occurred. At a large majority of our stations the report was absolutely rainless.

"*Bright sunshine* has been, upon the whole, far more prevalent than it was the previous week, the percentages of the possible amount of duration ranging from 32 in 'England, E.,' and 35 in the Channel Islands, to 65 in 'England, S.W.'"

MARKETS.

COVENT GARDEN, June 27.

THIS week has seen the finest and heaviest crop of Strawberries that has been known for years, and prices, though low, have been remunerative. Trade brisk, with the exception of Grapes, which are extremely dull. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Cherries, ½-sieve	5 0–	8 0	Peaches, per doz.	6 0–	18 0
Gooseberries, ½-sieve	3 0–	3 6	Pine-apples, Eng., lb.	1 6–	2 0
Grapes, per lb.	1 0–	3 0	— St. Michael, each	2 0–	8 0
Lemons, per case	12 0–	21 0	Strawberries, per lb.	0 2–	0 9

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100		8 0– …	Lettuce, per dozen	1 6–	…
— French, bundle	2 0–	8 0	Mushrooms, punnet	1 6–	…
Beans, Jersey French, per lb.	…	2 6– …	Mustard and Cress, punnet	…	0 4– …
Beet, red, per dozen	1 0–	2 0	Onions, per bunch	0 5–	…
Carrots, per bunch	0 6–	…	Parsley, per lb.	0 6–	…
Cauliflowers, each	0 6–	…	Peas, French, per qt.	2 6–	…
Celery, per bundle	1 6–	2 0	Potatos, new Jsy., lb.	0 3–	…
Cucumbers, each	0 6–	0 9	Rhubarb, bundle	0 6–	…
Endive, per dozen	2 6–	…	Shallots, per lb.	0 6–	…
Green Mint, bunch	0 4–	…	Spinach, per bushel	2 6–	…
Herbs, per bunch	0 4–	…	Tomatos, per lb.	2 0–	…
Leeks, per bunch	0 3–	…	Turnips, per bunch, new	1 0–	…

Potatos.—The demand for old Potatos has been rather better, at an advance in price—best Magnums, from 80*s.* to 90*s.*; other various kinds and samples, 30*s.* to 60*s.* Supply of French and Jersey (new) has been heavy—at 6*s.* to 8*s.* Jersey, and 4*s.* 6*d.* to 6*s.* 6*d.* French. The home-grown produce is now on the market, price 10*s.* to 12*s.* A little rain seems to be generally desired to make operations at home general. *J. B. Thomas.*

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0–	18 0	Ficus elastica, each	1 6–	7 0
Arum Lilies, p. doz.	6 0–	12 0	Fuchsias, dozen	3 0–	8 0
Begonias, dozen	4 0–	12 0	Hydrangea, per doz.	9 0–	18 0
Cactus, per dozen	9 0–	18 0	— paniculata, p. doz.	24 0–	36 0
Calceolarias, dozen	6 0–	9 0	Lobelias, dozen	3 0–	5 0
Crassula, per dozen	12 0–	30 0	Marguerites, doz.	6 0–	12 0
Cyperus, per dozen	4 0–	12 0	Mignonette, doz.	4 0–	6 0
Dracæna terminalis, per dozen	30 0–	60 0	Musk, dozen	2 0–	4 0
— viridis, per doz.	12 0–	24 0	Nasturtiums, doz.	3 0–	5 0
Erica, various, doz.	12 0–	30 0	Palms in var., each	2 6–	21 0
Euonymus, in var., per dozen	6 0–	18 0	Pelargoniums, per dozen	6 0–	15 0
Evergreens, in var., per dozen	6 0–	24 0	— Ivy-Leafed, doz.	3 0–	4 0
Ferns, in var., doz.	4 0–	18 0	— scarlet, doz.	2 6–	6 0
Foliage plants, various, each	2 0–	10 0	Roses, H.P., doz.	12 0–	24 0
			— Fairy, doz.	6 0–	9 0
			Spiræa, doz.	9 0–	15 0
			Stocks, dozen	4 0–	6 0

Bedding Plants in variety from 1*s.* per doz.; per box, 1*s.* 6*d.* to 2*s.* 6*d.*

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0–	4 0	Mignonette, 12 bun.	3 0–	6 0
Arum Lilies, 12 blooms	2 0–	4 0	Pansies, 12 bun.	1 0–	3 0
Bouvardias, per bun.	0 6–	0 9	Pæonies, bun.	0 4–	0 8
Cactus blooms, doz.	1 6–	2 0	Pelargoniums, 12 spr.	0 6–	1 0
Carnations, 12 bun.	3 0–	6 0	— scarlet, 12 spr.	0 4–	0 6
Cornflowers, 12 bun.	2 0–	4 0	Primulas, dbl., 12 sp.	0 9–	1 0
Delphinium, 12 bun.	3 0–	6 0	Roses, Tea, per doz.	0 6–	3 0
Eucharis, per dozen	3 0–	6 0	— coloured, dozen	2 0–	4 0
Gardenias, 12 blooms	2 0–	4 0	— red, per dozen	0 4–	1 0
Gladioli, 12 bun.	4 0–	12 0	— Safrano, dozen	0 6–	1 0
Heliotropes, 12 spr.	0 6–	1 0	— Moss, 12 bun.	6 0–	12 0
Iris, 12 bunches	4 0–	12 0	Pinks (var.), 12 bun.	2 0–	4 0
Lilac, white Fr., bun.	3 0–	5 0	Spiræa, 12 bun.	4 0–	8 0
Lilium, vari., 12 bls.	1 0–	5 0	Stephanotis, 12 spr.	2 0–	4 0
Maiden Hair Fern, 12 bun.	4 0–	9 0	Sweet Sultan, 12 bun.	4 0–	6 0
Marguerites, 12 bun.	3 0–	6 0	Sweet Peas, 12 bun.	3 0–	6 0
			Tuberoses, 12 blms.	0 6–	1 0

SEEDS.

London: *June* 26.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, E.C., write that the seed market to-day, as might be expected, was most thinly attended, with scarcely any business doing. Clover seeds just now are of course quite neglected. Some attention is given to new French Trifolium. For sowing Mustard and Rape seed there is a moderate sale, on former terms. Bird seeds are at present exceedingly cheap. There is a fair trade doing in Blue Peas. Haricots have been in improved request.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, in the week ended June 22:—Wheat, 28*s.* 7*d.*; Barley, 24*s.* 8*d.*; Oats, 18*s.* 7*d.* For the corresponding week in 1888:—Wheat, 31*s.* 3*d.*; Barley, 23*s.* 3*d.*; Oats, 17*s.* 4*d.*

FRUITS AND VEGETABLES.

Spitalfields: *June* 26.—Cherries, 5*s.* 6*d.* to 6*s.* 6*d.* per half-sieve; Strawberries, 4*s.* to 5*s.* per peck; Gooseberries, 2*s.* 6*d.* to 3*s.* per half-sieve; foreign Tomatos, 1*s.* 6*d.* to 2*s.* per box; Asparagus, 1*s.* to 1*s.* 3*d.* per bundle of 100 heads; Seakale, 1*s.* 3*d.* to 1*s.* 6*d.* per punnet; Cabbages, 4*s.* to 6*s.* per tally; Spinach, 1*s.* to 1*s.* 6*d.* per bushel; Peas, 3*s.* to 3*s.* 6*d.* do.; do., 6*s.* to 6*s.* 6*d.* per sack; Vegetable Marrows, 3*s.* 6*d.* to 6*s.* per dozen; frame Cucumbers, 3*s.* to 6*s.* do.; natural do., 9*d.* to 1*s.* 3*d.* do.; Endive, 1*s.* 3*d.* to 2*s.* do.; Cos Lettuce, 10*d.* to 1*s.* per score; Mustard and Cress, 1*s.* 6*d.* to 2*s.* per dozen baskets; Spring Onions, 4*s.* 6*d.* to 6*s.* per dozen bunches; Greens, 1*s.* do.; Turnips, 3*s.* to 4*s.* do.; Carrots, 4*s.* to 5*s.* do.; Parsley, 1*s.* 6*d.* to 2*s.* do.; Mint, 1*s.* to 2*s.* do.; Radishes, 2*s.* to 3*s.* per tally; Rhubarb, 1*s.* to 1*s.* 6*d.* per dozen bundles; Mangels, 18*s.* to 19*s.* per ton.

Stratford: *June* 25.—Both trade and supply have been good during the past week. Cabbages, 3*s.* to 4*s.* per tally; Mangels, 14*s.* to 18*s.* per ton; Onions, Egyptian, 4*s.* to 5*s.* 6*d.* per case; Watercress, 6*d.* per dozen bunches; Cherries, 4*s.* to 4*s.* 6*d.* per basket; do., 3*s.* per box; Cucumbers, 1*s.* 3*d.* to 1*s.* 6*d.* per dozen; Strawberries, 2*s.* 6*d.* to 3*s.* per peck; Tomatos, 1*s.* 3*d.* to 1*s.* 6*d.* per box; Peas, 4*s.* 9*d.* to 6*s.* per bag; Gooseberries, 4*s.* to 6*s.* per flat; Lettuce, 9*d.* to 1*s.* 6*d.* per score.

POTATOS.

Borough and Spitalfields: *June* 25.—Good supplies, and steady trade. Scotch Regents, 70*s.* to 120*s.*; English, 60*s.* to 100*s.*; Magnum Bonums, 85*s.* to 100*s.*; Dunbar, 100*s.* to 130*s.*; other varieties, 60*s.* to 80*s.* per ton; new Lisbon Rounds, 5*s.* to 6*s.*; Jersey kidneys, 9*s.* 6*d.* to 11*s.*; flukes, 10*s.* to 12*s.* per cwt.

Spitalfields: *June* 26.—Quotations:—New: Jersey rounds, 5*s.* to 6*s.*; do., kidneys, 7*s.* to 8*s.*; do., flukes, 8*s.* to 8*s.* 6*d.*; Cherbourg rounds, 5*s.* to 5*s.* 6*d.*; do., kidneys, 6*s.* 6*d.* to 7*s.* 6*d.*; do., flukes, 6*s.* 6*d.* to 7*s.* 6*d.*; St. Malo rounds, 5*s.* to 5*s.* 6*d.*; do. kidneys, 6*s.* to 6*s.* 6*d.*; Lisbon rounds, 4*s.* 6*d.* to 5*s.* 6*d.* per cwt. Old: Magnums, 50*s.* to 70*s.*; Champions, 45*s.* to 50*s.*; Imperators, 50*s.* to 70*s.*; Hebrons, 40*s.* to 50*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Prime old Clover, 120*s.* to 144*s.*; do., new, 85*s.* to 110*s.*; inferior, 45*s.* to 75*s.*; best hay, 78*s.* to 112*s.*; inferior, 20*s.* to 50*s.*; straw, old, 40*s.* to 45*s.*; do. new, 24*s.* to 40*s.* per load.

NOTICES TO CORRESPONDENTS.

Chrysanthemum: *J.* The earliest to flower is C. maximum; it has fleshy leaves, rather less coarse and less deeply toothed than C. lacustre, *alias* latifolium. C. serotinum flowers in autumn, and has thinner puberulous leaves. In our numbers for May 11 and May 25 you will find descriptions and illustrations.

Double-flowered Orange: *L. Eckhaute.* It is not uncommon.

Fellowship of the Royal Horticultural Society: *Student.* It is a matter of being proposed and elected; there is no examination to be passed. Apply to the secretary, 117, Victoria Street, Westminster, S.W.

Grass: *Devoniensis.* Poa pratensis; the sticky matter is probably honey-dew. It had dried up when we received it.

Lilies: *P & Co.* do not read their *Gardeners' Chronicle.* It is the Lily disease, caused by a fungus like that which destroys the Potato. Burn the stems immediately. See p. 799 of the present issue.

Names of Plants: *F. Carr.* Tradescantia virginica. —*B. L.* Ranunculus repens.—*C. H.* 1, Spiræa sorbifolia; 2, S. opulifolia; 3, S. callosa; 4 Double Austrian Brier; 5, Cornus mas, variegated form.—*W. B.* 1, Campanula persicifolia alba; 2, Rose unknown; 3, Geranium pratense; 4, Campanula persicifolia; 5, Geranium sanguineum; 6, Allium Moly; 7, Ægopodium podagaria.—*E. D. L.* 1, Orobus niger; 2, O. variegatus; 3, Veronica salicifolia; 4, Lonicera tomentella; 5, Nepeta Mussini; 6, Vincetoxicum officinale.—*K.* 1, Armeria plantaginea; 2, Molopospermum cicutarium; Sparganium ramosum.—*W. B.* Cattleya eldorado var.—*W. Tuck.* Dendrobium aduncum.—*T. L.* Dendrobium Parishii.—*Curiosity.* Lastræa Filix-fœmina var.—*Amateur.* Brugmansia Knightii. No value as cut bloom. It grows well in a conservatory border, or in a sheltered outside position. Give manure-water about the flowering period.—*A. D. W.* Orobanche minor.—*A. B.* Iris spuria, var. and Saxifraga trifurcata.—*H. W.* Send flowers and leaves, as we are unable to identify plants by a single leaf.

Naming Roses: *G. W. K., and W. B.* We cannot undertake to name varieties of the Rose. Take the flower, with foliage, to some nurseryman who makes Rose growing a specialty.

New Pink, Her Majesty: *T. H.* Nearly as good a flower as Mrs. Sinkins, and strongly scented.

Notice to Quit: *A. F.* Consult a solicitor. We cannot reply on the matter.

Peach Leaves: *A Subscriber.* Have been burned by the sun shining through globules of water, whilst the air in the house was still—probably.

Peas: *W. R.* The large-leafed later Peas are in a bad way, being attacked by a fungus—a species of Helminthosporium, the mycelium of which is parasitic, in the root-cortex, and prevents the proper carrying out of root-functions. The fungus is interesting, and new in this connection, and we should be glad if our correspondent would send Prof. Marshall Ward, Englefield Green, Staines, direct, and in a tin biscuit-box, a supply of the Peas attacked. Nothing can be done.

Peas Diseased: *J. J. F.* The Peas are being destroyed by a fungus Pythium.

Pelargoniums Dying: *Young Gardener.* The insect is a sort of wireworm. Try to trap them by Carrot, &c.; and also burn all affected cuttings.

Seedless Apple: *Canada.* The twelve persons and one over, have in all probability overlooked the fact that the Apple in question has green petals. The fact that it was coreless and seedless is no mystery to the botanist, who knows that the fruit of the Apple or Pear, as commonly so called, is botanically speaking not the fruit at all, but simply the thickened end of the flower-stalk, in which the true fruit—that is, the core, with its contained seeds—is imbedded. Mr. Meehan has somewhere described a similar case.

Strawberry, Deformed: *A. B.* The fruit is spoiled by mildew. During cool, wet weather the disease is of frequent occurrence.

Strawberry Runners: *A. B.* Select the strongest runners, and from plants which have fruited, and never from such as are blind. Do this as soon after the flush of the fruit is past, and clear all other runners off all the plants in the bed. Layer them—that is, peg them down on neat squares of turf; not living turf, or you will be troubled by the grass growing all about; or in 60's, sunk in the soil between the rows. Do not take more, if you can avoid it, than two to four runners from one plant, as few plants produce more first-class runners than this. Stop the runners directly beyond the young plant, and keep all runners pinched off as fast as they appear. Do not let the soil about the runners suffer from drought. Plant as soon as roots are strongly developed, and when you have enough plants for the purpose. August-planted beds usually carry fine fruits the next season, if well cared for. Those plants which do not fruit then will do so finely the second year. Taking the centre runner, as your friend advised, is moonshine.

Tomatos: *G. W. K.* The leaves appear to be attacked by Peronospora lycopersici. It is as little amenable to cure as the common disease of Potatos. Clear them out without delay, and burn every part. If the house contains no permanent plants of any kind, a little flowers-of-sulphur sprinkled on lime in process of being slacked, will destroy all vegetable life, including, of course, the fungus. Good varieties of Tomatos are Sutton's Perfection, Acme, Abundance, and Orangefield.

Tomatos Falling as Soon as Formed: *A. R.* The work of weevils or ants. Watch for the creatures at night; turn a light suddenly on the plants, and you will probably find one or the other on the plants.

Tulips: *C. W. D.* The Tulips you send are badly attacked by the Lily disease, and have developed Sclerotia as well as the Botrytis.

Vines: *O.* We could find no insect on the leaves sent. Send further specimens in a tin box with a little moist blotting-paper.

Communications Received.—P. W.—Professor Crépin, Brussels.—F. W. B. Lord P.—B.—Sir D. B.—T. B. H.—P.—J. J. F.—T. H. S., Oodeypore (many thanks).—J. G. J.—R. Johnson.—F. Sander & Co. R. A. R.—W. H.—F. R. T. H. C. W. D.—Old Subscriber A. C. H. M. E (shortly).—H. W. W.—A Strawberry Grower.—J.—C. W. D.—R. D.—W. S. G. B. W. B. H.

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GENUINE GARDEN REQUISITES, as supplied to the Royal Gardens. All Sacks free.

Cocoa-nut Fibre Refuse, fresh, 1 sack, 1s. 3d.; 10 sacks for 12s.; 15 for 17s.; 20 for 20s.; 30 for 28s.; 2 ton truck free on rail, 30s. Best Brown Fibrous Kent Peat, 5s. per sack; 5 for 22s. 6d.; 10 for 35s. Best Black Peat, 4s. 6d. per sack; 5 for 20s. Coarse Bedfords' Sand, 1s. 6d. per bushel; 14s. half ton; 25s. per ton. Potting Composts, 5s. per sack. Genuine Peruvian Guano, Crushed Bones, Fertilisers, &c. Fresh Sphagnum Moss, 2s. 6d. per bushel; 6s. per sack. Charcoal, 2s. 6d. per bushel; 8s. per sack. Flower Sticks, painted and unpainted; Labels, and Bamboos. Best Raffia, 1s. per lb.; 7 lb. for 5s. 6d. Pure Leaf Mould, Peat Mould, and Yellow Fibrous Loam, each 1s. per bushel; 3s. per sack. Spécialité Tobacco Paper, and Cloth, 1s. per lb.; 28 lb. for 26s. Mushroom Spawn, best quality, 4s. per bushel. Russia Mats, 10s. to 18s. per dozen. Virgin Cork, 28 lb., 5s. 6d.; 56 lb., 10s.; 1 cwt., 17s. Write for free Price List.—W. HERBERT AND CO., Hop Exchange, Southwark Street, London, S.E. (near London Bridge).

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1½	6 0	9 0	12 0	18 0
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265 ,, ,, ½ cwt. ...	12 6
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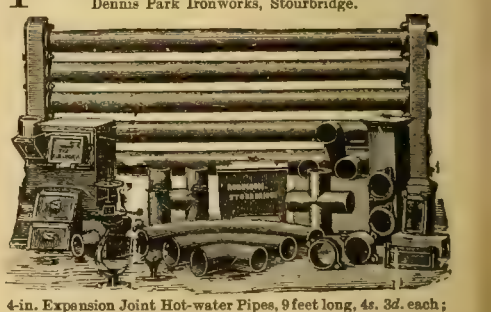
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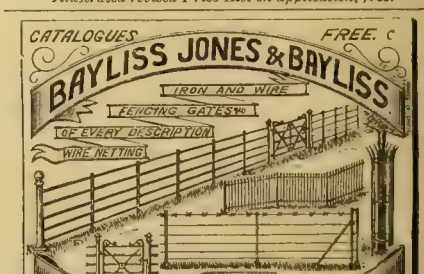
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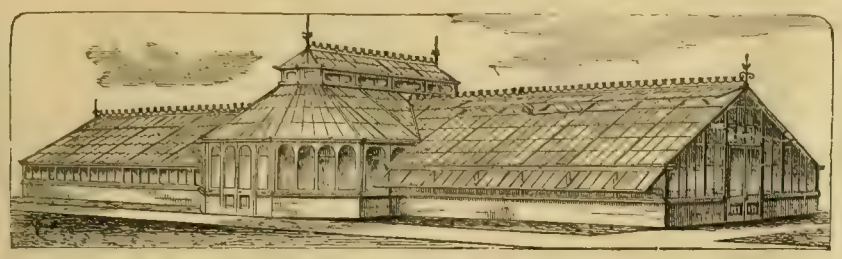
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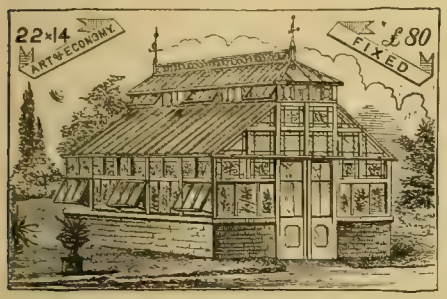
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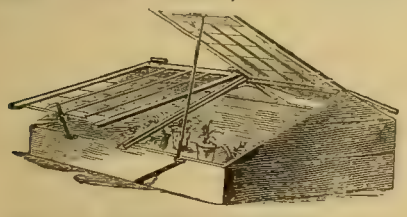


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The most useful of all Frames that are made, owing to the extra height and convenience for attention. They are 13 inches high at front, 24 inches high at back, and 32 inches at the ridge, bolted at the corners, easily taken to pieces if required. The Lights are 2 inches thick, fitted with set-opes, and arranged to turn over, back and front, for ventilating. Glazed with best 21-oz. English glass, and painted four coats.

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1 Light Frame,	4 ft.	by 6 ft.	Cash Prices, Carriage and Packing FREE.	£2	15	0
2 „ „	8 „	by 6 „		4	7	6
3 „ „	12 „	by 6 „		6	0	0
4 „ „	16 „	by 6 „		7	12	6
5 „ „	20 „	by 6 „		9	5	0
6 „ „	24 „	by 6 „		10	17	6

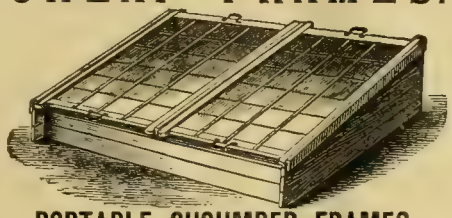
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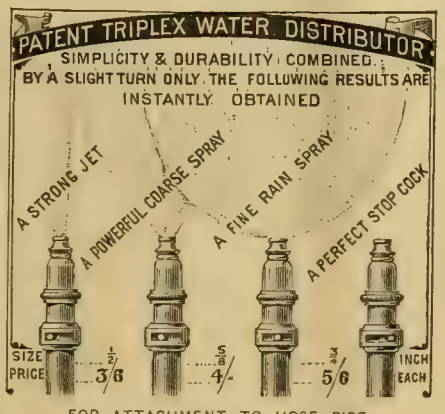
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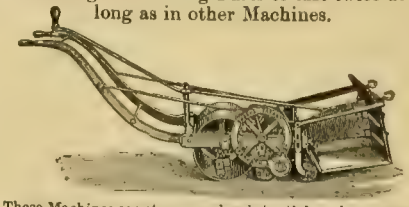
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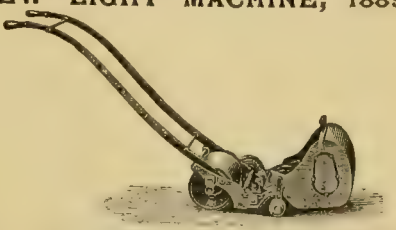
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VERY EASY TO WORK.

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GARDEN ROLLERS OF ALL SIZES.

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A Large Stock of all sizes of Machines always kept in LONDON, where Repairs are also executed by experienced workmen.

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7	„ ..	0	4	6	18	„ ..	0	10	0
8	„ ..	0	5	0	19	„ ..	0	10	6
9	„ ..	0	5	6	20	„ ..	0	11	0
10	„ ..	0	6	0	21	„ ..	0	11	6
11	„ ..	0	6	6	22	„ ..	0	12	0
12	„ ..	0	7	0	23	„ ..	0	12	6
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The Front Roller, with simple adjustment for regulating height of cut, enables the machine to cut close to the ground, and to do fine work, besides adapting it for verge cutting.

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21-oz. and **15-oz. Foreign,** of above sizes, in boxes of 100 feet and 200 feet super.

English Glass, cut to buyers' sizes, at lowest prices, *delivered free and sound* in the country, in quantity.

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34, St. John Street, West Smithfield, London, E.C.
Stock Lists and Prices on application. Please quote *Chronicle.*

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TRADE  MARK.

CAMOMILE PILLS.

Are confidently recommended as a simple but certain remedy for

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See Testimonial, selected from hundreds:—

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COCOA

MADE WITH BOILING MILK.

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Making the Largest, Best, Oldest, Liveliest, Handsomest Gardening Magazine in America.

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GARDENING APPOINTMENTS.

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Mr. ADAM ELPHINSTONE, for the past six years general Foreman at Neville Court, Tunbridge Wells, has been appointed Head Gardener to the Earl of AYLESFORD, Packington Hall, Coventry.

Mr. G. T. SEDGLEY, Head Gardener to the late N. M. FORBES, Esq., Tilburstow Hill, Godstone, has been appointed Head Gardener and Bailiff to JAMES BRAND, Esq., Sanderstead Court, Croydon.

WANTED, a PARTNER; or the LEASE of a NURSERY, containing about 7000 feet of Glass, TO BE SOLD, situated at 16, Maida Vale, Edgware Road, N.W. Good Dwelling-house, Stable, and Cottage.—Apply to C. FAIRNINGTON.

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WANTED, a superior Scotch GARDENER, who has had good experience in Pot Plants and Laying out Grounds. Vegetables and Fruit Grown. Situation near Crystal Palace. Five hands kept.—Apply, stating particulars and copy of testimonials by letter only, to JAMESON, Mr. Nicholls, Bookseller, Upper Norwood, Surrey, S.E.

Gardener.

WANTED, for Totteridge, Herts, a MAN and WIFE, to live in cottage. Wife to attend to Laundry. —ROBINSON, Ebor Villa, N. Finchley.

WANTED, a thorough practical Man, as FOREMAN and GROWER. Must be well up in Growing for Market.—Apply, with references and salary expected, to R. BULLEN, The Woodlands Nursery, Lewisham.

Foreman, Propagator, and Grower.

WANTED, a skilful, hardworking, reliable MAN. First-class Grape Grower, with thorough practical knowledge of General Nursery Work, in and outdoor. House, coals, and milk given. State (own handwriting) wages, age, experience, family, and refer to last employer.—Address, Box 6, P.O., Kilkenny.

WANTED, an INDOOR PROPAGATOR. Must be successful with Hard and Soft-wooded Plants, Grafting Roses, Clematis, &c.—State age, experience, wages expected, &c., C. A., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a MAN, to Propagate and Grow large quantities of Stuff for Market, principally Soft-wooded.—Apply by letter, G., 1, Alexandra Road, Canton, Cardiff.

WANTED AT ONCE, a MAN, well up in Growing Plants, and Cut Flowers, such as Roses, Bouvardias, and all kinds of White Flowers. Must be a thoroughly competent man. Wages £1 per week.—C. H. GORRINGE, Roselands Nursery, Eastbourne.

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WANTED AT ONCE, a young MAN, for Small Nursery. Must be a good Propagator and expert Rose Budder. Wages 16*s.* per week to start with.—T. JANNOCH, Lily Nursery, Dersingham, King's Lynn, Norfolk.

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A LEADING SEED MERCHANT in Australia REQUIRES a JUNIOR SHOPMAN, of good appearance, who has had four years experience at least in a first-class Retail House at home.—Apply with Photo and references, to AUSTRALIA, Hurst & Son, 152, Houndsditch, E.

WANTED, a YOUTH, to Assist in Shop and help with books, some knowledge of the business necessary.—State references and salary, LAXTON BROTHERS, Seedsmen, &c., Bedford.

WANTED, a young MAN with good character, who can Build, Repair, and Paint Greenhouse Work. Constant work to an industrious man, who can fill up time at Plant Growing.—Apply to THOS. BUTCHER, The Nurseries, South Norwood, S.E.

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JAMES CARTER AND CO. have at all times upon their Register reliable and competent MEN, several of whom are personally well known to Messrs. Carter. Enquiries should be made to 237 and 238, High Holborn, W.C.

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Gardeners, Farm-Bailiffs, Foresters, &c.

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GARDENER (HEAD); age 30.—WILLIAM LEE, Esq. (late of Downside, Leatherhead), will be pleased to highly recommend J. Bristow to any Lady or Gentleman requiring a thoroughly practical and trustworthy man as above. Orchids a specialty. Seventeen years' experience in first-class establishments.—J. BRISTOW, Downside, Leatherhead.

GARDENER (HEAD WORKING).—Age 40, married, no children; thoroughly experienced in all branches of Gardening, also of Cattle and Land. Can be well recommended.—F. G., 54, Palmerston Road, South Wimbledon.

GARDENER (HEAD WORKING, or good SINGLE HANDED).—Married; experienced in Cultivation of Flowers, Fruits, and Vegetables. Total abstainer. Good references.—TOMS, Great Lane, Buntingford, Herts.

GARDENER (HEAD or good SINGLE-HANDED).—Age 30, single; thoroughly understands Stove and Greenhouse Plants, Vines, Fruit, Flowers, and Kitchen Garden.—R. S., 31, Russell Road, Stamford Hill, N.

GARDENER (HEAD or SINGLE-HANDED).—Age 27, single; thoroughly experienced Inside and Out. Four years in last place. Good character.—P. S., 328, King's Road, Chelsea, S.W.

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GARDENER (SECOND), or otherwise.—Age 27, single; experienced in Houses, Flower and Kitchen Gardening. Highly recommended. Excellent character.—State wages to R. H., Lewins, Edenbridge, Kent.

GARDENER (SECOND).—Age 22; eight years' experience, Inside and Out. Excellent character from present and previous employers. Abstainer.—G. T. R., The Gardens, Milton Park, Egham, Surrey.

GARDENER (SECOND), or otherwise.—Age 23, single; accustomed to Houses, Flower and Kitchen Gardens. Can be highly recommended. State wages.—H. A. E., 32, New Croxted Road, West Dulwich, S.E.

GARDENER (UNDER, or SINGLE-HANDED).—Age 23; eight years' experience in good Gardens. Good character.—M. T., Bradshott, Selbourne, Alton, Hants.

GARDENER (UNDER), where others are kept, Inside and Out.—Age 21; three years' good character from present situation.—W. MALLOWS, The Palace Gardens, Peterboro'.

FOREMAN, Indoor and Out, in a good Garden.—Has had good experience. Hard working, sober, and industrious. Good character.—J. C., Lucombe, Pince, & Co., The Exeter Nursery, Exeter.

FOREMAN, in the Houses.—Age 25, single; eleven years' experience, quick, careful Waterer, excellent character. Two years as Foreman.—W. FREEMAN, Plawhatch, East Grinstead, Sussex.

FOREMAN, in Gentleman's Establishment.—Age 24; eight years' experience in good places. Excellent references. Past twelve months as Foreman. Abstainer.—FOREMAN, Brook Street, Milborne Port, Somerset.

FOREMAN; age 26.—Mr. F. W. RUSSELL, Head Gardener to E. T. Doxas, Esq., Woodgreen Park, Cheshunt, would be pleased to recommend his late Foreman, Edwin Staines, to any Gardener wanting a thorough trustworthy young man in the above capacity.—For particulars, please address as above.

FOREMAN (GENERAL), in the Houses.—Age 28; has had thirteen years' experience in all branches, having been nine years in the South of England.—Good testimonials from previous places on application to Mr. CROSS, The Gardens, Hotham House, Brough, East Yorkshire.

FOREMAN, or good SECOND.—Age 26; twelve years' experience in good places. Well recommended as to character and ability.—FOREMAN, South Lodge, Pemberton Road, East Molesey, Surrey.

FOREMAN, or FIRST JOURNEYMAN, in in good establishment.—Age 25; three and a half years at Handcross Park, Sussex. Good references.—W. HUMPHREYS, 8, Valley Road, Streatham, S.W.

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